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*Date*: NOV 19 2013
*Refer To*: EP2013-0250

NOV 2013

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

**Subject: Submittal of the Periodic Monitoring Reports for Chromium Investigation, Material Disposal Area C, Pajarito, and Los Alamos and Pueblo Monitoring Groups**

Dear Mr. Kieling:

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

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

Sincerely,

Jeff Mousseau, Associate Director
Environmental Programs
Los Alamos National Laboratory

Sincerely,

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



36070

JM/PM/CD/SP/DR:sm

Enclosures: Two hard copies with electronic files:
(1) Periodic Monitoring Report for Chromium Investigation Monitoring Group, May 6–May 22, 2013 (LA-UR-13-28269)
(2) Periodic Monitoring Report for Material Disposal Area C Monitoring Group, May 6–May 22, 2013 (LA-UR-13-28300)
(3) Periodic Monitoring Report for Pajarito Watershed General Surveillance Monitoring Group, April 8–April 25, 2013 (LA-UR-13-28198)
(4) Periodic Monitoring Report for Los Alamos and Pueblo Watershed General Surveillance Monitoring Group, June 3–June 12, 2013 (LA-UR-13-28344)

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LA-UR-13-28269
November 2013
EP2013-0243

# Periodic Monitoring Report for Chromium Investigation Monitoring Group, May 6–May 22, 2013

Los Alamos
NATIONAL LABORATORY

Prepared by the Environmental Programs Directorate

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

EP2013-0243

# Periodic Monitoring Report for Chromium Investigation Monitoring Group, May 6–May 22, 2013

November 2013

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| Peter Maggiore | | Assistant Manager | DOE-NA-00-LA | 11-18-2013 |

## EXECUTIVE SUMMARY

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

The PME documented in this report occurred from May 6 to May 22, 2013, and included the monitoring of groundwater wells and well screens. This report also includes any results from previous PMEs that were unreported in their respective PMRs because validated laboratory data were not available (in some cases because of data release agreements). Any additional results from sampling that occurred outside the time frame of a PME are also included in this report.

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

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

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

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

**Plate**

Plate 1 Groundwater elevations

**Acronyms and Abbreviations**

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

## 1.0 INTRODUCTION

This periodic monitoring report (PMR) provides documentation of fiscal year 2013, third quarter, quarterly groundwater monitoring conducted by Los Alamos National Laboratory (LANL or the Laboratory) in the Chromium Investigation monitoring group. Monitoring was conducted pursuant to the Interim Facility-Wide Groundwater Monitoring Plan for the 2013 Monitoring Year, October 2012–September 2013 (2013 IFGMP) (LANL 2012, 225493), which was prepared in accordance with the Compliance Order on Consent (the Consent Order). The periodic monitoring event (PME) occurred from May 6 to May 22, 2013, and included sampling of groundwater wells and well screens.

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

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

This report presents the following information:

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

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

### 1.1 Background

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

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

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

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

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

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

## 2.0 SCOPE OF ACTIVITIES

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

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

## 3.0 MONITORING RESULTS

### 3.1 Methods and Procedures

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

### 3.2 Field Parameter Results

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

### 3.3 Groundwater Elevations

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

### 3.4 Deviations from Planned Scope

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

## 4.0 ANALYTICAL DATA RESULTS

### 4.1 Methods and Procedures

All methods and procedures used to perform the analytical activities of the PME are documented in the 2013 IFGMP (LANL 2012, 225493). Purge water is managed and characterized in accordance with waste profile form 39268, a copy of which was included in Appendix F of a previous PMR (LANL 2008, 103737), and ENV-RCRA-QP-010.3, Land Application of Groundwater. ENV-RCRA-QP-010.3 implements the NMED-approved Notice of Intent Decision Tree for land application of drilling, development, rehabilitation, and sampling of purge water.

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

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

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

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

Data validation determines the quality of an analytical data set. Data validation focuses on specific quality assurance samples, such as matrix spikes, duplicates, surrogates, method blanks, and laboratory control samples, and holding times, which indicate the accuracy and precision of the analyses. Based on the results, data qualifiers are applied to indicate data quality issues as well as the usability of results. This

process also includes a description of the reasons for any failure to meet method, procedural, or contractual requirements and an evaluation of the impact of such failure on the overall data set.

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

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

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

### 4.2 Analytical Data

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

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

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

Multiple analyses of a sample, including dilutions and reanalyses, create redundant results. These multiple results have the same sample ID, analytical laboratory code, and analytical method. The analytical and validation information is used to designate the preferred result, which is marked with a best value flag of "Y" (yes). The redundant values of lower quality are assigned a best value flag of "N" (no). In

cases where a reanalysis gives a significantly different result than an earlier value, the original result may be rejected and assigned a best value flag of N, and the reanalysis result may be marked with a best value flag of Y. The best value flag is included in Appendix C.

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

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

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

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

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

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

### 4.2.1 Surface Water (Base Flow)

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

### 4.2.2 Groundwater

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

For the current PME, the perchlorate concentrations for intermediate groundwater wells MCOI-5 and MCOI-6 were 81.7 µg/L and 63.3 µg/L, respectively, above the Consent Order screening level of 4 µg/L. The results from MCOI-5 since 2007 range between 68.7 µg/L and 105 µg/L. At MCOI-6, concentrations since 2007 have decreased from 190 µg/L to 56.3 µg/L.

In MCOI-6, the filtered chromium concentration of 73.2 µg/L was above the NMWQCC groundwater standard screening level of 50 µg/L. Concentrations since 2007 have increased from 29.4 µg/L. The current result is the highest measured at the well.

The filtered chromium result of 427 µg/L at intermediate well SCI-2 was above the NMWQCC groundwater standard screening level of 50 µg/L. Results since October 2008 have generally decreased from 658 µg/L. The current result is the lowest measured at the well.

The unfiltered 1,4-dioxane concentration of 7.57 µg/L in a sample from MCOI-6 was above the EPA tap water screening level of 6.7 µg/L. The current result is the lowest measured at the well and is estimated because it is near the 3.16-µg/L method detection limit (MDL). Other measurements made since 2006 range from 9.69 µg/L to 29.6 µg/L. Concentrations have decreased from 29.6 µg/L since August 2007.

The perchlorate concentration in regional well R-15 was 8.42 µg/L, above the Consent Order screening level of 4 µg/L. Other values from R-15 measured by the liquid chromatography/mass spectrometry method since 2003 range from 4.6 µg/L to 8.06 µg/L, though many are estimated. The current result is the highest measured at the well.

The perchlorate concentration in regional aquifer well R-61 S1 (screen 1) of 5.82 µg/L was also above the Consent Order screening level of 4 µg/L. Earlier measurements range from 2.96 µg/L to 7.37 µg/L.

In regional well R-28, the filtered chromium concentration was 404 µg/L, above the NMWQCC groundwater standard screening level of 50 µg/L. Other measurements since 2005 range from 310 µg/L to 472 µg/L and show no particular trend with time.

In regional well R-42, the filtered chromium concentration was 932 µg/L, above the NMWQCC groundwater standard screening level of 50 µg/L. Concentrations since 2008 range from 744 µg/L to 1240 µg/L.

At regional aquifer well R-43 S1, the filtered chromium concentration was 50.5 µg/L, above the NMWQCC groundwater standard screening level of 50 µg/L. Chromium concentrations have risen steadily from the first nondetect results in late 2008. The current result is the highest measured at the well and the first above the NMWQCC groundwater standard.

The filtered chromium concentration from regional aquifer well R-50 S1 was 103 µg/L, above the NMWQCC groundwater standard screening level of 50 µg/L. Values from earlier sampling events range from 49.8 µg/L to 99.8 µg/L. The current result is the highest measured at the well.

The filtered chromium concentration from regional aquifer well R-62 in a field duplicate sample was 139 µg/L, above the NMWQCC groundwater standard screening level of 50 µg/L. The concentration in the primary sample was 131 µg/L. Previous results are between 123 µg/L and 198 µg/L.

### 4.3 Sampling Program Modifications

In its December 15, 2011, Approval, Extension Request to Submit the Phase II Investigation Report for Sandia Canyon (NMED 2011, 208852), NMED states that both wells R-61 and R-62 are affected by impacts from drilling and well construction; therefore, data acquired from the wells may not be representative of aquifer conditions. With the exception of the first sampling round from R-61, data show elevated concentrations of dissolved iron and manganese and low concentrations of chromium, indicating reducing conditions in the vicinity of both well screens. The results from all but the first sampling round are therefore not representative of ambient groundwater conditions in the vicinity of the well. Following completion of redevelopment work on both screens in October 2012, the well has been sampled on a quarterly basis. The Laboratory is currently reviewing the history of postredevelopment data from R-61 to assess whether data from R-61 is representative and sufficient to support ongoing monitoring for the Chromium Investigation monitoring group.

## 5.0 SUMMARY AND INTERPRETATIONS

### 5.1 Monitoring Results

The field parameter monitoring results are presented in Appendix A.

### 5.2 Analytical Results

#### 5.2.1 Surface Water (Base Flow)

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

#### 5.2.2 Groundwater

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

For results above screening levels, except for the highest chromium concentrations at MCOI-6, R-43 S1, and R-50 S1 and the highest perchlorate concentration at R-15, the types of contaminants detected and their concentrations are consistent with data reported from previous PMEs in this monitoring group.

### 5.3 Data Gaps

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

### 5.4 Remediation System Monitoring

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

## 6.0 REFERENCES

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

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

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

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

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

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

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

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

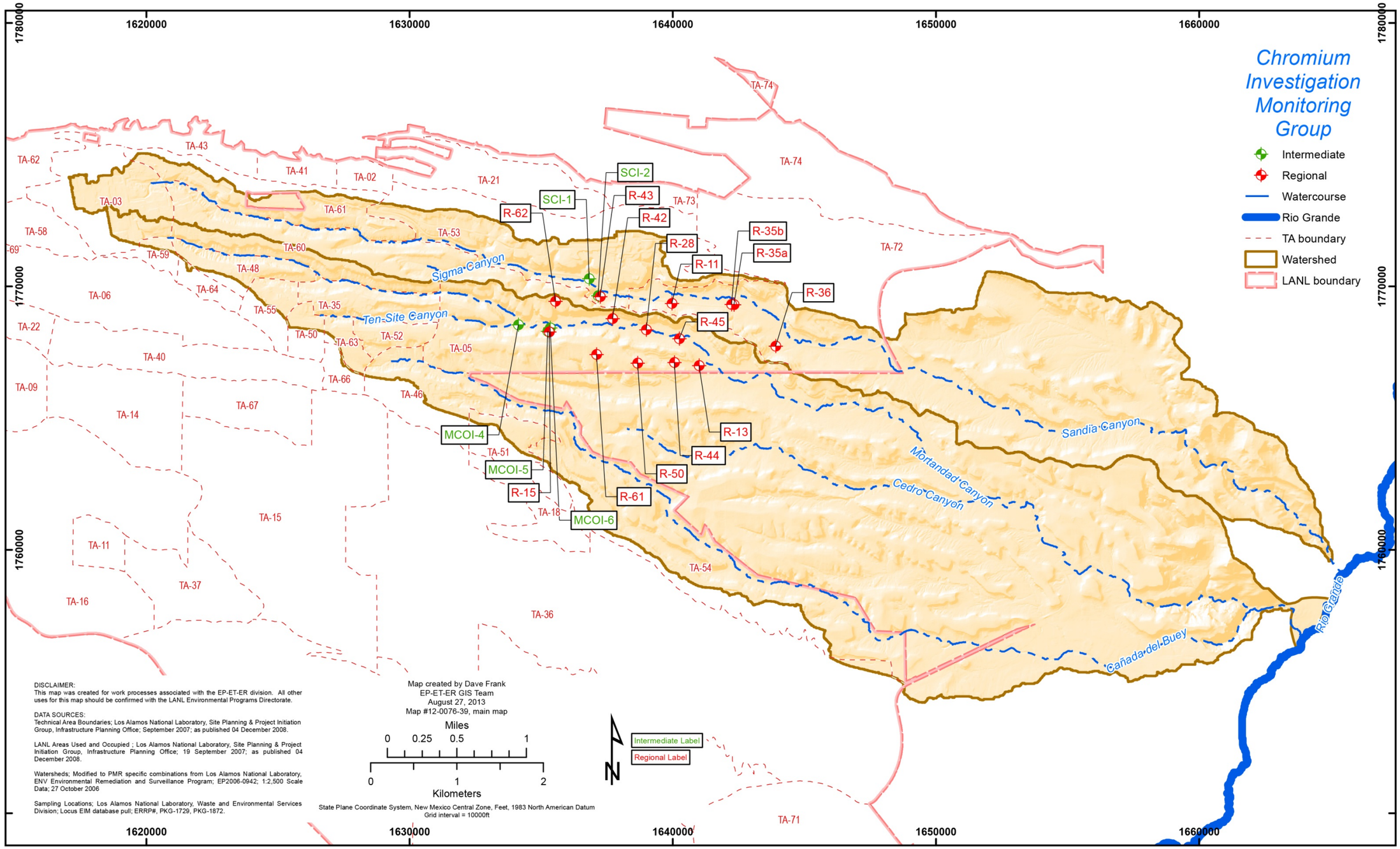



**Figure 2.0-1 Locations scheduled to be monitored for this PME (see Table 3.4-1).**

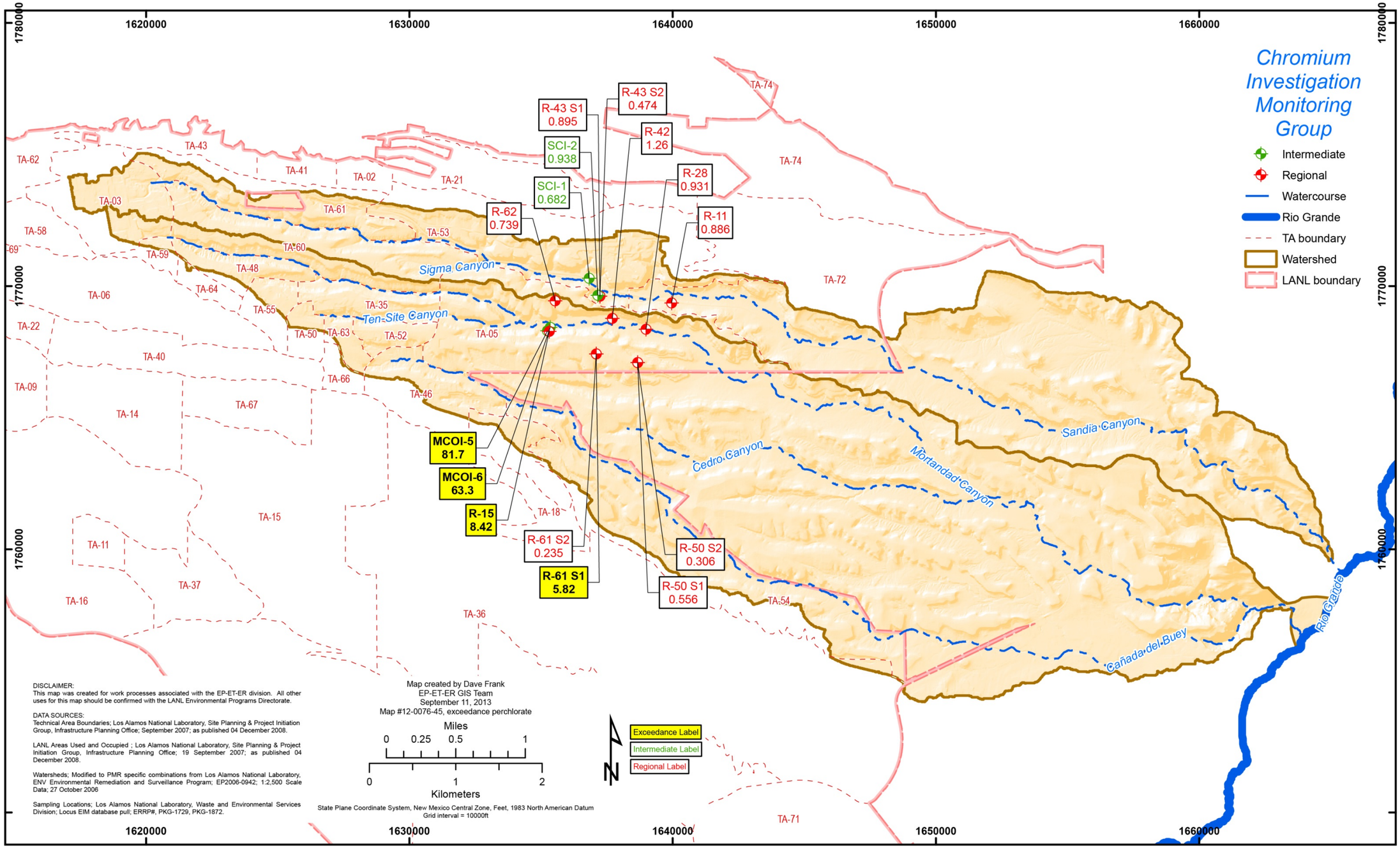



**Figure 4.2-1 Monitoring group filtered perchlorate concentrations in µg/L. The Consent Order screening level is 4 µg/L.**

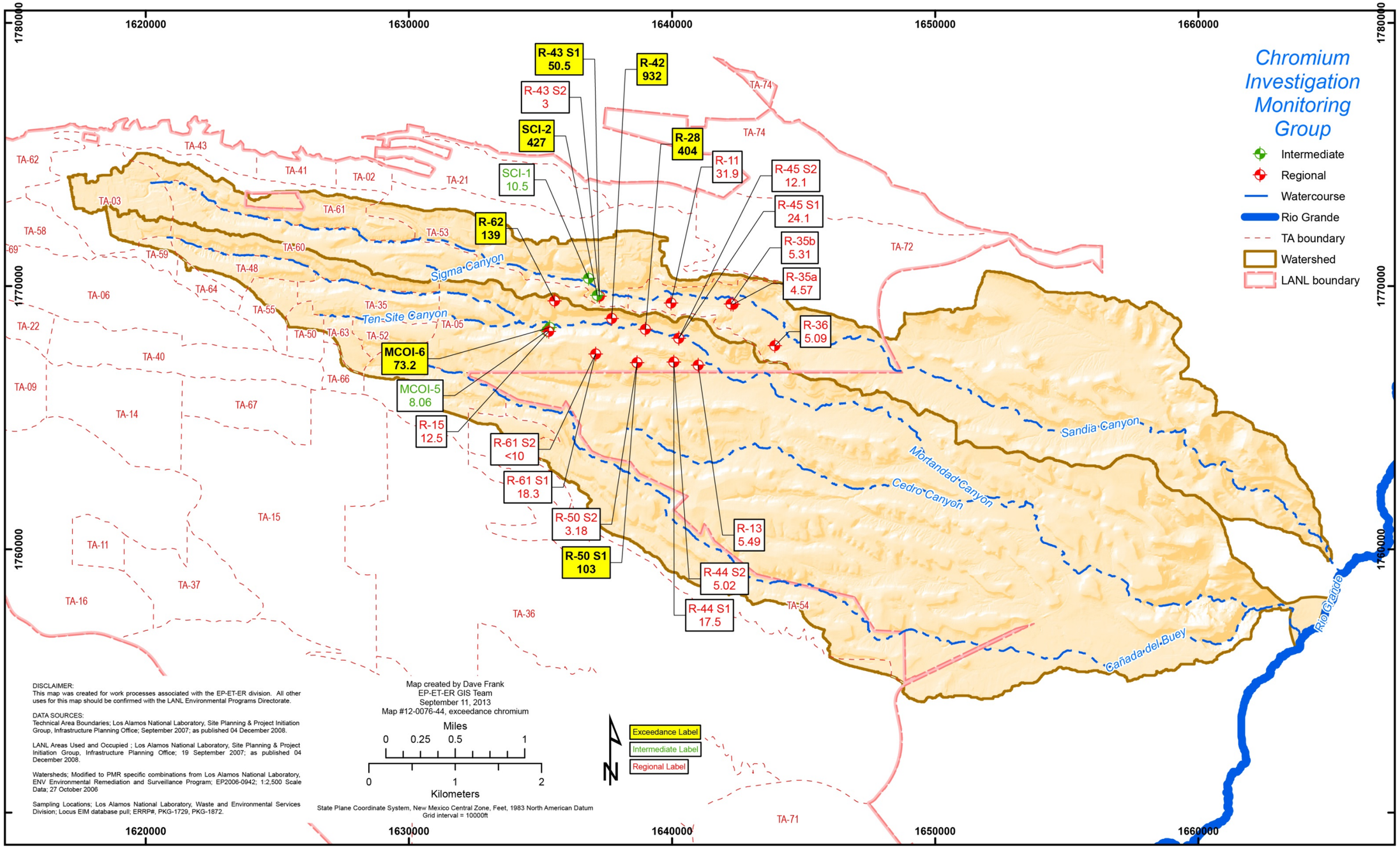



**Figure 4.2-2 Monitoring group filtered chromium concentrations in µg/L. The NMWQCC groundwater standard screening level is 50 µg/L.**

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

| Location Name | Sample Collection Date | Screened Interval (ft) | Screen Top Depth (ft) | Screen Bottom Depth (ft) | Calculated Single Casing Volume (gal.) | Purge Volume (gal.) | Purge Rate (gpm[a]) |
|---|---|---|---|---|---|---|---|
| **Intermediate** | | | | | | | |
| MCOI-4 | n/a[b] | 23.1 | 498.9 | 522 | n/a | n/a | Dry[c] |
| MCOI-5 | 05/07/13 | 9.96 | 689.04 | 699 | 13.8 | 27 | 0.45 |
| MCOI-6 | 05/08/13 | 22.3 | 686 | 708.3 | 45 | 136 | 1.66 |
| SCI-1 | 05/17/13 | 19.5 | 358.4 | 377.9 | 6.5 | 12.6 | 0.6 |
| SCI-2 | 05/21/13 | 20 | 548 | 568 | 7 | 26.4 | 0.44 |
| **Regional** | | | | | | | |
| R-11 | 05/13/13 | 22.9 | 855 | 877.9 | 51.9 | 156 | 3.09 |
| R-13 | 05/06/13 | 60.39 | 958.3 | 1018.7 | 156.6 | 470 | 7.14 |
| R-15 | 05/06/13 | 61.7 | 958.6 | 1020.3 | 60.1 | 216 | 10.3 |
| R-28 | 05/09/13 | 23.8 | 934.3 | 958.1 | 89.2 | 269 | 3.9 |
| R-35a | 05/16/13 | 49.1 | 1013.1 | 1062.2 | 238.2 | 718.2 | 3.8 |
| R-35b | 05/10/13 | 23.1 | 825.4 | 848.5 | 67 | 205 | 3.1 |
| R-36 | 05/17/13 | 23 | 766.9 | 789.9 | 42 | 142.8 | 3.4 |
| R-42 | 05/06/13 | 21.1 | 931.8 | 952.9 | 53.1 | 160 | 2.4 |
| R-43 S1 | 05/15/13 | 20.7 | 903.9 | 924.6 | 66.5 | 200 | 1.31 |
| R-43 S2 | 05/14/13 | 10 | 969.1 | 979.1 | 25.5 | 77 | 1.22 |
| R-44 S1 | 05/09/13 | 10 | 895 | 905 | 56.9 | 171.6 | 3.3 |
| R-44 S2 | 05/09/13 | 9.9 | 985.3 | 995.2 | 76.4 | 231 | 3.3 |
| R-45 S1 | 05/09/13 | 10 | 880 | 890 | 52.4 | 157.2 | 3.59 |
| R-45 S2 | 05/09/13 | 20 | 974.9 | 994.9 | 91.8 | 276 | 3.57 |
| R-50 S1 | 05/10/13 | 10 | 1077 | 1087 | 50.7 | 165 | 2.5 |
| R-50 S2 | 05/13/13 | 20.59 | 1185 | 1205.6 | 96.49 | 319 | 1.45 |
| R-61 S1 | 05/16/13 | 10 | 1125 | 1135 | 60.8 | 183.5 | 2.14 |
| R-61 S2 | 05/22/13 | 20.59 | 1220.4 | 1241 | 86.3 | 260 | 2.0 |
| R-62 | 05/08/13 | 20.7 | 1158.4 | 1179.1 | 44.2 | 136 | 1.6 |

[a] gpm = Gallons per minute.

[b] n/a = Not applicable.

[c] See Table.3.4-1 for explanation.

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

| Location | Deviation | Cause | Comment |
|---|---|---|---|
| MCOI-4 | No data are included in this report for this location. | The location was not sampled because it was dry. | This location will be sampled during the next scheduled PME. |

**Table 3.4-2**
**Analytes with PQLs above Screening Levels**

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

**Table 3.4-2 (continued)**

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

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

[a] CAS = Chemical Abstracts Service.

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

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

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

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

[a] n/a = Not applicable.

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

[c] CFR = Code of Federal Regulations.

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

| Location | Date | Analyte | Field Prep Code | Result | Unit | Screening Level | Screening-Level Type |
|---|---|---|---|---|---|---|---|
| **Intermediate Groundwater** | | | | | | | |
| MCOI-5 | 05/07/13 | Perchlorate | F[a] | 81.7 | µg/L | 4 | Consent Order |
| MCOI-6 | 05/08/13 | Perchlorate | F | 63.3 | µg/L | 4 | Consent Order |
| MCOI-6 | 05/08/13 | Chromium | F | 73.2 | µg/L | 50 | NMWQCC Groundwater Standard |
| SCI-2 | 05/21/13 | Chromium | F | 427 | µg/L | 50 | NMWQCC Groundwater Standard |
| MCOI-6 | 05/08/13 | Dioxane[1,4-] | UF[b] | 7.57 | µg/L | 6.7 | EPA Tap Water Screening Level |
| **Regional Groundwater** | | | | | | | |
| R-15 | 05/06/13 | Perchlorate | F | 8.42 | µg/L | 4 | Consent Order |
| R-61 S1 | 05/17/13 | Perchlorate | F | 5.82 | µg/L | 4 | Consent Order |
| R-28 | 05/06/13 | Chromium | F | 404 | µg/L | 50 | NMWQCC Groundwater Standard |
| R-42 | 05/06/13 | Chromium | F | 932 | µg/L | 50 | NMWQCC Groundwater Standard |
| R-43 S1 | 05/15/13 | Chromium | F | 50.5 | µg/L | 50 | NMWQCC Groundwater Standard |
| R-50 S1 | 05/10/13 | Chromium | F | 103 | µg/L | 50 | NMWQCC Groundwater Standard |
| R-62 | 05/08/13 | Chromium | F | 139 | µg/L | 50 | NMWQCC Groundwater Standard |

[a] F = Filtered.

[b] UF = Unfiltered.

# Appendix A

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

| Location | Depth (ft) | Date | Field Matrix | Analyte | Result | Unit | Sample |
|---|---|---|---|---|---|---|---|
| MCOI-5 | 689.04 | 05/07/13 | WG[a] | Dissolved Oxygen | 5.33 | mg/L | CAMO-13-30572 |
| MCOI-5 | 689.04 | 10/30/12 | WG | Dissolved Oxygen | 6.84 | mg/L | CAMO-13-24238 |
| MCOI-5 | 689.04 | 06/04/12 | WG | Dissolved Oxygen | 7.49 | mg/L | CAMO-12-14070 |
| MCOI-5 | 689.04 | 11/08/11 | WG | Dissolved Oxygen | 7.14 | mg/L | CAMO-12-1465 |
| MCOI-5 | 689.04 | 08/10/11 | WG | Dissolved Oxygen | 7.01 | mg/L | CAMO-11-24627 |
| MCOI-5 | 689.04 | 05/07/13 | WG | Oxidation-Reduction Potential | 234.1 | mV | CAMO-13-30572 |
| MCOI-5 | 689.04 | 10/30/12 | WG | Oxidation-Reduction Potential | 198.8 | mV | CAMO-13-24238 |
| MCOI-5 | 689.04 | 06/04/12 | WG | Oxidation-Reduction Potential | 234.1 | mV | CAMO-12-14070 |
| MCOI-5 | 689.04 | 11/08/11 | WG | Oxidation-Reduction Potential | 213.3 | mV | CAMO-12-1465 |
| MCOI-5 | 689.04 | 08/10/11 | WG | Oxidation-Reduction Potential | 236 | mV | CAMO-11-24627 |
| MCOI-5 | 689.04 | 05/07/13 | WG | pH | 8.49 | SU[b] | CAMO-13-30572 |
| MCOI-5 | 689.04 | 10/30/12 | WG | pH | 8.63 | SU | CAMO-13-24238 |
| MCOI-5 | 689.04 | 06/04/12 | WG | pH | 8.49 | SU | CAMO-12-14070 |
| MCOI-5 | 689.04 | 11/08/11 | WG | pH | 8.44 | SU | CAMO-12-1465 |
| MCOI-5 | 689.04 | 08/10/11 | WG | pH | 8.42 | SU | CAMO-11-24627 |
| MCOI-5 | 689.04 | 05/07/13 | WG | Specific Conductance | 208 | µS/cm | CAMO-13-30572 |
| MCOI-5 | 689.04 | 10/30/12 | WG | Specific Conductance | 196 | µS/cm | CAMO-13-24238 |
| MCOI-5 | 689.04 | 06/04/12 | WG | Specific Conductance | 182 | µS/cm | CAMO-12-14070 |
| MCOI-5 | 689.04 | 11/08/11 | WG | Specific Conductance | 191 | µS/cm | CAMO-12-1465 |
| MCOI-5 | 689.04 | 08/10/11 | WG | Specific Conductance | 199 | µS/cm | CAMO-11-24627 |
| MCOI-5 | 689.04 | 05/07/13 | WG | Temperature | 13.72 | deg C | CAMO-13-30572 |
| MCOI-5 | 689.04 | 10/30/12 | WG | Temperature | 13.14 | deg C | CAMO-13-24238 |
| MCOI-5 | 689.04 | 06/04/12 | WG | Temperature | 14.41 | deg C | CAMO-12-14070 |
| MCOI-5 | 689.04 | 11/08/11 | WG | Temperature | 11.72 | deg C | CAMO-12-1465 |
| MCOI-5 | 689.04 | 08/10/11 | WG | Temperature | 13.8 | deg C | CAMO-11-24627 |
| MCOI-5 | 689.04 | 05/07/13 | WG | Turbidity | 0.99 | NTU[c] | CAMO-13-30572 |
| MCOI-5 | 689.04 | 10/30/12 | WG | Turbidity | 0.33 | NTU | CAMO-13-24238 |
| MCOI-5 | 689.04 | 06/04/12 | WG | Turbidity | 0.66 | NTU | CAMO-12-14070 |

| Location | Depth (ft) | Date | Field Matrix | Analyte | Result | Unit | Sample |
|---|---|---|---|---|---|---|---|
| MCOI-5 | 689.04 | 11/08/11 | WG | Turbidity | 0.58 | NTU | CAMO-12-1465 |
| MCOI-5 | 689.04 | 08/10/11 | WG | Turbidity | 0.34 | NTU | CAMO-11-24627 |
| MCOI-6 | 686 | 05/08/13 | WG | Dissolved Oxygen | 7.51 | mg/L | CAMO-13-30573 |
| MCOI-6 | 686 | 02/05/13 | WG | Dissolved Oxygen | 7.14 | mg/L | CAMO-13-28407 |
| MCOI-6 | 686 | 11/02/12 | WG | Dissolved Oxygen | 7.18 | mg/L | CAMO-13-24239 |
| MCOI-6 | 686 | 08/17/12 | WG | Dissolved Oxygen | 7.1 | mg/L | CAMO-12-21734 |
| MCOI-6 | 686 | 06/04/12 | WG | Dissolved Oxygen | 6.97 | mg/L | CAMO-12-14006 |
| MCOI-6 | 686 | 05/08/13 | WG | Oxidation-Reduction Potential | 164.7 | mV | CAMO-13-30573 |
| MCOI-6 | 686 | 02/05/13 | WG | Oxidation-Reduction Potential | 126.8 | mV | CAMO-13-28407 |
| MCOI-6 | 686 | 11/02/12 | WG | Oxidation-Reduction Potential | 110.6 | mV | CAMO-13-24239 |
| MCOI-6 | 686 | 08/17/12 | WG | Oxidation-Reduction Potential | 104.5 | mV | CAMO-12-21734 |
| MCOI-6 | 686 | 06/04/12 | WG | Oxidation-Reduction Potential | 197.9 | mV | CAMO-12-14006 |
| MCOI-6 | 686 | 05/08/13 | WG | pH | 7.22 | SU | CAMO-13-30573 |
| MCOI-6 | 686 | 02/05/13 | WG | pH | 7.16 | SU | CAMO-13-28407 |
| MCOI-6 | 686 | 11/02/12 | WG | pH | 7.18 | SU | CAMO-13-24239 |
| MCOI-6 | 686 | 08/17/12 | WG | pH | 8.32 | SU | CAMO-12-21734 |
| MCOI-6 | 686 | 06/04/12 | WG | pH | 7.2 | SU | CAMO-12-14006 |
| MCOI-6 | 686 | 05/08/13 | WG | Specific Conductance | 596 | µS/cm | CAMO-13-30573 |
| MCOI-6 | 686 | 02/05/13 | WG | Specific Conductance | 565 | µS/cm | CAMO-13-28407 |
| MCOI-6 | 686 | 11/02/12 | WG | Specific Conductance | 623 | µS/cm | CAMO-13-24239 |
| MCOI-6 | 686 | 08/17/12 | WG | Specific Conductance | 594 | µS/cm | CAMO-12-21734 |
| MCOI-6 | 686 | 06/04/12 | WG | Specific Conductance | 599 | µS/cm | CAMO-12-14006 |
| MCOI-6 | 686 | 05/08/13 | WG | Temperature | 15.96 | deg C | CAMO-13-30573 |
| MCOI-6 | 686 | 02/05/13 | WG | Temperature | 14.81 | deg C | CAMO-13-28407 |
| MCOI-6 | 686 | 11/02/12 | WG | Temperature | 15.49 | deg C | CAMO-13-24239 |
| MCOI-6 | 686 | 08/17/12 | WG | Temperature | 15.97 | deg C | CAMO-12-21734 |
| MCOI-6 | 686 | 06/04/12 | WG | Temperature | 16.4 | deg C | CAMO-12-14006 |
| MCOI-6 | 686 | 05/08/13 | WG | Turbidity | 3.9 | NTU | CAMO-13-30573 |

| Location | Depth (ft) | Date | Field Matrix | Analyte | Result | Unit | Sample |
|---|---|---|---|---|---|---|---|
| MCOI-6 | 686 | 02/05/13 | WG | Turbidity | 0.45 | NTU | CAMO-13-28407 |
| MCOI-6 | 686 | 11/02/12 | WG | Turbidity | 0.43 | NTU | CAMO-13-24239 |
| MCOI-6 | 686 | 08/17/12 | WG | Turbidity | 0.53 | NTU | CAMO-12-21734 |
| MCOI-6 | 686 | 06/04/12 | WG | Turbidity | 0.42 | NTU | CAMO-12-14006 |
| R-11 | 855 | 05/13/13 | WG | Dissolved Oxygen | 7.45 | mg/L | CASA-13-30542 |
| R-11 | 855 | 02/04/13 | WG | Dissolved Oxygen | 7.48 | mg/L | CASA-13-28357 |
| R-11 | 855 | 11/05/12 | WG | Dissolved Oxygen | 7.17 | mg/L | CASA-13-24209 |
| R-11 | 855 | 08/17/12 | WG | Dissolved Oxygen | 7.54 | mg/L | CASA-12-21643 |
| R-11 | 855 | 05/21/12 | WG | Dissolved Oxygen | 7.11 | mg/L | CASA-12-14057 |
| R-11 | 855 | 05/21/12 | WG | Dissolved Oxygen | 7.11 | mg/L | CASA-12-14062 |
| R-11 | 855 | 05/13/13 | WG | Oxidation-Reduction Potential | 190.7 | mV | CASA-13-30542 |
| R-11 | 855 | 02/04/13 | WG | Oxidation-Reduction Potential | 94.7 | mV | CASA-13-28357 |
| R-11 | 855 | 11/05/12 | WG | Oxidation-Reduction Potential | 100.3 | mV | CASA-13-24209 |
| R-11 | 855 | 08/17/12 | WG | Oxidation-Reduction Potential | 227.5 | mV | CASA-12-21643 |
| R-11 | 855 | 05/21/12 | WG | Oxidation-Reduction Potential | 224.8 | mV | CASA-12-14057 |
| R-11 | 855 | 05/21/12 | WG | Oxidation-Reduction Potential | 224.8 | mV | CASA-12-14062 |
| R-11 | 855 | 05/13/13 | WG | pH | 7.96 | SU | CASA-13-30542 |
| R-11 | 855 | 02/04/13 | WG | pH | 7.95 | SU | CASA-13-28357 |
| R-11 | 855 | 11/05/12 | WG | pH | 8.04 | SU | CASA-13-24209 |
| R-11 | 855 | 08/17/12 | WG | pH | 7.98 | SU | CASA-12-21643 |
| R-11 | 855 | 05/21/12 | WG | pH | 8.03 | SU | CASA-12-14057 |
| R-11 | 855 | 05/21/12 | WG | pH | 8.03 | SU | CASA-12-14062 |
| R-11 | 855 | 05/13/13 | WG | Specific Conductance | 237 | µS/cm | CASA-13-30542 |
| R-11 | 855 | 02/04/13 | WG | Specific Conductance | 227 | µS/cm | CASA-13-28357 |
| R-11 | 855 | 11/05/12 | WG | Specific Conductance | 226 | µS/cm | CASA-13-24209 |
| R-11 | 855 | 08/17/12 | WG | Specific Conductance | 234 | µS/cm | CASA-12-21643 |
| R-11 | 855 | 05/21/12 | WG | Specific Conductance | 230 | µS/cm | CASA-12-14057 |
| R-11 | 855 | 05/21/12 | WG | Specific Conductance | 230 | µS/cm | CASA-12-14062 |

| Location | Depth (ft) | Date | Field Matrix | Analyte | Result | Unit | Sample |
|---|---|---|---|---|---|---|---|
| R-11 | 855 | 05/13/13 | WG | Temperature | 22.54 | deg C | CASA-13-30542 |
| R-11 | 855 | 02/04/13 | WG | Temperature | 21.15 | deg C | CASA-13-28357 |
| R-11 | 855 | 11/05/12 | WG | Temperature | 21.38 | deg C | CASA-13-24209 |
| R-11 | 855 | 08/17/12 | WG | Temperature | 21.38 | deg C | CASA-12-21643 |
| R-11 | 855 | 05/21/12 | WG | Temperature | 21.87 | deg C | CASA-12-14057 |
| R-11 | 855 | 05/21/12 | WG | Temperature | 21.87 | deg C | CASA-12-14062 |
| R-11 | 855 | 05/13/13 | WG | Turbidity | 0.4 | NTU | CASA-13-30542 |
| R-11 | 855 | 02/04/13 | WG | Turbidity | 0.28 | NTU | CASA-13-28357 |
| R-11 | 855 | 11/05/12 | WG | Turbidity | 0.34 | NTU | CASA-13-24209 |
| R-11 | 855 | 08/17/12 | WG | Turbidity | 0.17 | NTU | CASA-12-21643 |
| R-11 | 855 | 05/21/12 | WG | Turbidity | 0.2 | NTU | CASA-12-14057 |
| R-11 | 855 | 05/21/12 | WG | Turbidity | 0.2 | NTU | CASA-12-14062 |
| R-13 | 958.33 | 05/06/13 | WG | Dissolved Oxygen | 6.58 | mg/L | CAMO-13-30590 |
| R-13 | 958.33 | 10/31/12 | WG | Dissolved Oxygen | 6.36 | mg/L | CAMO-13-24258 |
| R-13 | 958.33 | 06/05/12 | WG | Dissolved Oxygen | 6.34 | mg/L | CAMO-12-17126 |
| R-13 | 958.33 | 11/22/11 | WG | Dissolved Oxygen | 6.29 | mg/L | CAMO-12-1480 |
| R-13 | 958.33 | 08/01/11 | WG | Dissolved Oxygen | 6.59 | mg/L | CAMO-11-24633 |
| R-13 | 958.33 | 05/06/13 | WG | Oxidation-Reduction Potential | 271.4 | mV | CAMO-13-30590 |
| R-13 | 958.33 | 10/31/12 | WG | Oxidation-Reduction Potential | 217.2 | mV | CAMO-13-24258 |
| R-13 | 958.33 | 06/05/12 | WG | Oxidation-Reduction Potential | 250.7 | mV | CAMO-12-17126 |
| R-13 | 958.33 | 11/22/11 | WG | Oxidation-Reduction Potential | 194.9 | mV | CAMO-12-1480 |
| R-13 | 958.33 | 08/01/11 | WG | Oxidation-Reduction Potential | 82.5 | mV | CAMO-11-24633 |
| R-13 | 958.33 | 05/06/13 | WG | pH | 7.96 | SU | CAMO-13-30590 |
| R-13 | 958.33 | 10/31/12 | WG | pH | 8.21 | SU | CAMO-13-24258 |
| R-13 | 958.33 | 06/05/12 | WG | pH | 8.23 | SU | CAMO-12-17126 |
| R-13 | 958.33 | 11/22/11 | WG | pH | 8.29 | SU | CAMO-12-1480 |
| R-13 | 958.33 | 08/01/11 | WG | pH | 8.21 | SU | CAMO-11-24633 |
| R-13 | 958.33 | 05/06/13 | WG | Specific Conductance | 143 | µS/cm | CAMO-13-30590 |

| Location | Depth (ft) | Date | Field Matrix | Analyte | Result | Unit | Sample |
|---|---|---|---|---|---|---|---|
| R-13 | 958.33 | 10/31/12 | WG | Specific Conductance | 146 | µS/cm | CAMO-13-24258 |
| R-13 | 958.33 | 06/05/12 | WG | Specific Conductance | 143 | µS/cm | CAMO-12-17126 |
| R-13 | 958.33 | 11/22/11 | WG | Specific Conductance | 141 | µS/cm | CAMO-12-1480 |
| R-13 | 958.33 | 08/01/11 | WG | Specific Conductance | 143 | µS/cm | CAMO-11-24633 |
| R-13 | 958.33 | 05/06/13 | WG | Temperature | 21.08 | deg C | CAMO-13-30590 |
| R-13 | 958.33 | 10/31/12 | WG | Temperature | 21.4 | deg C | CAMO-13-24258 |
| R-13 | 958.33 | 06/05/12 | WG | Temperature | 21.85 | deg C | CAMO-12-17126 |
| R-13 | 958.33 | 11/22/11 | WG | Temperature | 20.78 | deg C | CAMO-12-1480 |
| R-13 | 958.33 | 08/01/11 | WG | Temperature | 22.01 | deg C | CAMO-11-24633 |
| R-13 | 958.33 | 05/06/13 | WG | Turbidity | 0.26 | NTU | CAMO-13-30590 |
| R-13 | 958.33 | 10/31/12 | WG | Turbidity | 0.29 | NTU | CAMO-13-24258 |
| R-13 | 958.33 | 06/05/12 | WG | Turbidity | 0.24 | NTU | CAMO-12-17126 |
| R-13 | 958.33 | 11/22/11 | WG | Turbidity | 0.42 | NTU | CAMO-12-1480 |
| R-13 | 958.33 | 08/01/11 | WG | Turbidity | 0.28 | NTU | CAMO-11-24633 |
| R-15 | 958.6 | 05/06/13 | WG | Dissolved Oxygen | 7 | mg/L | CAMO-13-30575 |
| R-15 | 958.6 | 10/31/12 | WG | Dissolved Oxygen | 7.05 | mg/L | CAMO-13-24242 |
| R-15 | 958.6 | 05/29/12 | WG | Dissolved Oxygen | 7.18 | mg/L | CAMO-12-14007 |
| R-15 | 958.6 | 11/10/11 | WG | Dissolved Oxygen | 7.16 | mg/L | CAMO-12-1485 |
| R-15 | 958.6 | 08/15/11 | WG | Dissolved Oxygen | 6.6 | mg/L | CAMO-11-24636 |
| R-15 | 958.6 | 05/06/13 | WG | Oxidation-Reduction Potential | 229.2 | mV | CAMO-13-30575 |
| R-15 | 958.6 | 10/31/12 | WG | Oxidation-Reduction Potential | 119.1 | mV | CAMO-13-24242 |
| R-15 | 958.6 | 05/29/12 | WG | Oxidation-Reduction Potential | 189.7 | mV | CAMO-12-14007 |
| R-15 | 958.6 | 11/10/11 | WG | Oxidation-Reduction Potential | 225.4 | mV | CAMO-12-1485 |
| R-15 | 958.6 | 08/15/11 | WG | Oxidation-Reduction Potential | 37.9 | mV | CAMO-11-24636 |
| R-15 | 958.6 | 05/06/13 | WG | pH | 8.2 | SU | CAMO-13-30575 |
| R-15 | 958.6 | 10/31/12 | WG | pH | 8.23 | SU | CAMO-13-24242 |
| R-15 | 958.6 | 05/29/12 | WG | pH | 8.02 | SU | CAMO-12-14007 |
| R-15 | 958.6 | 11/10/11 | WG | pH | 8.24 | SU | CAMO-12-1485 |

| Location | Depth (ft) | Date | Field Matrix | Analyte | Result | Unit | Sample |
|---|---|---|---|---|---|---|---|
| R-15 | 958.6 | 08/15/11 | WG | pH | 8.6 | SU | CAMO-11-24636 |
| R-15 | 958.6 | 05/06/13 | WG | Specific Conductance | 156 | µS/cm | CAMO-13-30575 |
| R-15 | 958.6 | 10/31/12 | WG | Specific Conductance | 150 | µS/cm | CAMO-13-24242 |
| R-15 | 958.6 | 05/29/12 | WG | Specific Conductance | 152 | µS/cm | CAMO-12-14007 |
| R-15 | 958.6 | 11/10/11 | WG | Specific Conductance | 157 | µS/cm | CAMO-12-1485 |
| R-15 | 958.6 | 08/15/11 | WG | Specific Conductance | 185 | µS/cm | CAMO-11-24636 |
| R-15 | 958.6 | 05/06/13 | WG | Temperature | 19.32 | deg C | CAMO-13-30575 |
| R-15 | 958.6 | 10/31/12 | WG | Temperature | 16.45 | deg C | CAMO-13-24242 |
| R-15 | 958.6 | 05/29/12 | WG | Temperature | 20.25 | deg C | CAMO-12-14007 |
| R-15 | 958.6 | 11/10/11 | WG | Temperature | 18.75 | deg C | CAMO-12-1485 |
| R-15 | 958.6 | 08/15/11 | WG | Temperature | 20.24 | deg C | CAMO-11-24636 |
| R-15 | 958.6 | 05/06/13 | WG | Turbidity | 1.2 | NTU | CAMO-13-30575 |
| R-15 | 958.6 | 10/31/12 | WG | Turbidity | 2.31 | NTU | CAMO-13-24242 |
| R-15 | 958.6 | 05/29/12 | WG | Turbidity | 2.78 | NTU | CAMO-12-14007 |
| R-15 | 958.6 | 11/10/11 | WG | Turbidity | 2.33 | NTU | CAMO-12-1485 |
| R-15 | 958.6 | 08/15/11 | WG | Turbidity | 2.93 | NTU | CAMO-11-24636 |
| R-28 | 934.3 | 05/06/13 | WG | Dissolved Oxygen | 6.51 | mg/L | CAMO-13-30576 |
| R-28 | 934.3 | 02/01/13 | WG | Dissolved Oxygen | 6.58 | mg/L | CAMO-13-28408 |
| R-28 | 934.3 | 10/31/12 | WG | Dissolved Oxygen | 6.55 | mg/L | CAMO-13-24260 |
| R-28 | 934.3 | 08/08/12 | WG | Dissolved Oxygen | 6.72 | mg/L | CAMO-12-21735 |
| R-28 | 934.3 | 05/24/12 | WG | Dissolved Oxygen | 6.49 | mg/L | CAMO-12-14023 |
| R-28 | 934.3 | 05/06/13 | WG | Oxidation-Reduction Potential | 247.3 | mV | CAMO-13-30576 |
| R-28 | 934.3 | 02/01/13 | WG | Oxidation-Reduction Potential | 53.5 | mV | CAMO-13-28408 |
| R-28 | 934.3 | 10/31/12 | WG | Oxidation-Reduction Potential | 183.7 | mV | CAMO-13-24260 |
| R-28 | 934.3 | 08/08/12 | WG | Oxidation-Reduction Potential | 220.8 | mV | CAMO-12-21735 |
| R-28 | 934.3 | 05/24/12 | WG | Oxidation-Reduction Potential | 207.4 | mV | CAMO-12-14023 |
| R-28 | 934.3 | 05/06/13 | WG | pH | 7.65 | SU | CAMO-13-30576 |
| R-28 | 934.3 | 02/01/13 | WG | pH | 7.68 | SU | CAMO-13-28408 |

| Location | Depth (ft) | Date | Field Matrix | Analyte | Result | Unit | Sample |
|---|---|---|---|---|---|---|---|
| R-28 | 934.3 | 10/31/12 | WG | pH | 7.63 | SU | CAMO-13-24260 |
| R-28 | 934.3 | 08/08/12 | WG | pH | 7.56 | SU | CAMO-12-21735 |
| R-28 | 934.3 | 05/24/12 | WG | pH | 7.54 | SU | CAMO-12-14023 |
| R-28 | 934.3 | 05/06/13 | WG | Specific Conductance | 416 | µS/cm | CAMO-13-30576 |
| R-28 | 934.3 | 02/01/13 | WG | Specific Conductance | 412 | µS/cm | CAMO-13-28408 |
| R-28 | 934.3 | 10/31/12 | WG | Specific Conductance | 435 | µS/cm | CAMO-13-24260 |
| R-28 | 934.3 | 08/08/12 | WG | Specific Conductance | 421 | µS/cm | CAMO-12-21735 |
| R-28 | 934.3 | 05/24/12 | WG | Specific Conductance | 417 | µS/cm | CAMO-12-14023 |
| R-28 | 934.3 | 05/06/13 | WG | Temperature | 20.22 | deg C | CAMO-13-30576 |
| R-28 | 934.3 | 02/01/13 | WG | Temperature | 19.17 | deg C | CAMO-13-28408 |
| R-28 | 934.3 | 10/31/12 | WG | Temperature | 20.48 | deg C | CAMO-13-24260 |
| R-28 | 934.3 | 08/08/12 | WG | Temperature | 21.17 | deg C | CAMO-12-21735 |
| R-28 | 934.3 | 05/24/12 | WG | Temperature | 21.21 | deg C | CAMO-12-14023 |
| R-28 | 934.3 | 05/06/13 | WG | Turbidity | 0.1 | NTU | CAMO-13-30576 |
| R-28 | 934.3 | 02/01/13 | WG | Turbidity | 0.46 | NTU | CAMO-13-28408 |
| R-28 | 934.3 | 10/31/12 | WG | Turbidity | 0.45 | NTU | CAMO-13-24260 |
| R-28 | 934.3 | 08/08/12 | WG | Turbidity | 0.65 | NTU | CAMO-12-21735 |
| R-28 | 934.3 | 05/24/12 | WG | Turbidity | 0.69 | NTU | CAMO-12-14023 |
| R-35a | 1013.1 | 05/17/13 | WG | Dissolved Oxygen | 5.03 | mg/L | CASA-13-30543 |
| R-35a | 1013.1 | 11/13/12 | WG | Dissolved Oxygen | 4.9 | mg/L | CASA-13-24210 |
| R-35a | 1013.1 | 06/05/12 | WG | Dissolved Oxygen | 4.93 | mg/L | CASA-12-17133 |
| R-35a | 1013.1 | 11/17/11 | WG | Dissolved Oxygen | 4.71 | mg/L | CASA-12-1383 |
| R-35a | 1013.1 | 08/17/11 | WG | Dissolved Oxygen | 5.12 | mg/L | CASA-11-24781 |
| R-35a | 1013.1 | 05/17/13 | WG | Oxidation-Reduction Potential | 81.4 | mV | CASA-13-30543 |
| R-35a | 1013.1 | 11/13/12 | WG | Oxidation-Reduction Potential | 169.8 | mV | CASA-13-24210 |
| R-35a | 1013.1 | 06/05/12 | WG | Oxidation-Reduction Potential | 312.5 | mV | CASA-12-17133 |
| R-35a | 1013.1 | 11/17/11 | WG | Oxidation-Reduction Potential | 169.2 | mV | CASA-12-1383 |
| R-35a | 1013.1 | 08/17/11 | WG | Oxidation-Reduction Potential | 225.8 | mV | CASA-11-24781 |

| Location | Depth (ft) | Date | Field Matrix | Analyte | Result | Unit | Sample |
|---|---|---|---|---|---|---|---|
| R-35a | 1013.1 | 05/17/13 | WG | pH | 8.05 | SU | CASA-13-30543 |
| R-35a | 1013.1 | 11/13/12 | WG | pH | 8.08 | SU | CASA-13-24210 |
| R-35a | 1013.1 | 06/05/12 | WG | pH | 7.47 | SU | CASA-12-17133 |
| R-35a | 1013.1 | 11/17/11 | WG | pH | 8.02 | SU | CASA-12-1383 |
| R-35a | 1013.1 | 08/17/11 | WG | pH | 8 | SU | CASA-11-24781 |
| R-35a | 1013.1 | 05/17/13 | WG | Specific Conductance | 242 | µS/cm | CASA-13-30543 |
| R-35a | 1013.1 | 11/13/12 | WG | Specific Conductance | 241 | µS/cm | CASA-13-24210 |
| R-35a | 1013.1 | 06/05/12 | WG | Specific Conductance | 242 | µS/cm | CASA-12-17133 |
| R-35a | 1013.1 | 11/17/11 | WG | Specific Conductance | 243 | µS/cm | CASA-12-1383 |
| R-35a | 1013.1 | 08/17/11 | WG | Specific Conductance | 247 | µS/cm | CASA-11-24781 |
| R-35a | 1013.1 | 05/17/13 | WG | Temperature | 24.66 | deg C | CASA-13-30543 |
| R-35a | 1013.1 | 11/13/12 | WG | Temperature | 22.66 | deg C | CASA-13-24210 |
| R-35a | 1013.1 | 06/05/12 | WG | Temperature | 24.36 | deg C | CASA-12-17133 |
| R-35a | 1013.1 | 11/17/11 | WG | Temperature | 23.44 | deg C | CASA-12-1383 |
| R-35a | 1013.1 | 08/17/11 | WG | Temperature | 24.23 | deg C | CASA-11-24781 |
| R-35a | 1013.1 | 05/17/13 | WG | Turbidity | 1.97 | NTU | CASA-13-30543 |
| R-35a | 1013.1 | 11/13/12 | WG | Turbidity | 1.08 | NTU | CASA-13-24210 |
| R-35a | 1013.1 | 06/05/12 | WG | Turbidity | 1.9 | NTU | CASA-12-17133 |
| R-35a | 1013.1 | 11/17/11 | WG | Turbidity | 0.95 | NTU | CASA-12-1383 |
| R-35a | 1013.1 | 08/17/11 | WG | Turbidity | 0.66 | NTU | CASA-11-24781 |
| R-35b | 825.4 | 05/10/13 | WG | Dissolved Oxygen | 5.85 | mg/L | CASA-13-30544 |
| R-35b | 825.4 | 11/14/12 | WG | Dissolved Oxygen | 6.14 | mg/L | CASA-13-24211 |
| R-35b | 825.4 | 06/06/12 | WG | Dissolved Oxygen | 6.06 | mg/L | CASA-12-17134 |
| R-35b | 825.4 | 11/09/11 | WG | Dissolved Oxygen | 6.27 | mg/L | CASA-12-1387 |
| R-35b | 825.4 | 08/12/11 | WG | Dissolved Oxygen | 5.92 | mg/L | CASA-11-24783 |
| R-35b | 825.4 | 05/10/13 | WG | Oxidation-Reduction Potential | 238.2 | mV | CASA-13-30544 |
| R-35b | 825.4 | 11/14/12 | WG | Oxidation-Reduction Potential | 188.4 | mV | CASA-13-24211 |
| R-35b | 825.4 | 06/06/12 | WG | Oxidation-Reduction Potential | 232.7 | mV | CASA-12-17134 |

| Location | Depth (ft) | Date | Field Matrix | Analyte | Result | Unit | Sample |
|---|---|---|---|---|---|---|---|
| R-35b | 825.4 | 11/09/11 | WG | Oxidation-Reduction Potential | 191.7 | mV | CASA-12-1387 |
| R-35b | 825.4 | 08/12/11 | WG | Oxidation-Reduction Potential | 67.4 | mV | CASA-11-24783 |
| R-35b | 825.4 | 05/10/13 | WG | pH | 7.48 | SU | CASA-13-30544 |
| R-35b | 825.4 | 11/14/12 | WG | pH | 7.66 | SU | CASA-13-24211 |
| R-35b | 825.4 | 06/06/12 | WG | pH | 7.5 | SU | CASA-12-17134 |
| R-35b | 825.4 | 11/09/11 | WG | pH | 7.62 | SU | CASA-12-1387 |
| R-35b | 825.4 | 08/12/11 | WG | pH | 7.68 | SU | CASA-11-24783 |
| R-35b | 825.4 | 05/10/13 | WG | Specific Conductance | 172 | µS/cm | CASA-13-30544 |
| R-35b | 825.4 | 11/14/12 | WG | Specific Conductance | 170 | µS/cm | CASA-13-24211 |
| R-35b | 825.4 | 06/06/12 | WG | Specific Conductance | 174 | µS/cm | CASA-12-17134 |
| R-35b | 825.4 | 11/09/11 | WG | Specific Conductance | 176 | µS/cm | CASA-12-1387 |
| R-35b | 825.4 | 08/12/11 | WG | Specific Conductance | 177 | µS/cm | CASA-11-24783 |
| R-35b | 825.4 | 05/10/13 | WG | Temperature | 21.33 | deg C | CASA-13-30544 |
| R-35b | 825.4 | 11/14/12 | WG | Temperature | 21.07 | deg C | CASA-13-24211 |
| R-35b | 825.4 | 06/06/12 | WG | Temperature | 22.09 | deg C | CASA-12-17134 |
| R-35b | 825.4 | 11/09/11 | WG | Temperature | 20.54 | deg C | CASA-12-1387 |
| R-35b | 825.4 | 08/12/11 | WG | Temperature | 21.8 | deg C | CASA-11-24783 |
| R-35b | 825.4 | 05/10/13 | WG | Turbidity | 0.44 | NTU | CASA-13-30544 |
| R-35b | 825.4 | 11/14/12 | WG | Turbidity | 0.51 | NTU | CASA-13-24211 |
| R-35b | 825.4 | 06/06/12 | WG | Turbidity | 0.41 | NTU | CASA-12-17134 |
| R-35b | 825.4 | 11/09/11 | WG | Turbidity | 0.56 | NTU | CASA-12-1387 |
| R-35b | 825.4 | 08/12/11 | WG | Turbidity | 0.42 | NTU | CASA-11-24783 |
| R-36 | 766.9 | 05/17/13 | WG | Dissolved Oxygen | 5.76 | mg/L | CASA-13-30545 |
| R-36 | 766.9 | 11/14/12 | WG | Dissolved Oxygen | 5.97 | mg/L | CASA-13-24212 |
| R-36 | 766.9 | 05/30/12 | WG | Dissolved Oxygen | 6.08 | mg/L | CASA-12-17135 |
| R-36 | 766.9 | 03/08/12 | WG | Dissolved Oxygen | 6.14 | mg/L | CASA-12-12037 |
| R-36 | 766.9 | 11/16/11 | WG | Dissolved Oxygen | 6.22 | mg/L | CASA-12-1388 |
| R-36 | 766.9 | 05/17/13 | WG | Oxidation-Reduction Potential | 105.8 | mV | CASA-13-30545 |

| Location | Depth (ft) | Date | Field Matrix | Analyte | Result | Unit | Sample |
|---|---|---|---|---|---|---|---|
| R-36 | 766.9 | 11/14/12 | WG | Oxidation-Reduction Potential | 208.7 | mV | CASA-13-24212 |
| R-36 | 766.9 | 05/30/12 | WG | Oxidation-Reduction Potential | 245.9 | mV | CASA-12-17135 |
| R-36 | 766.9 | 03/08/12 | WG | Oxidation-Reduction Potential | 167.6 | mV | CASA-12-12037 |
| R-36 | 766.9 | 11/16/11 | WG | Oxidation-Reduction Potential | 165 | mV | CASA-12-1388 |
| R-36 | 766.9 | 05/17/13 | WG | pH | 7.27 | SU | CASA-13-30545 |
| R-36 | 766.9 | 11/14/12 | WG | pH | 7.33 | SU | CASA-13-24212 |
| R-36 | 766.9 | 05/30/12 | WG | pH | 7.4 | SU | CASA-12-17135 |
| R-36 | 766.9 | 03/08/12 | WG | pH | 7.32 | SU | CASA-12-12037 |
| R-36 | 766.9 | 11/16/11 | WG | pH | 7.37 | SU | CASA-12-1388 |
| R-36 | 766.9 | 05/17/13 | WG | Specific Conductance | 192 | µS/cm | CASA-13-30545 |
| R-36 | 766.9 | 11/14/12 | WG | Specific Conductance | 195 | µS/cm | CASA-13-24212 |
| R-36 | 766.9 | 05/30/12 | WG | Specific Conductance | 195 | µS/cm | CASA-12-17135 |
| R-36 | 766.9 | 11/16/11 | WG | Specific Conductance | 194 | µS/cm | CASA-12-1388 |
| R-36 | 766.9 | 08/15/11 | WG | Specific Conductance | 195 | µS/cm | CASA-11-24789 |
| R-36 | 766.9 | 05/17/13 | WG | Temperature | 21.4 | deg C | CASA-13-30545 |
| R-36 | 766.9 | 11/14/12 | WG | Temperature | 19.84 | deg C | CASA-13-24212 |
| R-36 | 766.9 | 05/30/12 | WG | Temperature | 20.87 | deg C | CASA-12-17135 |
| R-36 | 766.9 | 03/08/12 | WG | Temperature | 19.28 | deg C | CASA-12-12037 |
| R-36 | 766.9 | 11/16/11 | WG | Temperature | 20.45 | deg C | CASA-12-1388 |
| R-36 | 766.9 | 05/17/13 | WG | Turbidity | 1.08 | NTU | CASA-13-30545 |
| R-36 | 766.9 | 11/14/12 | WG | Turbidity | 0.89 | NTU | CASA-13-24212 |
| R-36 | 766.9 | 05/30/12 | WG | Turbidity | 0.89 | NTU | CASA-12-17135 |
| R-36 | 766.9 | 03/08/12 | WG | Turbidity | 0.8 | NTU | CASA-12-12037 |
| R-36 | 766.9 | 11/16/11 | WG | Turbidity | 1 | NTU | CASA-12-1388 |
| R-42 | 931.8 | 05/06/13 | WG | Dissolved Oxygen | 6.83 | mg/L | CAMO-13-30577 |
| R-42 | 931.8 | 02/01/13 | WG | Dissolved Oxygen | 7.2 | mg/L | CAMO-13-28409 |
| R-42 | 931.8 | 10/31/12 | WG | Dissolved Oxygen | 6.99 | mg/L | CAMO-13-24244 |
| R-42 | 931.8 | 08/08/12 | WG | Dissolved Oxygen | 6.82 | mg/L | CAMO-12-21736 |

| Location | Depth (ft) | Date | Field Matrix | Analyte | Result | Unit | Sample |
|---|---|---|---|---|---|---|---|
| R-42 | 931.8 | 05/23/12 | WG | Dissolved Oxygen | 6.84 | mg/L | CAMO-12-14009 |
| R-42 | 931.8 | 05/06/13 | WG | Oxidation-Reduction Potential | 274.6 | mV | CAMO-13-30577 |
| R-42 | 931.8 | 02/01/13 | WG | Oxidation-Reduction Potential | 208.4 | mV | CAMO-13-28409 |
| R-42 | 931.8 | 10/31/12 | WG | Oxidation-Reduction Potential | 114.4 | mV | CAMO-13-24244 |
| R-42 | 931.8 | 08/08/12 | WG | Oxidation-Reduction Potential | 227 | mV | CAMO-12-21736 |
| R-42 | 931.8 | 05/23/12 | WG | Oxidation-Reduction Potential | 243.2 | mV | CAMO-12-14009 |
| R-42 | 931.8 | 05/06/13 | WG | pH | 7.36 | SU | CAMO-13-30577 |
| R-42 | 931.8 | 02/01/13 | WG | pH | 7.75 | SU | CAMO-13-28409 |
| R-42 | 931.8 | 10/31/12 | WG | pH | 7.48 | SU | CAMO-13-24244 |
| R-42 | 931.8 | 08/08/12 | WG | pH | 7.36 | SU | CAMO-12-21736 |
| R-42 | 931.8 | 05/23/12 | WG | pH | 7.5 | SU | CAMO-12-14009 |
| R-42 | 931.8 | 05/06/13 | WG | Specific Conductance | 502 | µS/cm | CAMO-13-30577 |
| R-42 | 931.8 | 02/01/13 | WG | Specific Conductance | 495 | µS/cm | CAMO-13-28409 |
| R-42 | 931.8 | 10/31/12 | WG | Specific Conductance | 480 | µS/cm | CAMO-13-24244 |
| R-42 | 931.8 | 08/08/12 | WG | Specific Conductance | 488 | µS/cm | CAMO-12-21736 |
| R-42 | 931.8 | 05/23/12 | WG | Specific Conductance | 486 | µS/cm | CAMO-12-14009 |
| R-42 | 931.8 | 05/06/13 | WG | Temperature | 19.48 | deg C | CAMO-13-30577 |
| R-42 | 931.8 | 02/01/13 | WG | Temperature | 19.72 | deg C | CAMO-13-28409 |
| R-42 | 931.8 | 10/31/12 | WG | Temperature | 19.49 | deg C | CAMO-13-24244 |
| R-42 | 931.8 | 08/08/12 | WG | Temperature | 21.18 | deg C | CAMO-12-21736 |
| R-42 | 931.8 | 05/23/12 | WG | Temperature | 20.69 | deg C | CAMO-12-14009 |
| R-42 | 931.8 | 05/06/13 | WG | Turbidity | 1.05 | NTU | CAMO-13-30577 |
| R-42 | 931.8 | 02/01/13 | WG | Turbidity | 0.58 | NTU | CAMO-13-28409 |
| R-42 | 931.8 | 10/31/12 | WG | Turbidity | 1.79 | NTU | CAMO-13-24244 |
| R-42 | 931.8 | 08/08/12 | WG | Turbidity | 0.66 | NTU | CAMO-12-21736 |
| R-42 | 931.8 | 05/23/12 | WG | Turbidity | 1.42 | NTU | CAMO-12-14009 |
| R-43 S1 | 903.9 | 05/15/13 | WG | Dissolved Oxygen | 6.81 | mg/L | CASA-13-30554 |
| R-43 S1 | 903.9 | 02/06/13 | WG | Dissolved Oxygen | 7.07 | mg/L | CASA-13-28358 |

| Location | Depth (ft) | Date | Field Matrix | Analyte | Result | Unit | Sample |
|---|---|---|---|---|---|---|---|
| R-43 S1 | 903.9 | 11/07/12 | WG | Dissolved Oxygen | 6.88 | mg/L | CASA-13-24213 |
| R-43 S1 | 903.9 | 08/14/12 | WG | Dissolved Oxygen | 6.86 | mg/L | CASA-12-21644 |
| R-43 S1 | 903.9 | 05/22/12 | WG | Dissolved Oxygen | 7.05 | mg/L | CASA-12-14058 |
| R-43 S1 | 903.9 | 05/15/13 | WG | Oxidation-Reduction Potential | 223.4 | mV | CASA-13-30554 |
| R-43 S1 | 903.9 | 02/06/13 | WG | Oxidation-Reduction Potential | 166.1 | mV | CASA-13-28358 |
| R-43 S1 | 903.9 | 11/07/12 | WG | Oxidation-Reduction Potential | 83.3 | mV | CASA-13-24213 |
| R-43 S1 | 903.9 | 08/14/12 | WG | Oxidation-Reduction Potential | 244.2 | mV | CASA-12-21644 |
| R-43 S1 | 903.9 | 05/22/12 | WG | Oxidation-Reduction Potential | 229.9 | mV | CASA-12-14058 |
| R-43 S1 | 903.9 | 05/15/13 | WG | pH | 8.17 | SU | CASA-13-30554 |
| R-43 S1 | 903.9 | 02/06/13 | WG | pH | 8.22 | SU | CASA-13-28358 |
| R-43 S1 | 903.9 | 11/07/12 | WG | pH | 8.23 | SU | CASA-13-24213 |
| R-43 S1 | 903.9 | 08/14/12 | WG | pH | 8.12 | SU | CASA-12-21644 |
| R-43 S1 | 903.9 | 05/22/12 | WG | pH | 8.2 | SU | CASA-12-14058 |
| R-43 S1 | 903.9 | 05/15/13 | WG | Specific Conductance | 183 | µS/cm | CASA-13-30554 |
| R-43 S1 | 903.9 | 02/06/13 | WG | Specific Conductance | 180 | µS/cm | CASA-13-28358 |
| R-43 S1 | 903.9 | 11/07/12 | WG | Specific Conductance | 176 | µS/cm | CASA-13-24213 |
| R-43 S1 | 903.9 | 08/14/12 | WG | Specific Conductance | 181 | µS/cm | CASA-12-21644 |
| R-43 S1 | 903.9 | 05/22/12 | WG | Specific Conductance | 173 | µS/cm | CASA-12-14058 |
| R-43 S1 | 903.9 | 05/15/13 | WG | Temperature | 20.16 | deg C | CASA-13-30554 |
| R-43 S1 | 903.9 | 02/06/13 | WG | Temperature | 18.9 | deg C | CASA-13-28358 |
| R-43 S1 | 903.9 | 11/07/12 | WG | Temperature | 20.18 | deg C | CASA-13-24213 |
| R-43 S1 | 903.9 | 08/14/12 | WG | Temperature | 20.4 | deg C | CASA-12-21644 |
| R-43 S1 | 903.9 | 05/22/12 | WG | Temperature | 20.85 | deg C | CASA-12-14058 |
| R-43 S1 | 903.9 | 05/15/13 | WG | Turbidity | 1.88 | NTU | CASA-13-30554 |
| R-43 S1 | 903.9 | 02/06/13 | WG | Turbidity | 0.39 | NTU | CASA-13-28358 |
| R-43 S1 | 903.9 | 11/07/12 | WG | Turbidity | 0.51 | NTU | CASA-13-24213 |
| R-43 S1 | 903.9 | 08/14/12 | WG | Turbidity | 0.35 | NTU | CASA-12-21644 |
| R-43 S1 | 903.9 | 05/22/12 | WG | Turbidity | 0.53 | NTU | CASA-12-14058 |

| Location | Depth (ft) | Date | Field Matrix | Analyte | Result | Unit | Sample |
|---|---|---|---|---|---|---|---|
| R-43 S2 | 969.1 | 05/14/13 | WG | Dissolved Oxygen | 3.11 | mg/L | CASA-13-30547 |
| R-43 S2 | 969.1 | 02/07/13 | WG | Dissolved Oxygen | 3.26 | mg/L | CASA-13-28359 |
| R-43 S2 | 969.1 | 11/07/12 | WG | Dissolved Oxygen | 3.07 | mg/L | CASA-13-24214 |
| R-43 S2 | 969.1 | 08/13/12 | WG | Dissolved Oxygen | 2.95 | mg/L | CASA-12-21649 |
| R-43 S2 | 969.1 | 05/22/12 | WG | Dissolved Oxygen | 3.09 | mg/L | CASA-12-14059 |
| R-43 S2 | 969.1 | 05/14/13 | WG | Oxidation-Reduction Potential | 168.7 | mV | CASA-13-30547 |
| R-43 S2 | 969.1 | 02/07/13 | WG | Oxidation-Reduction Potential | 58.4 | mV | CASA-13-28359 |
| R-43 S2 | 969.1 | 11/07/12 | WG | Oxidation-Reduction Potential | 60.9 | mV | CASA-13-24214 |
| R-43 S2 | 969.1 | 08/13/12 | WG | Oxidation-Reduction Potential | 161.5 | mV | CASA-12-21649 |
| R-43 S2 | 969.1 | 05/22/12 | WG | Oxidation-Reduction Potential | 202.6 | mV | CASA-12-14059 |
| R-43 S2 | 969.1 | 05/14/13 | WG | pH | 8.7 | SU | CASA-13-30547 |
| R-43 S2 | 969.1 | 02/07/13 | WG | pH | 8.78 | SU | CASA-13-28359 |
| R-43 S2 | 969.1 | 11/07/12 | WG | pH | 8.78 | SU | CASA-13-24214 |
| R-43 S2 | 969.1 | 08/13/12 | WG | pH | 8.71 | SU | CASA-12-21649 |
| R-43 S2 | 969.1 | 05/22/12 | WG | pH | 8.72 | SU | CASA-12-14059 |
| R-43 S2 | 969.1 | 05/14/13 | WG | Specific Conductance | 192 | µS/cm | CASA-13-30547 |
| R-43 S2 | 969.1 | 02/07/13 | WG | Specific Conductance | 183 | µS/cm | CASA-13-28359 |
| R-43 S2 | 969.1 | 11/07/12 | WG | Specific Conductance | 183 | µS/cm | CASA-13-24214 |
| R-43 S2 | 969.1 | 08/13/12 | WG | Specific Conductance | 191 | µS/cm | CASA-12-21649 |
| R-43 S2 | 969.1 | 05/22/12 | WG | Specific Conductance | 181 | µS/cm | CASA-12-14059 |
| R-43 S2 | 969.1 | 05/14/13 | WG | Temperature | 19.51 | deg C | CASA-13-30547 |
| R-43 S2 | 969.1 | 02/07/13 | WG | Temperature | 18.88 | deg C | CASA-13-28359 |
| R-43 S2 | 969.1 | 11/07/12 | WG | Temperature | 20.16 | deg C | CASA-13-24214 |
| R-43 S2 | 969.1 | 08/13/12 | WG | Temperature | 19.96 | deg C | CASA-12-21649 |
| R-43 S2 | 969.1 | 05/22/12 | WG | Temperature | 20.78 | deg C | CASA-12-14059 |
| R-43 S2 | 969.1 | 05/14/13 | WG | Turbidity | 0.17 | NTU | CASA-13-30547 |
| R-43 S2 | 969.1 | 02/07/13 | WG | Turbidity | 0.23 | NTU | CASA-13-28359 |
| R-43 S2 | 969.1 | 11/07/12 | WG | Turbidity | 0.38 | NTU | CASA-13-24214 |

| Location | Depth (ft) | Date | Field Matrix | Analyte | Result | Unit | Sample |
|---|---|---|---|---|---|---|---|
| R-43 S2 | 969.1 | 08/13/12 | WG | Turbidity | 0.19 | NTU | CASA-12-21649 |
| R-43 S2 | 969.1 | 05/22/12 | WG | Turbidity | 0.29 | NTU | CASA-12-14059 |
| R-44 S1 | 895 | 05/09/13 | WG | Dissolved Oxygen | 6.89 | mg/L | CAMO-13-30578 |
| R-44 S1 | 895 | 11/12/12 | WG | Dissolved Oxygen | 6.7 | mg/L | CAMO-13-24245 |
| R-44 S1 | 895 | 05/24/12 | WG | Dissolved Oxygen | 5.64 | mg/L | CAMO-12-14010 |
| R-44 S1 | 895 | 11/17/11 | WG | Dissolved Oxygen | 5.23 | mg/L | CAMO-12-1500 |
| R-44 S1 | 895 | 08/05/11 | WG | Dissolved Oxygen | 5.56 | mg/L | CAMO-11-24645 |
| R-44 S1 | 895 | 05/09/13 | WG | Oxidation-Reduction Potential | 182.2 | mV | CAMO-13-30578 |
| R-44 S1 | 895 | 11/12/12 | WG | Oxidation-Reduction Potential | 101.2 | mV | CAMO-13-24245 |
| R-44 S1 | 895 | 05/24/12 | WG | Oxidation-Reduction Potential | 271.1 | mV | CAMO-12-14010 |
| R-44 S1 | 895 | 11/17/11 | WG | Oxidation-Reduction Potential | 226.6 | mV | CAMO-12-1500 |
| R-44 S1 | 895 | 08/05/11 | WG | Oxidation-Reduction Potential | 103.8 | mV | CAMO-11-24645 |
| R-44 S1 | 895 | 05/09/13 | WG | pH | 7.73 | SU | CAMO-13-30578 |
| R-44 S1 | 895 | 11/12/12 | WG | pH | 7.78 | SU | CAMO-13-24245 |
| R-44 S1 | 895 | 05/24/12 | WG | pH | 7.75 | SU | CAMO-12-14010 |
| R-44 S1 | 895 | 11/17/11 | WG | pH | 7.95 | SU | CAMO-12-1500 |
| R-44 S1 | 895 | 08/05/11 | WG | pH | 7.84 | SU | CAMO-11-24645 |
| R-44 S1 | 895 | 05/09/13 | WG | Specific Conductance | 135 | µS/cm | CAMO-13-30578 |
| R-44 S1 | 895 | 11/12/12 | WG | Specific Conductance | 134 | µS/cm | CAMO-13-24245 |
| R-44 S1 | 895 | 05/24/12 | WG | Specific Conductance | 132 | µS/cm | CAMO-12-14010 |
| R-44 S1 | 895 | 11/17/11 | WG | Specific Conductance | 137 | µS/cm | CAMO-12-1500 |
| R-44 S1 | 895 | 08/05/11 | WG | Specific Conductance | 133 | µS/cm | CAMO-11-24645 |
| R-44 S1 | 895 | 05/09/13 | WG | Temperature | 20.39 | deg C | CAMO-13-30578 |
| R-44 S1 | 895 | 11/12/12 | WG | Temperature | 18.67 | deg C | CAMO-13-24245 |
| R-44 S1 | 895 | 05/24/12 | WG | Temperature | 21.67 | deg C | CAMO-12-14010 |
| R-44 S1 | 895 | 11/17/11 | WG | Temperature | 18.57 | deg C | CAMO-12-1500 |
| R-44 S1 | 895 | 08/05/11 | WG | Temperature | 21.3 | deg C | CAMO-11-24645 |
| R-44 S1 | 895 | 05/09/13 | WG | Turbidity | 0.2 | NTU | CAMO-13-30578 |

| Location | Depth (ft) | Date | Field Matrix | Analyte | Result | Unit | Sample |
|---|---|---|---|---|---|---|---|
| R-44 S1 | 895 | 11/12/12 | WG | Turbidity | 0.43 | NTU | CAMO-13-24245 |
| R-44 S1 | 895 | 05/24/12 | WG | Turbidity | 0.57 | NTU | CAMO-12-14010 |
| R-44 S1 | 895 | 11/17/11 | WG | Turbidity | 0.42 | NTU | CAMO-12-1500 |
| R-44 S1 | 895 | 08/05/11 | WG | Turbidity | 0.58 | NTU | CAMO-11-24645 |
| R-44 S2 | 985.3 | 05/09/13 | WG | Dissolved Oxygen | 7.18 | mg/L | CAMO-13-30579 |
| R-44 S2 | 985.3 | 11/12/12 | WG | Dissolved Oxygen | 7.14 | mg/L | CAMO-13-24246 |
| R-44 S2 | 985.3 | 05/24/12 | WG | Dissolved Oxygen | 6.95 | mg/L | CAMO-12-14011 |
| R-44 S2 | 985.3 | 11/17/11 | WG | Dissolved Oxygen | 7.2 | mg/L | CAMO-12-1502 |
| R-44 S2 | 985.3 | 08/05/11 | WG | Dissolved Oxygen | 7.16 | mg/L | CAMO-11-24648 |
| R-44 S2 | 985.3 | 08/05/11 | WG | Dissolved Oxygen | 6.99 | mg/L | CAMO-11-24528 |
| R-44 S2 | 985.3 | 08/05/11 | WG | Dissolved Oxygen | 7.16 | mg/L | CAMO-11-24530 |
| R-44 S2 | 985.3 | 08/05/11 | WG | Dissolved Oxygen | 6.87 | mg/L | CAMO-11-24526 |
| R-44 S2 | 985.3 | 05/09/13 | WG | Oxidation-Reduction Potential | 139 | mV | CAMO-13-30579 |
| R-44 S2 | 985.3 | 11/12/12 | WG | Oxidation-Reduction Potential | 119.1 | mV | CAMO-13-24246 |
| R-44 S2 | 985.3 | 05/24/12 | WG | Oxidation-Reduction Potential | 275.9 | mV | CAMO-12-14011 |
| R-44 S2 | 985.3 | 11/17/11 | WG | Oxidation-Reduction Potential | 240.2 | mV | CAMO-12-1502 |
| R-44 S2 | 985.3 | 08/05/11 | WG | Oxidation-Reduction Potential | 95.1 | mV | CAMO-11-24648 |
| R-44 S2 | 985.3 | 08/05/11 | WG | Oxidation-Reduction Potential | 86.6 | mV | CAMO-11-24528 |
| R-44 S2 | 985.3 | 08/05/11 | WG | Oxidation-Reduction Potential | 95.1 | mV | CAMO-11-24530 |
| R-44 S2 | 985.3 | 08/05/11 | WG | Oxidation-Reduction Potential | 49.3 | mV | CAMO-11-24526 |
| R-44 S2 | 985.3 | 05/09/13 | WG | pH | 7.81 | SU | CAMO-13-30579 |
| R-44 S2 | 985.3 | 11/12/12 | WG | pH | 7.87 | SU | CAMO-13-24246 |
| R-44 S2 | 985.3 | 05/24/12 | WG | pH | 7.86 | SU | CAMO-12-14011 |
| R-44 S2 | 985.3 | 11/17/11 | WG | pH | 7.86 | SU | CAMO-12-1502 |
| R-44 S2 | 985.3 | 08/05/11 | WG | pH | 7.93 | SU | CAMO-11-24648 |
| R-44 S2 | 985.3 | 08/05/11 | WG | pH | 7.93 | SU | CAMO-11-24528 |
| R-44 S2 | 985.3 | 08/05/11 | WG | pH | 7.93 | SU | CAMO-11-24530 |
| R-44 S2 | 985.3 | 08/05/11 | WG | pH | 7.92 | SU | CAMO-11-24526 |

| Location | Depth (ft) | Date | Field Matrix | Analyte | Result | Unit | Sample |
|---|---|---|---|---|---|---|---|
| R-44 S2 | 985.3 | 05/09/13 | WG | Specific Conductance | 144 | µS/cm | CAMO-13-30579 |
| R-44 S2 | 985.3 | 11/12/12 | WG | Specific Conductance | 144 | µS/cm | CAMO-13-24246 |
| R-44 S2 | 985.3 | 05/24/12 | WG | Specific Conductance | 148 | µS/cm | CAMO-12-14011 |
| R-44 S2 | 985.3 | 11/17/11 | WG | Specific Conductance | 151 | µS/cm | CAMO-12-1502 |
| R-44 S2 | 985.3 | 08/05/11 | WG | Specific Conductance | 146 | µS/cm | CAMO-11-24648 |
| R-44 S2 | 985.3 | 08/05/11 | WG | Specific Conductance | 148 | µS/cm | CAMO-11-24528 |
| R-44 S2 | 985.3 | 08/05/11 | WG | Specific Conductance | 146 | µS/cm | CAMO-11-24530 |
| R-44 S2 | 985.3 | 08/05/11 | WG | Specific Conductance | 150 | µS/cm | CAMO-11-24526 |
| R-44 S2 | 985.3 | 05/09/13 | WG | Temperature | 20.78 | deg C | CAMO-13-30579 |
| R-44 S2 | 985.3 | 11/12/12 | WG | Temperature | 19.03 | deg C | CAMO-13-24246 |
| R-44 S2 | 985.3 | 05/24/12 | WG | Temperature | 21.23 | deg C | CAMO-12-14011 |
| R-44 S2 | 985.3 | 11/17/11 | WG | Temperature | 20.72 | deg C | CAMO-12-1502 |
| R-44 S2 | 985.3 | 08/05/11 | WG | Temperature | 21.38 | deg C | CAMO-11-24648 |
| R-44 S2 | 985.3 | 08/05/11 | WG | Temperature | 21.48 | deg C | CAMO-11-24528 |
| R-44 S2 | 985.3 | 08/05/11 | WG | Temperature | 21.38 | deg C | CAMO-11-24530 |
| R-44 S2 | 985.3 | 08/05/11 | WG | Temperature | 20.53 | deg C | CAMO-11-24526 |
| R-44 S2 | 985.3 | 05/09/13 | WG | Turbidity | 0.1 | NTU | CAMO-13-30579 |
| R-44 S2 | 985.3 | 11/12/12 | WG | Turbidity | 0.17 | NTU | CAMO-13-24246 |
| R-44 S2 | 985.3 | 05/24/12 | WG | Turbidity | 1.1 | NTU | CAMO-12-14011 |
| R-44 S2 | 985.3 | 11/17/11 | WG | Turbidity | 0.29 | NTU | CAMO-12-1502 |
| R-44 S2 | 985.3 | 08/05/11 | WG | Turbidity | 0.26 | NTU | CAMO-11-24648 |
| R-44 S2 | 985.3 | 08/05/11 | WG | Turbidity | 0.39 | NTU | CAMO-11-24528 |
| R-44 S2 | 985.3 | 08/05/11 | WG | Turbidity | 0.26 | NTU | CAMO-11-24530 |
| R-44 S2 | 985.3 | 08/05/11 | WG | Turbidity | 0.33 | NTU | CAMO-11-24526 |
| R-45 S1 | 880 | 05/09/13 | WG | Dissolved Oxygen | 7.14 | mg/L | CAMO-13-30580 |
| R-45 S1 | 880 | 11/06/12 | WG | Dissolved Oxygen | 7.22 | mg/L | CAMO-13-24247 |
| R-45 S1 | 880 | 05/22/12 | WG | Dissolved Oxygen | 7.18 | mg/L | CAMO-12-14012 |
| R-45 S1 | 880 | 11/16/11 | WG | Dissolved Oxygen | 7.25 | mg/L | CAMO-12-1494 |

| Location | Depth (ft) | Date | Field Matrix | Analyte | Result | Unit | Sample |
|---|---|---|---|---|---|---|---|
| R-45 S1 | 880 | 08/01/11 | WG | Dissolved Oxygen | 7.08 | mg/L | CAMO-11-24642 |
| R-45 S1 | 880 | 05/09/13 | WG | Oxidation-Reduction Potential | 303.7 | mV | CAMO-13-30580 |
| R-45 S1 | 880 | 11/06/12 | WG | Oxidation-Reduction Potential | 97.1 | mV | CAMO-13-24247 |
| R-45 S1 | 880 | 05/22/12 | WG | Oxidation-Reduction Potential | 186.5 | mV | CAMO-12-14012 |
| R-45 S1 | 880 | 11/16/11 | WG | Oxidation-Reduction Potential | 129.2 | mV | CAMO-12-1494 |
| R-45 S1 | 880 | 08/01/11 | WG | Oxidation-Reduction Potential | 119.5 | mV | CAMO-11-24642 |
| R-45 S1 | 880 | 05/09/13 | WG | pH | 7.66 | SU | CAMO-13-30580 |
| R-45 S1 | 880 | 11/06/12 | WG | pH | 7.84 | SU | CAMO-13-24247 |
| R-45 S1 | 880 | 05/22/12 | WG | pH | 7.73 | SU | CAMO-12-14012 |
| R-45 S1 | 880 | 11/16/11 | WG | pH | 7.88 | SU | CAMO-12-1494 |
| R-45 S1 | 880 | 08/01/11 | WG | pH | 7.81 | SU | CAMO-11-24642 |
| R-45 S1 | 880 | 05/09/13 | WG | Specific Conductance | 179 | µS/cm | CAMO-13-30580 |
| R-45 S1 | 880 | 11/06/12 | WG | Specific Conductance | 173 | µS/cm | CAMO-13-24247 |
| R-45 S1 | 880 | 05/22/12 | WG | Specific Conductance | 176 | µS/cm | CAMO-12-14012 |
| R-45 S1 | 880 | 11/16/11 | WG | Specific Conductance | 177 | µS/cm | CAMO-12-1494 |
| R-45 S1 | 880 | 08/01/11 | WG | Specific Conductance | 178 | µS/cm | CAMO-11-24642 |
| R-45 S1 | 880 | 05/09/13 | WG | Temperature | 19.49 | deg C | CAMO-13-30580 |
| R-45 S1 | 880 | 11/06/12 | WG | Temperature | 20.71 | deg C | CAMO-13-24247 |
| R-45 S1 | 880 | 05/22/12 | WG | Temperature | 21.38 | deg C | CAMO-12-14012 |
| R-45 S1 | 880 | 11/16/11 | WG | Temperature | 20.39 | deg C | CAMO-12-1494 |
| R-45 S1 | 880 | 08/01/11 | WG | Temperature | 21.48 | deg C | CAMO-11-24642 |
| R-45 S1 | 880 | 05/09/13 | WG | Turbidity | 0.39 | NTU | CAMO-13-30580 |
| R-45 S1 | 880 | 11/06/12 | WG | Turbidity | 0.37 | NTU | CAMO-13-24247 |
| R-45 S1 | 880 | 05/22/12 | WG | Turbidity | 0.38 | NTU | CAMO-12-14012 |
| R-45 S1 | 880 | 11/16/11 | WG | Turbidity | 0.39 | NTU | CAMO-12-1494 |
| R-45 S1 | 880 | 08/01/11 | WG | Turbidity | 0.25 | NTU | CAMO-11-24642 |
| R-45 S2 | 974.9 | 05/09/13 | WG | Dissolved Oxygen | 6.43 | mg/L | CAMO-13-30581 |
| R-45 S2 | 974.9 | 11/06/12 | WG | Dissolved Oxygen | 6.69 | mg/L | CAMO-13-24248 |

| Location | Depth (ft) | Date | Field Matrix | Analyte | Result | Unit | Sample |
|---|---|---|---|---|---|---|---|
| R-45 S2 | 974.9 | 05/22/12 | WG | Dissolved Oxygen | 6.24 | mg/L | CAMO-12-14013 |
| R-45 S2 | 974.9 | 11/16/11 | WG | Dissolved Oxygen | 6.52 | mg/L | CAMO-12-1497 |
| R-45 S2 | 974.9 | 08/01/11 | WG | Dissolved Oxygen | 6.55 | mg/L | CAMO-11-24644 |
| R-45 S2 | 974.9 | 05/09/13 | WG | Oxidation-Reduction Potential | 314.4 | mV | CAMO-13-30581 |
| R-45 S2 | 974.9 | 11/06/12 | WG | Oxidation-Reduction Potential | 86.8 | mV | CAMO-13-24248 |
| R-45 S2 | 974.9 | 05/22/12 | WG | Oxidation-Reduction Potential | 220.6 | mV | CAMO-12-14013 |
| R-45 S2 | 974.9 | 11/16/11 | WG | Oxidation-Reduction Potential | 123.4 | mV | CAMO-12-1497 |
| R-45 S2 | 974.9 | 08/01/11 | WG | Oxidation-Reduction Potential | 131.5 | mV | CAMO-11-24644 |
| R-45 S2 | 974.9 | 05/09/13 | WG | pH | 7.94 | SU | CAMO-13-30581 |
| R-45 S2 | 974.9 | 11/06/12 | WG | pH | 8.1 | SU | CAMO-13-24248 |
| R-45 S2 | 974.9 | 05/22/12 | WG | pH | 8.01 | SU | CAMO-12-14013 |
| R-45 S2 | 974.9 | 11/16/11 | WG | pH | 8.19 | SU | CAMO-12-1497 |
| R-45 S2 | 974.9 | 08/01/11 | WG | pH | 8.08 | SU | CAMO-11-24644 |
| R-45 S2 | 974.9 | 05/09/13 | WG | Specific Conductance | 170 | µS/cm | CAMO-13-30581 |
| R-45 S2 | 974.9 | 11/06/12 | WG | Specific Conductance | 104 | µS/cm | CAMO-13-24248 |
| R-45 S2 | 974.9 | 05/22/12 | WG | Specific Conductance | 170 | µS/cm | CAMO-12-14013 |
| R-45 S2 | 974.9 | 11/16/11 | WG | Specific Conductance | 170 | µS/cm | CAMO-12-1497 |
| R-45 S2 | 974.9 | 08/01/11 | WG | Specific Conductance | 173 | µS/cm | CAMO-11-24644 |
| R-45 S2 | 974.9 | 05/09/13 | WG | Temperature | 20.99 | deg C | CAMO-13-30581 |
| R-45 S2 | 974.9 | 11/06/12 | WG | Temperature | 20.82 | deg C | CAMO-13-24248 |
| R-45 S2 | 974.9 | 05/22/12 | WG | Temperature | 22.51 | deg C | CAMO-12-14013 |
| R-45 S2 | 974.9 | 11/16/11 | WG | Temperature | 20.67 | deg C | CAMO-12-1497 |
| R-45 S2 | 974.9 | 08/01/11 | WG | Temperature | 21.56 | deg C | CAMO-11-24644 |
| R-45 S2 | 974.9 | 05/09/13 | WG | Turbidity | 0.34 | NTU | CAMO-13-30581 |
| R-45 S2 | 974.9 | 11/06/12 | WG | Turbidity | 0.4 | NTU | CAMO-13-24248 |
| R-45 S2 | 974.9 | 05/22/12 | WG | Turbidity | 0.33 | NTU | CAMO-12-14013 |
| R-45 S2 | 974.9 | 11/16/11 | WG | Turbidity | 0.29 | NTU | CAMO-12-1497 |
| R-45 S2 | 974.9 | 08/01/11 | WG | Turbidity | 0.16 | NTU | CAMO-11-24644 |

| Location | Depth (ft) | Date | Field Matrix | Analyte | Result | Unit | Sample |
|---|---|---|---|---|---|---|---|
| R-50 S1 | 1077 | 05/10/13 | WG | Dissolved Oxygen | 5.48 | mg/L | CAMO-13-30582 |
| R-50 S1 | 1077 | 02/04/13 | WG | Dissolved Oxygen | 5.49 | mg/L | CAMO-13-28410 |
| R-50 S1 | 1077 | 11/09/12 | WG | Dissolved Oxygen | 5.55 | mg/L | CAMO-13-24249 |
| R-50 S1 | 1077 | 08/15/12 | WG | Dissolved Oxygen | 5.27 | mg/L | CAMO-12-21737 |
| R-50 S1 | 1077 | 05/31/12 | WG | Dissolved Oxygen | 5.33 | mg/L | CAMO-12-14014 |
| R-50 S1 | 1077 | 05/10/13 | WG | Oxidation-Reduction Potential | 248.8 | mV | CAMO-13-30582 |
| R-50 S1 | 1077 | 02/04/13 | WG | Oxidation-Reduction Potential | 155.1 | mV | CAMO-13-28410 |
| R-50 S1 | 1077 | 11/09/12 | WG | Oxidation-Reduction Potential | 81.5 | mV | CAMO-13-24249 |
| R-50 S1 | 1077 | 08/15/12 | WG | Oxidation-Reduction Potential | 156.6 | mV | CAMO-12-21737 |
| R-50 S1 | 1077 | 05/31/12 | WG | Oxidation-Reduction Potential | 87.4 | mV | CAMO-12-14014 |
| R-50 S1 | 1077 | 05/10/13 | WG | pH | 7.66 | SU | CAMO-13-30582 |
| R-50 S1 | 1077 | 02/04/13 | WG | pH | 7.91 | SU | CAMO-13-28410 |
| R-50 S1 | 1077 | 11/09/12 | WG | pH | 8.04 | SU | CAMO-13-24249 |
| R-50 S1 | 1077 | 08/15/12 | WG | pH | 8.02 | SU | CAMO-12-21737 |
| R-50 S1 | 1077 | 05/31/12 | WG | pH | 7.94 | SU | CAMO-12-14014 |
| R-50 S1 | 1077 | 05/10/13 | WG | Specific Conductance | 192 | µS/cm | CAMO-13-30582 |
| R-50 S1 | 1077 | 02/04/13 | WG | Specific Conductance | 164 | µS/cm | CAMO-13-28410 |
| R-50 S1 | 1077 | 11/09/12 | WG | Specific Conductance | 185 | µS/cm | CAMO-13-24249 |
| R-50 S1 | 1077 | 08/15/12 | WG | Specific Conductance | 175 | µS/cm | CAMO-12-21737 |
| R-50 S1 | 1077 | 05/31/12 | WG | Specific Conductance | 186 | µS/cm | CAMO-12-14014 |
| R-50 S1 | 1077 | 05/10/13 | WG | Temperature | 20.81 | deg C | CAMO-13-30582 |
| R-50 S1 | 1077 | 02/04/13 | WG | Temperature | 19.01 | deg C | CAMO-13-28410 |
| R-50 S1 | 1077 | 11/09/12 | WG | Temperature | 18.06 | deg C | CAMO-13-24249 |
| R-50 S1 | 1077 | 08/15/12 | WG | Temperature | 20.7 | deg C | CAMO-12-21737 |
| R-50 S1 | 1077 | 05/31/12 | WG | Temperature | 21.25 | deg C | CAMO-12-14014 |
| R-50 S1 | 1077 | 05/10/13 | WG | Turbidity | 0.7 | NTU | CAMO-13-30582 |
| R-50 S1 | 1077 | 02/04/13 | WG | Turbidity | 0.4 | NTU | CAMO-13-28410 |
| R-50 S1 | 1077 | 11/09/12 | WG | Turbidity | 0.63 | NTU | CAMO-13-24249 |

| Location | Depth (ft) | Date | Field Matrix | Analyte | Result | Unit | Sample |
|---|---|---|---|---|---|---|---|
| R-50 S1 | 1077 | 08/15/12 | WG | Turbidity | 0.82 | NTU | CAMO-12-21737 |
| R-50 S1 | 1077 | 05/31/12 | WG | Turbidity | 0.58 | NTU | CAMO-12-14014 |
| R-50 S2 | 1185 | 05/13/13 | WG | Dissolved Oxygen | 7.29 | mg/L | CAMO-13-30583 |
| R-50 S2 | 1185 | 01/31/13 | WG | Dissolved Oxygen | 7.27 | mg/L | CAMO-13-28411 |
| R-50 S2 | 1185 | 11/09/12 | WG | Dissolved Oxygen | 7.04 | mg/L | CAMO-13-24250 |
| R-50 S2 | 1185 | 08/16/12 | WG | Dissolved Oxygen | 6.93 | mg/L | CAMO-12-21746 |
| R-50 S2 | 1185 | 05/31/12 | WG | Dissolved Oxygen | 6.93 | mg/L | CAMO-12-14015 |
| R-50 S2 | 1185 | 05/13/13 | WG | Oxidation-Reduction Potential | 117 | mV | CAMO-13-30583 |
| R-50 S2 | 1185 | 01/31/13 | WG | Oxidation-Reduction Potential | -14.4 | mV | CAMO-13-28411 |
| R-50 S2 | 1185 | 11/09/12 | WG | Oxidation-Reduction Potential | 74 | mV | CAMO-13-24250 |
| R-50 S2 | 1185 | 08/16/12 | WG | Oxidation-Reduction Potential | 201.7 | mV | CAMO-12-21746 |
| R-50 S2 | 1185 | 05/31/12 | WG | Oxidation-Reduction Potential | 128.8 | mV | CAMO-12-14015 |
| R-50 S2 | 1185 | 05/13/13 | WG | pH | 8.07 | SU | CAMO-13-30583 |
| R-50 S2 | 1185 | 01/31/13 | WG | pH | 8.1 | SU | CAMO-13-28411 |
| R-50 S2 | 1185 | 11/09/12 | WG | pH | 8.13 | SU | CAMO-13-24250 |
| R-50 S2 | 1185 | 08/16/12 | WG | pH | 8.06 | SU | CAMO-12-21746 |
| R-50 S2 | 1185 | 05/31/12 | WG | pH | 8.06 | SU | CAMO-12-14015 |
| R-50 S2 | 1185 | 05/13/13 | WG | Specific Conductance | 131 | µS/cm | CAMO-13-30583 |
| R-50 S2 | 1185 | 01/31/13 | WG | Specific Conductance | 135 | µS/cm | CAMO-13-28411 |
| R-50 S2 | 1185 | 11/09/12 | WG | Specific Conductance | 139 | µS/cm | CAMO-13-24250 |
| R-50 S2 | 1185 | 08/16/12 | WG | Specific Conductance | 127 | µS/cm | CAMO-12-21746 |
| R-50 S2 | 1185 | 05/31/12 | WG | Specific Conductance | 133 | µS/cm | CAMO-12-14015 |
| R-50 S2 | 1185 | 05/13/13 | WG | Temperature | 22.85 | deg C | CAMO-13-30583 |
| R-50 S2 | 1185 | 01/31/13 | WG | Temperature | 19.45 | deg C | CAMO-13-28411 |
| R-50 S2 | 1185 | 11/09/12 | WG | Temperature | 18.57 | deg C | CAMO-13-24250 |
| R-50 S2 | 1185 | 08/16/12 | WG | Temperature | 21.64 | deg C | CAMO-12-21746 |
| R-50 S2 | 1185 | 05/31/12 | WG | Temperature | 21.56 | deg C | CAMO-12-14015 |
| R-50 S2 | 1185 | 05/13/13 | WG | Turbidity | 1 | NTU | CAMO-13-30583 |

| Location | Depth (ft) | Date | Field Matrix | Analyte | Result | Unit | Sample |
|---|---|---|---|---|---|---|---|
| R-50 S2 | 1185 | 01/31/13 | WG | Turbidity | 1.83 | NTU | CAMO-13-28411 |
| R-50 S2 | 1185 | 11/09/12 | WG | Turbidity | 1.24 | NTU | CAMO-13-24250 |
| R-50 S2 | 1185 | 08/16/12 | WG | Turbidity | 0.43 | NTU | CAMO-12-21746 |
| R-50 S2 | 1185 | 05/31/12 | WG | Turbidity | 1.93 | NTU | CAMO-12-14015 |
| R-61 S1 | 1125 | 05/17/13 | WG | Dissolved Oxygen | 5.97 | mg/L | CAMO-13-30584 |
| R-61 S1 | 1125 | 02/11/13 | WG | Dissolved Oxygen | 5.44 | mg/L | CAMO-13-28412 |
| R-61 S1 | 1125 | 11/15/12 | WG | Dissolved Oxygen | 4.77 | mg/L | CAMO-13-24251 |
| R-61 S1 | 1125 | 05/09/12 | WG | Dissolved Oxygen | 0.48 | mg/L | CAMO-12-13962 |
| R-61 S1 | 1125 | 05/09/12 | WG | Dissolved Oxygen | 0.42 | mg/L | CAMO-12-13963 |
| R-61 S1 | 1125 | 05/09/12 | WG | Dissolved Oxygen | 0.76 | mg/L | CAMO-12-13964 |
| R-61 S1 | 1125 | 05/09/12 | WG | Dissolved Oxygen | 1.51 | mg/L | CAMO-12-13965 |
| R-61 S1 | 1125 | 02/07/12 | WG | Dissolved Oxygen | 3.11 | mg/L | CAMO-12-2236 |
| R-61 S1 | 1125 | 02/07/12 | WG | Dissolved Oxygen | 2.57 | mg/L | CAMO-12-2238 |
| R-61 S1 | 1125 | 02/07/12 | WG | Dissolved Oxygen | 3.8 | mg/L | CAMO-12-2229 |
| R-61 S1 | 1125 | 02/07/12 | WG | Dissolved Oxygen | 0.74 | mg/L | CAMO-12-2243 |
| R-61 S1 | 1125 | 02/07/12 | WG | Dissolved Oxygen | 2.08 | mg/L | CAMO-12-2245 |
| R-61 S1 | 1125 | 02/07/12 | WG | Dissolved Oxygen | 1.68 | mg/L | CAMO-12-2239 |
| R-61 S1 | 1125 | 02/07/12 | WG | Dissolved Oxygen | 1.18 | mg/L | CAMO-12-2241 |
| R-61 S1 | 1125 | 02/07/12 | WG | Dissolved Oxygen | 3.8 | mg/L | CAMO-12-2248 |
| R-61 S1 | 1125 | 05/17/13 | WG | Oxidation-Reduction Potential | 251.4 | mV | CAMO-13-30584 |
| R-61 S1 | 1125 | 02/11/13 | WG | Oxidation-Reduction Potential | 14.5 | mV | CAMO-13-28412 |
| R-61 S1 | 1125 | 11/15/12 | WG | Oxidation-Reduction Potential | 202.1 | mV | CAMO-13-24251 |
| R-61 S1 | 1125 | 05/09/12 | WG | Oxidation-Reduction Potential | -52.2 | mV | CAMO-12-13962 |
| R-61 S1 | 1125 | 05/09/12 | WG | Oxidation-Reduction Potential | -74.3 | mV | CAMO-12-13963 |
| R-61 S1 | 1125 | 05/09/12 | WG | Oxidation-Reduction Potential | -42.1 | mV | CAMO-12-13964 |
| R-61 S1 | 1125 | 05/09/12 | WG | Oxidation-Reduction Potential | -23.5 | mV | CAMO-12-13965 |
| R-61 S1 | 1125 | 02/07/12 | WG | Oxidation-Reduction Potential | -39.9 | mV | CAMO-12-2236 |
| R-61 S1 | 1125 | 02/07/12 | WG | Oxidation-Reduction Potential | -62.2 | mV | CAMO-12-2238 |

| Location | Depth (ft) | Date | Field Matrix | Analyte | Result | Unit | Sample |
|---|---|---|---|---|---|---|---|
| R-61 S1 | 1125 | 02/07/12 | WG | Oxidation-Reduction Potential | -13.6 | mV | CAMO-12-2229 |
| R-61 S1 | 1125 | 02/07/12 | WG | Oxidation-Reduction Potential | -98.6 | mV | CAMO-12-2243 |
| R-61 S1 | 1125 | 02/07/12 | WG | Oxidation-Reduction Potential | -142.6 | mV | CAMO-12-2245 |
| R-61 S1 | 1125 | 02/07/12 | WG | Oxidation-Reduction Potential | -67.1 | mV | CAMO-12-2239 |
| R-61 S1 | 1125 | 02/07/12 | WG | Oxidation-Reduction Potential | -74.2 | mV | CAMO-12-2241 |
| R-61 S1 | 1125 | 02/07/12 | WG | Oxidation-Reduction Potential | -13.6 | mV | CAMO-12-2248 |
| R-61 S1 | 1125 | 05/17/13 | WG | pH | 6.71 | SU | CAMO-13-30584 |
| R-61 S1 | 1125 | 02/11/13 | WG | pH | 6.65 | SU | CAMO-13-28412 |
| R-61 S1 | 1125 | 11/15/12 | WG | pH | 6.53 | SU | CAMO-13-24251 |
| R-61 S1 | 1125 | 05/09/12 | WG | pH | 6.65 | SU | CAMO-12-13962 |
| R-61 S1 | 1125 | 05/09/12 | WG | pH | 7.07 | SU | CAMO-12-13963 |
| R-61 S1 | 1125 | 05/09/12 | WG | pH | 7.04 | SU | CAMO-12-13964 |
| R-61 S1 | 1125 | 05/09/12 | WG | pH | 7 | SU | CAMO-12-13965 |
| R-61 S1 | 1125 | 02/07/12 | WG | pH | 7.03 | SU | CAMO-12-2236 |
| R-61 S1 | 1125 | 02/07/12 | WG | pH | 6.99 | SU | CAMO-12-2238 |
| R-61 S1 | 1125 | 02/07/12 | WG | pH | 7.08 | SU | CAMO-12-2229 |
| R-61 S1 | 1125 | 02/07/12 | WG | pH | 7.02 | SU | CAMO-12-2243 |
| R-61 S1 | 1125 | 02/07/12 | WG | pH | 7.03 | SU | CAMO-12-2245 |
| R-61 S1 | 1125 | 02/07/12 | WG | pH | 6.94 | SU | CAMO-12-2239 |
| R-61 S1 | 1125 | 02/07/12 | WG | pH | 6.93 | SU | CAMO-12-2241 |
| R-61 S1 | 1125 | 02/07/12 | WG | pH | 7.08 | SU | CAMO-12-2248 |
| R-61 S1 | 1125 | 05/17/13 | WG | Specific Conductance | 155 | µS/cm | CAMO-13-30584 |
| R-61 S1 | 1125 | 02/11/13 | WG | Specific Conductance | 167 | µS/cm | CAMO-13-28412 |
| R-61 S1 | 1125 | 11/15/12 | WG | Specific Conductance | 180 | µS/cm | CAMO-13-24251 |
| R-61 S1 | 1125 | 05/09/12 | WG | Specific Conductance | 200 | µS/cm | CAMO-12-13962 |
| R-61 S1 | 1125 | 05/09/12 | WG | Specific Conductance | 172 | µS/cm | CAMO-12-13963 |
| R-61 S1 | 1125 | 05/09/12 | WG | Specific Conductance | 157 | µS/cm | CAMO-12-13964 |
| R-61 S1 | 1125 | 05/09/12 | WG | Specific Conductance | 157 | µS/cm | CAMO-12-13965 |

| Location | Depth (ft) | Date | Field Matrix | Analyte | Result | Unit | Sample |
|---|---|---|---|---|---|---|---|
| R-61 S1 | 1125 | 02/07/12 | WG | Specific Conductance | 148 | µS/cm | CAMO-12-2236 |
| R-61 S1 | 1125 | 02/07/12 | WG | Specific Conductance | 163 | µS/cm | CAMO-12-2238 |
| R-61 S1 | 1125 | 02/07/12 | WG | Specific Conductance | 139 | µS/cm | CAMO-12-2229 |
| R-61 S1 | 1125 | 02/07/12 | WG | Specific Conductance | 171 | µS/cm | CAMO-12-2243 |
| R-61 S1 | 1125 | 02/07/12 | WG | Specific Conductance | 189 | µS/cm | CAMO-12-2245 |
| R-61 S1 | 1125 | 02/07/12 | WG | Specific Conductance | 173 | µS/cm | CAMO-12-2239 |
| R-61 S1 | 1125 | 02/07/12 | WG | Specific Conductance | 175 | µS/cm | CAMO-12-2241 |
| R-61 S1 | 1125 | 02/07/12 | WG | Specific Conductance | 139 | µS/cm | CAMO-12-2248 |
| R-61 S1 | 1125 | 05/17/13 | WG | Temperature | 20.89 | deg C | CAMO-13-30584 |
| R-61 S1 | 1125 | 02/11/13 | WG | Temperature | 19.43 | deg C | CAMO-13-28412 |
| R-61 S1 | 1125 | 11/15/12 | WG | Temperature | 19.4 | deg C | CAMO-13-24251 |
| R-61 S1 | 1125 | 05/09/12 | WG | Temperature | 20.09 | deg C | CAMO-12-13962 |
| R-61 S1 | 1125 | 05/09/12 | WG | Temperature | 20.38 | deg C | CAMO-12-13963 |
| R-61 S1 | 1125 | 05/09/12 | WG | Temperature | 20.86 | deg C | CAMO-12-13964 |
| R-61 S1 | 1125 | 05/09/12 | WG | Temperature | 21.28 | deg C | CAMO-12-13965 |
| R-61 S1 | 1125 | 02/07/12 | WG | Temperature | 19 | deg C | CAMO-12-2236 |
| R-61 S1 | 1125 | 02/07/12 | WG | Temperature | 19.99 | deg C | CAMO-12-2238 |
| R-61 S1 | 1125 | 02/07/12 | WG | Temperature | 18.59 | deg C | CAMO-12-2229 |
| R-61 S1 | 1125 | 02/07/12 | WG | Temperature | 16.66 | deg C | CAMO-12-2243 |
| R-61 S1 | 1125 | 02/07/12 | WG | Temperature | 13.46 | deg C | CAMO-12-2245 |
| R-61 S1 | 1125 | 02/07/12 | WG | Temperature | 16.93 | deg C | CAMO-12-2239 |
| R-61 S1 | 1125 | 02/07/12 | WG | Temperature | 18.17 | deg C | CAMO-12-2241 |
| R-61 S1 | 1125 | 02/07/12 | WG | Temperature | 18.59 | deg C | CAMO-12-2248 |
| R-61 S1 | 1125 | 05/17/13 | WG | Turbidity | 3 | NTU | CAMO-13-30584 |
| R-61 S1 | 1125 | 02/11/13 | WG | Turbidity | 4.4 | NTU | CAMO-13-28412 |
| R-61 S1 | 1125 | 11/15/12 | WG | Turbidity | 4.55 | NTU | CAMO-13-24251 |
| R-61 S1 | 1125 | 05/09/12 | WG | Turbidity | 2.86 | NTU | CAMO-12-13962 |
| R-61 S1 | 1125 | 05/09/12 | WG | Turbidity | 5.86 | NTU | CAMO-12-13963 |

| Location | Depth (ft) | Date | Field Matrix | Analyte | Result | Unit | Sample |
|---|---|---|---|---|---|---|---|
| R-61 S1 | 1125 | 05/09/12 | WG | Turbidity | 4.49 | NTU | CAMO-12-13964 |
| R-61 S1 | 1125 | 05/09/12 | WG | Turbidity | 1.29 | NTU | CAMO-12-13965 |
| R-61 S1 | 1125 | 02/07/12 | WG | Turbidity | 1.61 | NTU | CAMO-12-2236 |
| R-61 S1 | 1125 | 02/07/12 | WG | Turbidity | 1.24 | NTU | CAMO-12-2238 |
| R-61 S1 | 1125 | 02/07/12 | WG | Turbidity | 4.35 | NTU | CAMO-12-2229 |
| R-61 S1 | 1125 | 02/07/12 | WG | Turbidity | 2.71 | NTU | CAMO-12-2243 |
| R-61 S1 | 1125 | 02/07/12 | WG | Turbidity | 1.32 | NTU | CAMO-12-2245 |
| R-61 S1 | 1125 | 02/07/12 | WG | Turbidity | 1.43 | NTU | CAMO-12-2239 |
| R-61 S1 | 1125 | 02/07/12 | WG | Turbidity | 1.8 | NTU | CAMO-12-2241 |
| R-61 S1 | 1125 | 02/07/12 | WG | Turbidity | 4.35 | NTU | CAMO-12-2248 |
| R-61 S2 | 1220.4 | 05/22/13 | WG | Dissolved Oxygen | 2.96 | mg/L | CAMO-13-30585 |
| R-61 S2 | 1220.4 | 02/12/13 | WG | Dissolved Oxygen | 1.85 | mg/L | CAMO-13-28413 |
| R-61 S2 | 1220.4 | 11/15/12 | WG | Dissolved Oxygen | 3.34 | mg/L | CAMO-13-24252 |
| R-61 S2 | 1220.4 | 05/09/12 | WG | Dissolved Oxygen | 1.18 | mg/L | CAMO-12-13966 |
| R-61 S2 | 1220.4 | 05/09/12 | WG | Dissolved Oxygen | 0.3 | mg/L | CAMO-12-13967 |
| R-61 S2 | 1220.4 | 05/09/12 | WG | Dissolved Oxygen | 0.39 | mg/L | CAMO-12-13968 |
| R-61 S2 | 1220.4 | 05/09/12 | WG | Dissolved Oxygen | 0.42 | mg/L | CAMO-12-13969 |
| R-61 S2 | 1220.4 | 02/08/12 | WG | Dissolved Oxygen | 0.39 | mg/L | CAMO-12-2253 |
| R-61 S2 | 1220.4 | 02/08/12 | WG | Dissolved Oxygen | 1.11 | mg/L | CAMO-12-2251 |
| R-61 S2 | 1220.4 | 02/08/12 | WG | Dissolved Oxygen | 0.27 | mg/L | CAMO-12-2256 |
| R-61 S2 | 1220.4 | 02/08/12 | WG | Dissolved Oxygen | 0.23 | mg/L | CAMO-12-2258 |
| R-61 S2 | 1220.4 | 02/08/12 | WG | Dissolved Oxygen | 2.11 | mg/L | CAMO-12-2232 |
| R-61 S2 | 1220.4 | 02/08/12 | WG | Dissolved Oxygen | 7.07 | mg/L | CAMO-12-2259 |
| R-61 S2 | 1220.4 | 05/22/13 | WG | Oxidation-Reduction Potential | 93.6 | mV | CAMO-13-30585 |
| R-61 S2 | 1220.4 | 02/12/13 | WG | Oxidation-Reduction Potential | -83.4 | mV | CAMO-13-28413 |
| R-61 S2 | 1220.4 | 11/15/12 | WG | Oxidation-Reduction Potential | 48.7 | mV | CAMO-13-24252 |
| R-61 S2 | 1220.4 | 05/09/12 | WG | Oxidation-Reduction Potential | -148.9 | mV | CAMO-12-13966 |
| R-61 S2 | 1220.4 | 05/09/12 | WG | Oxidation-Reduction Potential | -77.3 | mV | CAMO-12-13967 |

| Location | Depth (ft) | Date | Field Matrix | Analyte | Result | Unit | Sample |
|---|---|---|---|---|---|---|---|
| R-61 S2 | 1220.4 | 05/09/12 | WG | Oxidation-Reduction Potential | -78.1 | mV | CAMO-12-13968 |
| R-61 S2 | 1220.4 | 05/09/12 | WG | Oxidation-Reduction Potential | -59.4 | mV | CAMO-12-13969 |
| R-61 S2 | 1220.4 | 02/08/12 | WG | Oxidation-Reduction Potential | -100.3 | mV | CAMO-12-2253 |
| R-61 S2 | 1220.4 | 02/08/12 | WG | Oxidation-Reduction Potential | -77.9 | mV | CAMO-12-2251 |
| R-61 S2 | 1220.4 | 02/08/12 | WG | Oxidation-Reduction Potential | -102.1 | mV | CAMO-12-2256 |
| R-61 S2 | 1220.4 | 02/08/12 | WG | Oxidation-Reduction Potential | -100.1 | mV | CAMO-12-2258 |
| R-61 S2 | 1220.4 | 02/08/12 | WG | Oxidation-Reduction Potential | -61.6 | mV | CAMO-12-2232 |
| R-61 S2 | 1220.4 | 02/08/12 | WG | Oxidation-Reduction Potential | 160.8 | mV | CAMO-12-2259 |
| R-61 S2 | 1220.4 | 05/22/13 | WG | pH | 6.56 | SU | CAMO-13-30585 |
| R-61 S2 | 1220.4 | 02/12/13 | WG | pH | 6.47 | SU | CAMO-13-28413 |
| R-61 S2 | 1220.4 | 11/15/12 | WG | pH | 6.46 | SU | CAMO-13-24252 |
| R-61 S2 | 1220.4 | 05/09/12 | WG | pH | 7.13 | SU | CAMO-12-13966 |
| R-61 S2 | 1220.4 | 05/09/12 | WG | pH | 6.82 | SU | CAMO-12-13967 |
| R-61 S2 | 1220.4 | 05/09/12 | WG | pH | 6.82 | SU | CAMO-12-13968 |
| R-61 S2 | 1220.4 | 05/09/12 | WG | pH | 6.81 | SU | CAMO-12-13969 |
| R-61 S2 | 1220.4 | 02/08/12 | WG | pH | 7.17 | SU | CAMO-12-2253 |
| R-61 S2 | 1220.4 | 02/08/12 | WG | pH | 7.12 | SU | CAMO-12-2251 |
| R-61 S2 | 1220.4 | 02/08/12 | WG | pH | 7.14 | SU | CAMO-12-2256 |
| R-61 S2 | 1220.4 | 02/08/12 | WG | pH | 7 | SU | CAMO-12-2258 |
| R-61 S2 | 1220.4 | 02/08/12 | WG | pH | 7.21 | SU | CAMO-12-2232 |
| R-61 S2 | 1220.4 | 02/08/12 | WG | pH | 6.99 | SU | CAMO-12-2259 |
| R-61 S2 | 1220.4 | 05/22/13 | WG | Specific Conductance | 152 | µS/cm | CAMO-13-30585 |
| R-61 S2 | 1220.4 | 02/12/13 | WG | Specific Conductance | 205 | µS/cm | CAMO-13-28413 |
| R-61 S2 | 1220.4 | 11/15/12 | WG | Specific Conductance | 199 | µS/cm | CAMO-13-24252 |
| R-61 S2 | 1220.4 | 05/09/12 | WG | Specific Conductance | 193 | µS/cm | CAMO-12-13966 |
| R-61 S2 | 1220.4 | 05/09/12 | WG | Specific Conductance | 243 | µS/cm | CAMO-12-13967 |
| R-61 S2 | 1220.4 | 05/09/12 | WG | Specific Conductance | 220 | µS/cm | CAMO-12-13968 |
| R-61 S2 | 1220.4 | 05/09/12 | WG | Specific Conductance | 175 | µS/cm | CAMO-12-13969 |

| Location | Depth (ft) | Date | Field Matrix | Analyte | Result | Unit | Sample |
|---|---|---|---|---|---|---|---|
| R-61 S2 | 1220.4 | 02/08/12 | WG | Specific Conductance | 215 | µS/cm | CAMO-12-2253 |
| R-61 S2 | 1220.4 | 02/08/12 | WG | Specific Conductance | 180 | µS/cm | CAMO-12-2251 |
| R-61 S2 | 1220.4 | 02/08/12 | WG | Specific Conductance | 178 | µS/cm | CAMO-12-2256 |
| R-61 S2 | 1220.4 | 02/08/12 | WG | Specific Conductance | 241 | µS/cm | CAMO-12-2258 |
| R-61 S2 | 1220.4 | 02/08/12 | WG | Specific Conductance | 154 | µS/cm | CAMO-12-2232 |
| R-61 S2 | 1220.4 | 02/08/12 | WG | Specific Conductance | 167 | µS/cm | CAMO-12-2259 |
| R-61 S2 | 1220.4 | 05/22/13 | WG | Temperature | 21.05 | deg C | CAMO-13-30585 |
| R-61 S2 | 1220.4 | 02/12/13 | WG | Temperature | 18.96 | deg C | CAMO-13-28413 |
| R-61 S2 | 1220.4 | 11/15/12 | WG | Temperature | 19.28 | deg C | CAMO-13-24252 |
| R-61 S2 | 1220.4 | 05/09/12 | WG | Temperature | 16.14 | deg C | CAMO-12-13966 |
| R-61 S2 | 1220.4 | 05/09/12 | WG | Temperature | 19.07 | deg C | CAMO-12-13967 |
| R-61 S2 | 1220.4 | 05/09/12 | WG | Temperature | 19.64 | deg C | CAMO-12-13968 |
| R-61 S2 | 1220.4 | 05/09/12 | WG | Temperature | 20.96 | deg C | CAMO-12-13969 |
| R-61 S2 | 1220.4 | 02/08/12 | WG | Temperature | 17.91 | deg C | CAMO-12-2253 |
| R-61 S2 | 1220.4 | 02/08/12 | WG | Temperature | 19.74 | deg C | CAMO-12-2251 |
| R-61 S2 | 1220.4 | 02/08/12 | WG | Temperature | 19.89 | deg C | CAMO-12-2256 |
| R-61 S2 | 1220.4 | 02/08/12 | WG | Temperature | 20.06 | deg C | CAMO-12-2258 |
| R-61 S2 | 1220.4 | 02/08/12 | WG | Temperature | 20.8 | deg C | CAMO-12-2232 |
| R-61 S2 | 1220.4 | 02/08/12 | WG | Temperature | 15.85 | deg C | CAMO-12-2259 |
| R-61 S2 | 1220.4 | 05/22/13 | WG | Turbidity | 12.3 | NTU | CAMO-13-30585 |
| R-61 S2 | 1220.4 | 02/12/13 | WG | Turbidity | 4.63 | NTU | CAMO-13-28413 |
| R-61 S2 | 1220.4 | 11/15/12 | WG | Turbidity | 6.19 | NTU | CAMO-13-24252 |
| R-61 S2 | 1220.4 | 05/09/12 | WG | Turbidity | 3.03 | NTU | CAMO-12-13966 |
| R-61 S2 | 1220.4 | 05/09/12 | WG | Turbidity | 0.91 | NTU | CAMO-12-13967 |
| R-61 S2 | 1220.4 | 05/09/12 | WG | Turbidity | 0.96 | NTU | CAMO-12-13968 |
| R-61 S2 | 1220.4 | 05/09/12 | WG | Turbidity | 0.84 | NTU | CAMO-12-13969 |
| R-61 S2 | 1220.4 | 02/08/12 | WG | Turbidity | 0.85 | NTU | CAMO-12-2253 |
| R-61 S2 | 1220.4 | 02/08/12 | WG | Turbidity | 0.77 | NTU | CAMO-12-2251 |

| Location | Depth (ft) | Date | Field Matrix | Analyte | Result | Unit | Sample |
|---|---|---|---|---|---|---|---|
| R-61 S2 | 1220.4 | 02/08/12 | WG | Turbidity | 0.94 | NTU | CAMO-12-2256 |
| R-61 S2 | 1220.4 | 02/08/12 | WG | Turbidity | 1.12 | NTU | CAMO-12-2258 |
| R-61 S2 | 1220.4 | 02/08/12 | WG | Turbidity | 0.79 | NTU | CAMO-12-2232 |
| R-61 S2 | 1220.4 | 02/08/12 | WG | Turbidity | 9.86 | NTU | CAMO-12-2259 |
| R-62 | 1158.4 | 05/08/13 | WG | Dissolved Oxygen | 5.03 | mg/L | CAMO-13-30602 |
| R-62 | 1158.4 | 02/05/13 | WG | Dissolved Oxygen | 5.37 | mg/L | CAMO-13-28414 |
| R-62 | 1158.4 | 11/08/12 | WG | Dissolved Oxygen | 5.41 | mg/L | CAMO-13-24253 |
| R-62 | 1158.4 | 11/08/12 | WG | Dissolved Oxygen | 6.34 | mg/L | CAMO-13-24533 |
| R-62 | 1158.4 | 11/08/12 | WG | Dissolved Oxygen | 6.56 | mg/L | CAMO-13-24534 |
| R-62 | 1158.4 | 11/08/12 | WG | Dissolved Oxygen | 6.78 | mg/L | CAMO-13-24537 |
| R-62 | 1158.4 | 08/08/12 | WG | Dissolved Oxygen | 6.01 | mg/L | CAMO-12-21741 |
| R-62 | 1158.4 | 06/06/12 | WG | Dissolved Oxygen | 5.34 | mg/L | CAMO-12-14018 |
| R-62 | 1158.4 | 05/08/13 | WG | Oxidation-Reduction Potential | 192.2 | mV | CAMO-13-30602 |
| R-62 | 1158.4 | 02/05/13 | WG | Oxidation-Reduction Potential | 179.4 | mV | CAMO-13-28414 |
| R-62 | 1158.4 | 11/08/12 | WG | Oxidation-Reduction Potential | 57.9 | mV | CAMO-13-24253 |
| R-62 | 1158.4 | 11/08/12 | WG | Oxidation-Reduction Potential | 60.9 | mV | CAMO-13-24533 |
| R-62 | 1158.4 | 11/08/12 | WG | Oxidation-Reduction Potential | 67.1 | mV | CAMO-13-24534 |
| R-62 | 1158.4 | 11/08/12 | WG | Oxidation-Reduction Potential | 68.1 | mV | CAMO-13-24537 |
| R-62 | 1158.4 | 08/08/12 | WG | Oxidation-Reduction Potential | 72.7 | mV | CAMO-12-21741 |
| R-62 | 1158.4 | 06/06/12 | WG | Oxidation-Reduction Potential | 208 | mV | CAMO-12-14018 |
| R-62 | 1158.4 | 05/08/13 | WG | pH | 8.52 | SU | CAMO-13-30602 |
| R-62 | 1158.4 | 02/05/13 | WG | pH | 8.71 | SU | CAMO-13-28414 |
| R-62 | 1158.4 | 11/08/12 | WG | pH | 8.77 | SU | CAMO-13-24253 |
| R-62 | 1158.4 | 11/08/12 | WG | pH | 8.54 | SU | CAMO-13-24533 |
| R-62 | 1158.4 | 11/08/12 | WG | pH | 8.44 | SU | CAMO-13-24534 |
| R-62 | 1158.4 | 11/08/12 | WG | pH | 8.37 | SU | CAMO-13-24537 |
| R-62 | 1158.4 | 08/08/12 | WG | pH | 8.31 | SU | CAMO-12-21741 |
| R-62 | 1158.4 | 06/06/12 | WG | pH | 8.72 | SU | CAMO-12-14018 |

| Location | Depth (ft) | Date | Field Matrix | Analyte | Result | Unit | Sample |
|---|---|---|---|---|---|---|---|
| R-62 | 1158.4 | 05/08/13 | WG | Specific Conductance | 178 | µS/cm | CAMO-13-30602 |
| R-62 | 1158.4 | 02/05/13 | WG | Specific Conductance | 184 | µS/cm | CAMO-13-28414 |
| R-62 | 1158.4 | 11/08/12 | WG | Specific Conductance | 188 | µS/cm | CAMO-13-24253 |
| R-62 | 1158.4 | 11/08/12 | WG | Specific Conductance | 188 | µS/cm | CAMO-13-24533 |
| R-62 | 1158.4 | 11/08/12 | WG | Specific Conductance | 190 | µS/cm | CAMO-13-24534 |
| R-62 | 1158.4 | 11/08/12 | WG | Specific Conductance | 190 | µS/cm | CAMO-13-24537 |
| R-62 | 1158.4 | 08/08/12 | WG | Specific Conductance | 165 | µS/cm | CAMO-12-21741 |
| R-62 | 1158.4 | 06/06/12 | WG | Specific Conductance | 172 | µS/cm | CAMO-12-14018 |
| R-62 | 1158.4 | 05/08/13 | WG | Temperature | 19.67 | deg C | CAMO-13-30602 |
| R-62 | 1158.4 | 02/05/13 | WG | Temperature | 19.14 | deg C | CAMO-13-28414 |
| R-62 | 1158.4 | 11/08/12 | WG | Temperature | 19.22 | deg C | CAMO-13-24253 |
| R-62 | 1158.4 | 11/08/12 | WG | Temperature | 19.84 | deg C | CAMO-13-24533 |
| R-62 | 1158.4 | 11/08/12 | WG | Temperature | 20 | deg C | CAMO-13-24534 |
| R-62 | 1158.4 | 11/08/12 | WG | Temperature | 19.92 | deg C | CAMO-13-24537 |
| R-62 | 1158.4 | 08/08/12 | WG | Temperature | 21.83 | deg C | CAMO-12-21741 |
| R-62 | 1158.4 | 06/06/12 | WG | Temperature | 22.32 | deg C | CAMO-12-14018 |
| R-62 | 1158.4 | 05/08/13 | WG | Turbidity | 4.5 | NTU | CAMO-13-30602 |
| R-62 | 1158.4 | 02/05/13 | WG | Turbidity | 0.31 | NTU | CAMO-13-28414 |
| R-62 | 1158.4 | 11/08/12 | WG | Turbidity | 0.55 | NTU | CAMO-13-24253 |
| R-62 | 1158.4 | 11/08/12 | WG | Turbidity | 1.64 | NTU | CAMO-13-24533 |
| R-62 | 1158.4 | 11/08/12 | WG | Turbidity | 1.02 | NTU | CAMO-13-24534 |
| R-62 | 1158.4 | 11/08/12 | WG | Turbidity | 2.95 | NTU | CAMO-13-24537 |
| R-62 | 1158.4 | 08/08/12 | WG | Turbidity | 0.65 | NTU | CAMO-12-21741 |
| R-62 | 1158.4 | 06/06/12 | WG | Turbidity | 2.51 | NTU | CAMO-12-14018 |
| SCI-1 | 358.4 | 05/17/13 | WG | Dissolved Oxygen | 8.69 | mg/L | CASA-13-30548 |
| SCI-1 | 358.4 | 11/02/12 | WG | Dissolved Oxygen | 8.96 | mg/L | CASA-13-24215 |
| SCI-1 | 358.4 | 05/21/12 | WG | Dissolved Oxygen | 8.84 | mg/L | CASA-12-14060 |
| SCI-1 | 358.4 | 05/21/12 | WG | Dissolved Oxygen | 8.84 | mg/L | CASA-12-14065 |

| Location | Depth (ft) | Date | Field Matrix | Analyte | Result | Unit | Sample |
|---|---|---|---|---|---|---|---|
| SCI-1 | 358.4 | 11/16/11 | WG | Dissolved Oxygen | 8.96 | mg/L | CASA-12-1373 |
| SCI-1 | 358.4 | 08/16/11 | WG | Dissolved Oxygen | 8.78 | mg/L | CASA-11-24834 |
| SCI-1 | 358.4 | 08/16/11 | WG | Dissolved Oxygen | 8.78 | mg/L | CASA-11-24764 |
| SCI-1 | 358.4 | 08/16/11 | WG | Dissolved Oxygen | 8.89 | mg/L | CASA-11-24841 |
| SCI-1 | 358.4 | 08/16/11 | WG | Dissolved Oxygen | 8.94 | mg/L | CASA-11-24843 |
| SCI-1 | 358.4 | 05/17/13 | WG | Oxidation-Reduction Potential | 67.4 | mV | CASA-13-30548 |
| SCI-1 | 358.4 | 11/02/12 | WG | Oxidation-Reduction Potential | 165.3 | mV | CASA-13-24215 |
| SCI-1 | 358.4 | 05/21/12 | WG | Oxidation-Reduction Potential | 216.4 | mV | CASA-12-14060 |
| SCI-1 | 358.4 | 05/21/12 | WG | Oxidation-Reduction Potential | 216.4 | mV | CASA-12-14065 |
| SCI-1 | 358.4 | 11/16/11 | WG | Oxidation-Reduction Potential | 229.8 | mV | CASA-12-1373 |
| SCI-1 | 358.4 | 08/16/11 | WG | Oxidation-Reduction Potential | 149.3 | mV | CASA-11-24834 |
| SCI-1 | 358.4 | 08/16/11 | WG | Oxidation-Reduction Potential | 149.3 | mV | CASA-11-24764 |
| SCI-1 | 358.4 | 08/16/11 | WG | Oxidation-Reduction Potential | 113.1 | mV | CASA-11-24841 |
| SCI-1 | 358.4 | 08/16/11 | WG | Oxidation-Reduction Potential | 102.6 | mV | CASA-11-24843 |
| SCI-1 | 358.4 | 05/17/13 | WG | pH | 7.09 | SU | CASA-13-30548 |
| SCI-1 | 358.4 | 11/02/12 | WG | pH | 7.09 | SU | CASA-13-24215 |
| SCI-1 | 358.4 | 05/21/12 | WG | pH | 6.95 | SU | CASA-12-14060 |
| SCI-1 | 358.4 | 05/21/12 | WG | pH | 6.95 | SU | CASA-12-14065 |
| SCI-1 | 358.4 | 11/16/11 | WG | pH | 7.13 | SU | CASA-12-1373 |
| SCI-1 | 358.4 | 08/16/11 | WG | pH | 7.11 | SU | CASA-11-24834 |
| SCI-1 | 358.4 | 08/16/11 | WG | pH | 7.11 | SU | CASA-11-24764 |
| SCI-1 | 358.4 | 08/16/11 | WG | pH | 7.19 | SU | CASA-11-24841 |
| SCI-1 | 358.4 | 08/16/11 | WG | pH | 7.18 | SU | CASA-11-24843 |
| SCI-1 | 358.4 | 05/17/13 | WG | Specific Conductance | 719 | µS/cm | CASA-13-30548 |
| SCI-1 | 358.4 | 11/02/12 | WG | Specific Conductance | 695 | µS/cm | CASA-13-24215 |
| SCI-1 | 358.4 | 05/21/12 | WG | Specific Conductance | 713 | µS/cm | CASA-12-14060 |
| SCI-1 | 358.4 | 05/21/12 | WG | Specific Conductance | 713 | µS/cm | CASA-12-14065 |
| SCI-1 | 358.4 | 11/16/11 | WG | Specific Conductance | 712 | µS/cm | CASA-12-1373 |

| Location | Depth (ft) | Date | Field Matrix | Analyte | Result | Unit | Sample |
|---|---|---|---|---|---|---|---|
| SCI-1 | 358.4 | 08/16/11 | WG | Specific Conductance | 750 | µS/cm | CASA-11-24834 |
| SCI-1 | 358.4 | 08/16/11 | WG | Specific Conductance | 750 | µS/cm | CASA-11-24764 |
| SCI-1 | 358.4 | 08/16/11 | WG | Specific Conductance | 754 | µS/cm | CASA-11-24841 |
| SCI-1 | 358.4 | 08/16/11 | WG | Specific Conductance | 752 | µS/cm | CASA-11-24843 |
| SCI-1 | 358.4 | 05/17/13 | WG | Temperature | 11.4 | deg C | CASA-13-30548 |
| SCI-1 | 358.4 | 11/02/12 | WG | Temperature | 10.28 | deg C | CASA-13-24215 |
| SCI-1 | 358.4 | 05/21/12 | WG | Temperature | 10.95 | deg C | CASA-12-14060 |
| SCI-1 | 358.4 | 05/21/12 | WG | Temperature | 10.95 | deg C | CASA-12-14065 |
| SCI-1 | 358.4 | 11/16/11 | WG | Temperature | 9.71 | deg C | CASA-12-1373 |
| SCI-1 | 358.4 | 08/16/11 | WG | Temperature | 10.85 | deg C | CASA-11-24834 |
| SCI-1 | 358.4 | 08/16/11 | WG | Temperature | 10.95 | deg C | CASA-11-24764 |
| SCI-1 | 358.4 | 08/16/11 | WG | Temperature | 11.43 | deg C | CASA-11-24841 |
| SCI-1 | 358.4 | 08/16/11 | WG | Temperature | 11.1 | deg C | CASA-11-24843 |
| SCI-1 | 358.4 | 05/17/13 | WG | Turbidity | 0.7 | NTU | CASA-13-30548 |
| SCI-1 | 358.4 | 11/02/12 | WG | Turbidity | 3.47 | NTU | CASA-13-24215 |
| SCI-1 | 358.4 | 05/21/12 | WG | Turbidity | 4.15 | NTU | CASA-12-14060 |
| SCI-1 | 358.4 | 05/21/12 | WG | Turbidity | 4.15 | NTU | CASA-12-14065 |
| SCI-1 | 358.4 | 11/16/11 | WG | Turbidity | 9.88 | NTU | CASA-12-1373 |
| SCI-1 | 358.4 | 08/16/11 | WG | Turbidity | 5.83 | NTU | CASA-11-24834 |
| SCI-1 | 358.4 | 08/16/11 | WG | Turbidity | 5.83 | NTU | CASA-11-24764 |
| SCI-1 | 358.4 | 08/16/11 | WG | Turbidity | 7.39 | NTU | CASA-11-24841 |
| SCI-1 | 358.4 | 08/16/11 | WG | Turbidity | 10.2 | NTU | CASA-11-24843 |
| SCI-2 | 548 | 05/21/13 | WG | Dissolved Oxygen | 9.22 | mg/L | CASA-13-30549 |
| SCI-2 | 548 | 01/31/13 | WG | Dissolved Oxygen | 9.71 | mg/L | CASA-13-28360 |
| SCI-2 | 548 | 11/05/12 | WG | Dissolved Oxygen | 9.77 | mg/L | CASA-13-24216 |
| SCI-2 | 548 | 08/13/12 | WG | Dissolved Oxygen | 8.23 | mg/L | CASA-12-21646 |
| SCI-2 | 548 | 05/23/12 | WG | Dissolved Oxygen | 8.62 | mg/L | CASA-12-14061 |
| SCI-2 | 548 | 05/21/13 | WG | Oxidation-Reduction Potential | 221.7 | mV | CASA-13-30549 |

| Location | Depth (ft) | Date | Field Matrix | Analyte | Result | Unit | Sample |
|---|---|---|---|---|---|---|---|
| SCI-2 | 548 | 01/31/13 | WG | Oxidation-Reduction Potential | 217.6 | mV | CASA-13-28360 |
| SCI-2 | 548 | 11/05/12 | WG | Oxidation-Reduction Potential | 149.1 | mV | CASA-13-24216 |
| SCI-2 | 548 | 08/13/12 | WG | Oxidation-Reduction Potential | 170.4 | mV | CASA-12-21646 |
| SCI-2 | 548 | 05/23/12 | WG | Oxidation-Reduction Potential | 229 | mV | CASA-12-14061 |
| SCI-2 | 548 | 05/21/13 | WG | pH | 7.42 | SU | CASA-13-30549 |
| SCI-2 | 548 | 01/31/13 | WG | pH | 7.5 | SU | CASA-13-28360 |
| SCI-2 | 548 | 11/05/12 | WG | pH | 7.46 | SU | CASA-13-24216 |
| SCI-2 | 548 | 08/13/12 | WG | pH | 8.15 | SU | CASA-12-21646 |
| SCI-2 | 548 | 05/23/12 | WG | pH | 7.45 | SU | CASA-12-14061 |
| SCI-2 | 548 | 05/21/13 | WG | Specific Conductance | 622 | µS/cm | CASA-13-30549 |
| SCI-2 | 548 | 01/31/13 | WG | Specific Conductance | 602 | µS/cm | CASA-13-28360 |
| SCI-2 | 548 | 11/05/12 | WG | Specific Conductance | 590 | µS/cm | CASA-13-24216 |
| SCI-2 | 548 | 08/13/12 | WG | Specific Conductance | 592 | µS/cm | CASA-12-21646 |
| SCI-2 | 548 | 05/23/12 | WG | Specific Conductance | 564 | µS/cm | CASA-12-14061 |
| SCI-2 | 548 | 05/21/13 | WG | Temperature | 14.47 | deg C | CASA-13-30549 |
| SCI-2 | 548 | 01/31/13 | WG | Temperature | 13.9 | deg C | CASA-13-28360 |
| SCI-2 | 548 | 11/05/12 | WG | Temperature | 14.35 | deg C | CASA-13-24216 |
| SCI-2 | 548 | 08/13/12 | WG | Temperature | 16.08 | deg C | CASA-12-21646 |
| SCI-2 | 548 | 05/23/12 | WG | Temperature | 17.02 | deg C | CASA-12-14061 |
| SCI-2 | 548 | 05/21/13 | WG | Turbidity | 1.2 | NTU | CASA-13-30549 |
| SCI-2 | 548 | 01/31/13 | WG | Turbidity | 1.54 | NTU | CASA-13-28360 |
| SCI-2 | 548 | 11/05/12 | WG | Turbidity | 3.15 | NTU | CASA-13-24216 |
| SCI-2 | 548 | 08/13/12 | WG | Turbidity | 4.22 | NTU | CASA-12-21646 |
| SCI-2 | 548 | 05/23/12 | WG | Turbidity | 3.51 | NTU | CASA-12-14061 |

[a] WG = Groundwater.

[b] SU = Standard unit.

[c] NTU = Nephelometric turbidity unit.

# Appendix B

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

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-4 | 4/29/2013 | 6315.4 | Manual | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/29/2013 | 6315.19 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/28/2013 | 6315.13 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/26/2013 | 6315.12 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/24/2013 | 6315.34 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/23/2013 | 6315.37 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/22/2013 | 6315.11 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/21/2013 | 6315.27 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/20/2013 | 6315.11 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/19/2013 | 6315.21 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/18/2013 | 6315.74 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/17/2013 | 6315.83 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/16/2013 | 6315.95 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/15/2013 | 6316.08 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/14/2013 | 6315.78 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/13/2013 | 6315.48 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/12/2013 | 6315.59 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/11/2013 | 6315.64 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/10/2013 | 6316.19 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/9/2013 | 6316.68 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/8/2013 | 6315.82 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/7/2013 | 6315.62 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/6/2013 | 6315.41 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/5/2013 | 6315.12 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/4/2013 | 6315.3 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/3/2013 | 6315.65 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/2/2013 | 6315.5 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/1/2013 | 6315.26 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/31/2013 | 6315.15 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/30/2013 | 6315.11 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/29/2013 | 6315.16 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/28/2013 | 6315.31 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/27/2013 | 6315.22 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/26/2013 | 6315.18 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/25/2013 | 6315.51 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/24/2013 | 6315.87 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/23/2013 | 6316.22 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/22/2013 | 6316.11 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/21/2013 | 6315.28 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/20/2013 | 6315.32 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/19/2013 | 6315.71 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/18/2013 | 6316.08 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/17/2013 | 6315.79 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/16/2013 | 6315.19 | Transducer | 498.9 | 522 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-4 | 3/15/2013 | 6315.11 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/12/2013 | 6315.25 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/11/2013 | 6315.39 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/10/2013 | 6316 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/9/2013 | 6315.87 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/8/2013 | 6315.48 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/7/2013 | 6315.27 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/6/2013 | 6315.12 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/5/2013 | 6315.78 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/4/2013 | 6315.51 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/3/2013 | 6315.14 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/27/2013 | 6315.72 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/26/2013 | 6315.63 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/25/2013 | 6316.22 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/24/2013 | 6315.87 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/23/2013 | 6315.76 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/22/2013 | 6316.19 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/21/2013 | 6316.68 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/20/2013 | 6315.9 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/19/2013 | 6315.77 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/18/2013 | 6315.95 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/17/2013 | 6315.13 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/15/2013 | 6315.37 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/14/2013 | 6315.44 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/13/2013 | 6315.51 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/12/2013 | 6315.78 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/11/2013 | 6316.06 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/10/2013 | 6316.6 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/9/2013 | 6315.77 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/8/2013 | 6315.47 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/7/2013 | 6315.88 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/6/2013 | 6315.68 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/5/2013 | 6315.71 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/4/2013 | 6315.41 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/3/2013 | 6315.12 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/1/2013 | 6315.14 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/31/2013 | 6315.59 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/30/2013 | 6316.53 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/29/2013 | 6316.35 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/28/2013 | 6316 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/27/2013 | 6315.76 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/26/2013 | 6315.22 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/25/2013 | 6315.14 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/24/2013 | 6315.11 | Transducer | 498.9 | 522 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-4 | 1/23/2013 | 6315.14 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/22/2013 | 6315.22 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/21/2013 | 6315.17 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/20/2013 | 6315.11 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/16/2013 | 6315.32 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/15/2013 | 6315.73 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/14/2013 | 6315.84 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/13/2013 | 6316.09 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/12/2013 | 6316.32 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/11/2013 | 6315.88 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/10/2013 | 6315.13 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/9/2013 | 6315.64 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/8/2013 | 6315.7 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/7/2013 | 6315.13 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/5/2013 | 6315.23 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/4/2013 | 6315.11 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/3/2013 | 6315.27 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/2/2013 | 6315.45 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/1/2013 | 6315.96 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 12/31/2012 | 6315.7 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 12/30/2012 | 6315.21 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 12/29/2012 | 6315.68 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 12/28/2012 | 6316.28 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 12/27/2012 | 6316.11 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 12/26/2012 | 6315.86 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 12/25/2012 | 6316.42 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 12/24/2012 | 6315.55 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 12/23/2012 | 6315.29 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 12/22/2012 | 6315.12 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 12/20/2012 | 6315.96 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 12/19/2012 | 6315.93 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 12/18/2012 | 6315.64 | Manual | 498.9 | 522 | Intermediate |
| MCOI-4 | 12/18/2012 | 6315.65 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 8/1/2012 | 6315.309 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/31/2012 | 6315.332 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/30/2012 | 6315.221 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/29/2012 | 6315.147 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/28/2012 | 6315.184 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/27/2012 | 6315.376 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/26/2012 | 6315.622 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/25/2012 | 6315.496 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/24/2012 | 6315.269 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/23/2012 | 6315.198 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/22/2012 | 6315.161 | Transducer | 498.9 | 522 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-4 | 7/21/2012 | 6315.106 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/19/2012 | 6315.267 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/18/2012 | 6315.539 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/17/2012 | 6315.526 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/16/2012 | 6315.369 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/15/2012 | 6315.263 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/14/2012 | 6315.243 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/13/2012 | 6315.267 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/12/2012 | 6315.158 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/11/2012 | 6315.115 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/7/2012 | 6315.119 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/6/2012 | 6315.272 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/5/2012 | 6315.456 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/4/2012 | 6315.448 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/3/2012 | 6315.38 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/2/2012 | 6315.437 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/1/2012 | 6315.448 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/30/2012 | 6315.191 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/29/2012 | 6315.117 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/28/2012 | 6315.226 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/27/2012 | 6315.348 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/26/2012 | 6315.141 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/25/2012 | 6315.132 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/24/2012 | 6315.365 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/23/2012 | 6315.276 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/22/2012 | 6315.117 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/21/2012 | 6315.552 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/20/2012 | 6315.888 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/19/2012 | 6315.722 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/18/2012 | 6315.326 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/17/2012 | 6315.126 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/16/2012 | 6315.481 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/15/2012 | 6315.624 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/14/2012 | 6315.533 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/13/2012 | 6315.161 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/12/2012 | 6315.141 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/11/2012 | 6315.594 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/10/2012 | 6315.84 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/9/2012 | 6315.507 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/8/2012 | 6315.446 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/7/2012 | 6315.683 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/6/2012 | 6315.524 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/5/2012 | 6315.267 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/5/2012 | 6315.193 | Transducer | 498.9 | 522 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-4 | 6/4/2012 | 6315.391 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/3/2012 | 6315.576 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/2/2012 | 6315.419 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/1/2012 | 6315.114 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/30/2012 | 6315.343 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/29/2012 | 6315.347 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/28/2012 | 6315.537 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/27/2012 | 6315.852 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/26/2012 | 6315.922 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/25/2012 | 6316.281 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/24/2012 | 6316.603 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/23/2012 | 6315.75 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/22/2012 | 6315.177 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/21/2012 | 6315.18 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/20/2012 | 6315.744 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/19/2012 | 6316.237 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/18/2012 | 6315.928 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/17/2012 | 6315.452 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/16/2012 | 6315.221 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/15/2012 | 6315.182 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/14/2012 | 6315.108 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/12/2012 | 6315.548 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/11/2012 | 6315.946 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/10/2012 | 6315.441 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/9/2012 | 6315.293 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/8/2012 | 6315.495 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/7/2012 | 6315.609 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/6/2012 | 6315.65 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/5/2012 | 6315.511 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/4/2012 | 6315.567 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/3/2012 | 6315.826 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/2/2012 | 6315.948 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/1/2012 | 6315.711 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/30/2012 | 6315.794 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/29/2012 | 6315.935 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/28/2012 | 6316.002 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/27/2012 | 6315.989 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/26/2012 | 6315.598 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/25/2012 | 6315.63 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/24/2012 | 6315.286 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/23/2012 | 6315.19 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/22/2012 | 6315.321 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/21/2012 | 6315.388 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/20/2012 | 6315.796 | Transducer | 498.9 | 522 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-4 | 4/19/2012 | 6315.582 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/18/2012 | 6315.193 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/17/2012 | 6315.214 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/16/2012 | 6315.891 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/15/2012 | 6316.567 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/14/2012 | 6316.229 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/13/2012 | 6316.029 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/12/2012 | 6315.835 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/11/2012 | 6315.465 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/10/2012 | 6315.245 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/9/2012 | 6315.117 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/7/2012 | 6315.55 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/6/2012 | 6315.648 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/5/2012 | 6315.639 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/4/2012 | 6315.663 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/3/2012 | 6316.358 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/2/2012 | 6316.421 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 4/1/2012 | 6315.752 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/31/2012 | 6315.665 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/30/2012 | 6315.72 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/29/2012 | 6315.589 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/28/2012 | 6315.535 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/27/2012 | 6315.778 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/26/2012 | 6315.532 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/25/2012 | 6315.361 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/24/2012 | 6315.413 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/23/2012 | 6315.707 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/22/2012 | 6315.752 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/21/2012 | 6315.992 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/20/2012 | 6316.606 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/19/2012 | 6316.654 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/18/2012 | 6316.157 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/17/2012 | 6315.739 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/16/2012 | 6315.395 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/15/2012 | 6315.456 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/14/2012 | 6315.528 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/13/2012 | 6315.548 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/12/2012 | 6316.068 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/11/2012 | 6315.789 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/10/2012 | 6315.119 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/9/2012 | 6315.106 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/8/2012 | 6316.292 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/7/2012 | 6316.251 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/6/2012 | 6315.243 | Transducer | 498.9 | 522 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-4 | 3/5/2012 | 6315.128 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/4/2012 | 6315.132 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/3/2012 | 6315.901 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/2/2012 | 6316.19 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 3/1/2012 | 6315.565 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/29/2012 | 6315.861 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/28/2012 | 6315.593 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/27/2012 | 6315.713 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/26/2012 | 6315.637 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/25/2012 | 6315.339 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/24/2012 | 6316.14 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/23/2012 | 6315.779 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/22/2012 | 6315.467 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/21/2012 | 6315.779 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/20/2012 | 6316.305 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/19/2012 | 6315.75 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/18/2012 | 6315.766 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/17/2012 | 6315.435 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/16/2012 | 6315.855 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/15/2012 | 6316.46 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/14/2012 | 6316.349 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/13/2012 | 6316.327 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/12/2012 | 6315.679 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/11/2012 | 6315.585 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/10/2012 | 6315.759 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/9/2012 | 6315.458 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/8/2012 | 6315.502 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/7/2012 | 6315.916 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/6/2012 | 6315.404 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/5/2012 | 6315.352 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/4/2012 | 6315.885 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/3/2012 | 6316.417 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/2/2012 | 6315.67 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 2/1/2012 | 6315.929 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/31/2012 | 6315.989 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/30/2012 | 6315.308 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/29/2012 | 6315.206 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/28/2012 | 6315.835 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/27/2012 | 6315.729 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/26/2012 | 6315.555 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/25/2012 | 6316.051 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/24/2012 | 6316.086 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/23/2012 | 6316.319 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/22/2012 | 6316.743 | Transducer | 498.9 | 522 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-4 | 1/21/2012 | 6316.179 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/20/2012 | 6316.138 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/19/2012 | 6315.881 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/18/2012 | 6315.864 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/17/2012 | 6316.634 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/16/2012 | 6316.131 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/15/2012 | 6315.574 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/14/2012 | 6315.713 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/13/2012 | 6316.068 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/12/2012 | 6316.441 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/11/2012 | 6316.554 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/10/2012 | 6315.79 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/9/2012 | 6316.17 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/8/2012 | 6316.647 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/7/2012 | 6316.401 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/6/2012 | 6315.935 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/5/2012 | 6315.328 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/4/2012 | 6315.478 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/3/2012 | 6315.123 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 1/1/2012 | 6315.544 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 12/31/2011 | 6315.659 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 12/30/2011 | 6315.742 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 12/29/2011 | 6315.446 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 12/28/2011 | 6315.568 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 12/27/2011 | 6315.578 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 12/26/2011 | 6315.182 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 12/25/2011 | 6315.123 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 12/24/2011 | 6315.165 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 12/23/2011 | 6315.679 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 12/22/2011 | 6316.284 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 12/21/2011 | 6316.099 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 12/20/2011 | 6316.484 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 12/19/2011 | 6315.946 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 12/18/2011 | 6315.119 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 12/17/2011 | 6315.115 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 12/16/2011 | 6315.439 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 12/15/2011 | 6315.844 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 12/14/2011 | 6316.175 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 12/13/2011 | 6315.964 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 12/12/2011 | 6315.957 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 12/11/2011 | 6315.404 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 12/10/2011 | 6315.422 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 12/9/2011 | 6315.824 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 12/8/2011 | 6315.544 | Transducer | 498.9 | 522 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-4 | 12/7/2011 | 6315.563 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 12/6/2011 | 6315.696 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 12/5/2011 | 6316.094 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 12/4/2011 | 6316.166 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 12/3/2011 | 6316.127 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 12/2/2011 | 6315.99 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 12/1/2011 | 6316.312 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 12/1/2011 | 6316.226 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 11/30/2011 | 6315.434 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 11/29/2011 | 6315.39 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 11/28/2011 | 6315.208 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 11/26/2011 | 6316.202 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 11/25/2011 | 6315.695 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 11/24/2011 | 6315.215 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 11/23/2011 | 6315.202 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 11/22/2011 | 6315.671 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 11/21/2011 | 6315.661 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 11/20/2011 | 6316.1 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 11/19/2011 | 6316.248 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 11/18/2011 | 6315.474 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 11/17/2011 | 6315.293 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 11/16/2011 | 6315.232 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 11/15/2011 | 6316.131 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 11/14/2011 | 6316.346 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 11/13/2011 | 6316.32 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 11/12/2011 | 6315.954 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 11/11/2011 | 6315.221 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 11/9/2011 | 6315.47 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 11/8/2011 | 6316.085 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 11/7/2011 | 6315.92 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 11/6/2011 | 6316.539 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 11/5/2011 | 6316.187 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 11/4/2011 | 6315.349 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 11/3/2011 | 6315.336 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 11/2/2011 | 6316.109 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 11/1/2011 | 6315.571 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 10/31/2011 | 6315.339 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 10/30/2011 | 6315.565 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 10/29/2011 | 6315.273 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 10/28/2011 | 6315.717 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 10/27/2011 | 6316.115 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 10/26/2011 | 6315.754 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 10/25/2011 | 6315.545 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 10/24/2011 | 6315.369 | Transducer | 498.9 | 522 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-4 | 10/23/2011 | 6315.428 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 10/22/2011 | 6315.404 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 10/21/2011 | 6315.624 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 10/20/2011 | 6315.63 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 10/19/2011 | 6315.313 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 10/18/2011 | 6315.67 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 10/17/2011 | 6315.537 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 10/16/2011 | 6315.408 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 10/15/2011 | 6315.548 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 10/14/2011 | 6315.602 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 10/13/2011 | 6315.53 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 10/12/2011 | 6315.918 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 10/11/2011 | 6315.757 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 10/10/2011 | 6315.62 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 10/9/2011 | 6315.815 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 10/8/2011 | 6316.1 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 10/7/2011 | 6316.501 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 10/6/2011 | 6316.233 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 10/5/2011 | 6315.815 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 10/4/2011 | 6315.557 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 10/3/2011 | 6315.53 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 10/2/2011 | 6315.493 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 10/1/2011 | 6315.286 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 9/30/2011 | 6315.33 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 9/29/2011 | 6315.58 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 9/28/2011 | 6315.456 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 9/27/2011 | 6315.841 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 9/26/2011 | 6316.018 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 9/25/2011 | 6315.765 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 9/24/2011 | 6315.406 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 9/23/2011 | 6315.437 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 9/22/2011 | 6315.717 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 9/21/2011 | 6315.733 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 9/20/2011 | 6315.528 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 9/19/2011 | 6315.415 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 9/18/2011 | 6315.704 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 9/17/2011 | 6315.824 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 9/16/2011 | 6315.859 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 9/15/2011 | 6315.857 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 9/14/2011 | 6315.652 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 9/13/2011 | 6315.397 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 9/12/2011 | 6315.445 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 9/11/2011 | 6315.467 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 9/10/2011 | 6315.53 | Transducer | 498.9 | 522 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-4 | 9/9/2011 | 6315.356 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 9/8/2011 | 6315.345 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 9/7/2011 | 6315.576 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 9/6/2011 | 6315.48 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 9/5/2011 | 6315.336 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 9/4/2011 | 6315.691 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 9/3/2011 | 6315.772 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 9/2/2011 | 6315.615 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 9/1/2011 | 6315.739 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 8/31/2011 | 6315.898 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 8/30/2011 | 6315.872 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 8/29/2011 | 6315.74 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 8/29/2011 | 6315.691 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 8/28/2011 | 6315.48 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 8/27/2011 | 6315.38 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 8/26/2011 | 6315.4 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 8/25/2011 | 6315.49 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 8/24/2011 | 6315.64 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 8/23/2011 | 6315.48 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 8/22/2011 | 6315.39 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 8/21/2011 | 6315.61 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 8/20/2011 | 6315.7 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 8/19/2011 | 6315.21 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 8/17/2011 | 6315.61 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 8/16/2011 | 6315.81 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 8/15/2011 | 6315.51 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 8/14/2011 | 6315.34 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 8/13/2011 | 6315.68 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 8/12/2011 | 6315.76 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 8/11/2011 | 6315.84 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 8/10/2011 | 6315.88 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 8/9/2011 | 6315.81 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 8/8/2011 | 6315.79 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 8/7/2011 | 6315.66 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 8/6/2011 | 6315.61 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 8/5/2011 | 6315.67 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 8/4/2011 | 6315.7 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 8/3/2011 | 6315.69 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 8/2/2011 | 6315.49 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 8/1/2011 | 6315.3 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/31/2011 | 6315.27 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/30/2011 | 6315.3 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/29/2011 | 6315.57 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/28/2011 | 6315.85 | Transducer | 498.9 | 522 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-4 | 7/27/2011 | 6315.86 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/26/2011 | 6315.45 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/25/2011 | 6315.28 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/24/2011 | 6315.56 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/23/2011 | 6315.78 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/22/2011 | 6315.8 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/21/2011 | 6315.76 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/20/2011 | 6315.6 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/19/2011 | 6315.35 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/18/2011 | 6315.3 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/17/2011 | 6315.55 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/16/2011 | 6315.8 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/15/2011 | 6315.86 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/14/2011 | 6315.78 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/13/2011 | 6315.65 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/12/2011 | 6315.55 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/11/2011 | 6315.71 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/10/2011 | 6315.73 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/9/2011 | 6315.83 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/8/2011 | 6315.67 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/7/2011 | 6315.55 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/6/2011 | 6315.56 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/5/2011 | 6315.6 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/4/2011 | 6315.44 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/3/2011 | 6315.31 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/2/2011 | 6315.62 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 7/1/2011 | 6315.72 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/30/2011 | 6315.57 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/29/2011 | 6315.34 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/28/2011 | 6315.44 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/27/2011 | 6315.72 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/26/2011 | 6315.75 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/25/2011 | 6315.81 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/24/2011 | 6315.7 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/23/2011 | 6315.49 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/22/2011 | 6315.61 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/21/2011 | 6316.06 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/20/2011 | 6316.44 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/19/2011 | 6315.83 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/18/2011 | 6315.95 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/17/2011 | 6316.24 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/16/2011 | 6315.86 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/15/2011 | 6315.64 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/14/2011 | 6315.74 | Transducer | 498.9 | 522 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-4 | 6/13/2011 | 6315.83 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/12/2011 | 6315.89 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/11/2011 | 6315.8 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/10/2011 | 6315.84 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/9/2011 | 6315.98 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/8/2011 | 6315.97 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/7/2011 | 6315.83 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/6/2011 | 6315.26 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/5/2011 | 6315.25 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/4/2011 | 6315.69 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/3/2011 | 6315.84 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 6/2/2011 | 6315.36 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/31/2011 | 6315.65 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/30/2011 | 6316.44 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/29/2011 | 6316.3 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/28/2011 | 6316 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/27/2011 | 6315.81 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/26/2011 | 6315.49 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/25/2011 | 6316.01 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/24/2011 | 6316.01 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/23/2011 | 6315.8 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/22/2011 | 6315.71 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/21/2011 | 6315.83 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/20/2011 | 6316.17 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/19/2011 | 6316.65 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/18/2011 | 6316.38 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/17/2011 | 6316.1 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/16/2011 | 6315.83 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/15/2011 | 6315.84 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/14/2011 | 6315.4 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/13/2011 | 6315.53 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/12/2011 | 6316.03 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/11/2011 | 6316.57 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/10/2011 | 6316.65 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/9/2011 | 6316.38 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/8/2011 | 6316.1 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/7/2011 | 6316.01 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-4 | 5/6/2011 | 6315.53 | Transducer | 498.9 | 522 | Intermediate |
| MCOI-5 | 5/22/2013 | 6133.23 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/21/2013 | 6133.12 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/20/2013 | 6133.09 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/19/2013 | 6133.03 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/18/2013 | 6132.94 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/17/2013 | 6132.91 | Transducer | 689.04 | 699 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-5 | 5/16/2013 | 6132.87 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/15/2013 | 6132.89 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/14/2013 | 6132.84 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/13/2013 | 6132.87 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/12/2013 | 6132.85 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/11/2013 | 6132.89 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/10/2013 | 6133.05 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/9/2013 | 6133.12 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/8/2013 | 6133.07 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/7/2013 | 6133.16 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/6/2013 | 6133.17 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/5/2013 | 6133.2 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/4/2013 | 6133.34 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/3/2013 | 6133.11 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/2/2013 | 6133.19 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/1/2013 | 6133.53 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/30/2013 | 6133.54 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/29/2013 | 6133.52 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/28/2013 | 6133.49 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/27/2013 | 6133.49 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/26/2013 | 6133.74 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/25/2013 | 6133.79 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/24/2013 | 6133.87 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/23/2013 | 6134.2 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/22/2013 | 6134.13 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/21/2013 | 6134.21 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/20/2013 | 6134.37 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/19/2013 | 6134.26 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/18/2013 | 6134.5 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/17/2013 | 6134.56 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/16/2013 | 6134.48 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/15/2013 | 6134.49 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/14/2013 | 6134.47 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/13/2013 | 6134.18 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/12/2013 | 6134.14 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/11/2013 | 6134.03 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/10/2013 | 6133.89 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/9/2013 | 6134 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/8/2013 | 6133.68 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/7/2013 | 6133.54 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/6/2013 | 6133.53 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/5/2013 | 6133.4 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/4/2013 | 6133.41 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/3/2013 | 6133.54 | Transducer | 689.04 | 699 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-5 | 4/2/2013 | 6133.61 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/1/2013 | 6133.6 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/31/2013 | 6133.63 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/30/2013 | 6133.65 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/29/2013 | 6133.74 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/28/2013 | 6133.83 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/27/2013 | 6133.95 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/26/2013 | 6133.82 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/25/2013 | 6133.88 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/24/2013 | 6133.81 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/23/2013 | 6133.97 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/22/2013 | 6133.79 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/21/2013 | 6133.71 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/20/2013 | 6133.4 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/19/2013 | 6133.52 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/18/2013 | 6133.59 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/17/2013 | 6133.58 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/16/2013 | 6133.57 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/15/2013 | 6133.45 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/14/2013 | 6133.39 | Manual | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/14/2013 | 6133.5 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/14/2013 | 6133.43 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/13/2013 | 6133.57 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/12/2013 | 6133.75 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/11/2013 | 6133.67 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/10/2013 | 6133.79 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/9/2013 | 6133.93 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/8/2013 | 6133.76 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/7/2013 | 6133.76 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/6/2013 | 6133.71 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/5/2013 | 6133.83 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/4/2013 | 6134.14 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/3/2013 | 6134.03 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/2/2013 | 6134.07 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/1/2013 | 6134.28 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/28/2013 | 6134.41 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/27/2013 | 6134.55 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/26/2013 | 6134.63 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/25/2013 | 6134.62 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/24/2013 | 6134.62 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/23/2013 | 6134.31 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/22/2013 | 6134.26 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/21/2013 | 6134.38 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/20/2013 | 6134.15 | Transducer | 689.04 | 699 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-5 | 2/19/2013 | 6133.89 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/18/2013 | 6134.2 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/17/2013 | 6133.97 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/16/2013 | 6133.89 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/15/2013 | 6134.06 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/14/2013 | 6134.18 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/13/2013 | 6134.12 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/12/2013 | 6134.18 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/11/2013 | 6134.07 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/10/2013 | 6134.11 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/9/2013 | 6133.99 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/8/2013 | 6133.68 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/7/2013 | 6133.8 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/6/2013 | 6133.81 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/5/2013 | 6133.8 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/4/2013 | 6133.88 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/3/2013 | 6133.66 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/2/2013 | 6133.69 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/1/2013 | 6133.67 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/31/2013 | 6133.62 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/30/2013 | 6133.63 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/29/2013 | 6133.6 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/28/2013 | 6133.35 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/27/2013 | 6133.33 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/26/2013 | 6133.16 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/25/2013 | 6133.17 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/24/2013 | 6133.21 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/23/2013 | 6133.27 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/22/2013 | 6133.42 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/21/2013 | 6133.52 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/20/2013 | 6133.59 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/19/2013 | 6133.78 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/18/2013 | 6133.78 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/17/2013 | 6133.85 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/16/2013 | 6133.98 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/15/2013 | 6134.15 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/14/2013 | 6134.1 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/13/2013 | 6134.01 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/12/2013 | 6133.96 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/11/2013 | 6134.04 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/10/2013 | 6133.73 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/9/2013 | 6133.68 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/8/2013 | 6133.99 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/7/2013 | 6133.98 | Transducer | 689.04 | 699 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-5 | 1/6/2013 | 6133.9 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/5/2013 | 6134.18 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/4/2013 | 6134.22 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/3/2013 | 6134.33 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/2/2013 | 6134.4 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/1/2013 | 6134.55 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/31/2012 | 6134.7 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/30/2012 | 6134.5 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/29/2012 | 6134.41 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/28/2012 | 6134.61 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/27/2012 | 6134.66 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/26/2012 | 6134.37 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/25/2012 | 6134.7 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/24/2012 | 6134.43 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/23/2012 | 6134.44 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/22/2012 | 6134.43 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/21/2012 | 6134.36 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/20/2012 | 6134.45 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/19/2012 | 6134.87 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/18/2012 | 6134.58 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/17/2012 | 6134.46 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/16/2012 | 6134.58 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/15/2012 | 6134.36 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/14/2012 | 6134.33 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/13/2012 | 6134.2 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/12/2012 | 6134.17 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/11/2012 | 6134.15 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/10/2012 | 6134.05 | Manual | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/10/2012 | 6133.91 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/9/2012 | 6133.96 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/8/2012 | 6133.79 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/7/2012 | 6133.71 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/6/2012 | 6133.61 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/5/2012 | 6133.39 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/4/2012 | 6133.42 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/3/2012 | 6133.55 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/2/2012 | 6133.4 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/1/2012 | 6133.43 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/30/2012 | 6133.37 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/29/2012 | 6133.37 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/28/2012 | 6133.29 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/27/2012 | 6133.27 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/26/2012 | 6133.52 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/25/2012 | 6133.49 | Transducer | 689.04 | 699 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-5 | 11/24/2012 | 6133.32 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/23/2012 | 6133.33 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/22/2012 | 6133.56 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/21/2012 | 6133.51 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/20/2012 | 6133.5 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/19/2012 | 6133.62 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/18/2012 | 6133.74 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/17/2012 | 6133.74 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/16/2012 | 6133.7 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/15/2012 | 6133.86 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/14/2012 | 6133.82 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/13/2012 | 6133.8 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/12/2012 | 6133.71 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/11/2012 | 6133.96 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/10/2012 | 6133.88 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/9/2012 | 6133.73 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/8/2012 | 6133.65 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/7/2012 | 6133.56 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/6/2012 | 6133.65 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/5/2012 | 6133.68 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/4/2012 | 6133.76 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/3/2012 | 6133.89 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/2/2012 | 6133.98 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/1/2012 | 6133.92 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/31/2012 | 6133.92 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/30/2012 | 6134.13 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/29/2012 | 6134.19 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/28/2012 | 6134.3 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/27/2012 | 6134.27 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/26/2012 | 6134.32 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/25/2012 | 6134.46 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/24/2012 | 6134.39 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/23/2012 | 6134.32 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/22/2012 | 6134.31 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/21/2012 | 6134.31 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/20/2012 | 6134.2 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/19/2012 | 6134.08 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/18/2012 | 6134.08 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/17/2012 | 6134.2 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/16/2012 | 6134.07 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/15/2012 | 6133.95 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/14/2012 | 6133.98 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/13/2012 | 6134.12 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/12/2012 | 6134.04 | Transducer | 689.04 | 699 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-5 | 10/11/2012 | 6134.07 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/10/2012 | 6134.02 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/9/2012 | 6134.07 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/8/2012 | 6134.01 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/7/2012 | 6133.95 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/6/2012 | 6133.96 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/5/2012 | 6133.9 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/4/2012 | 6133.84 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/3/2012 | 6133.91 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/2/2012 | 6133.78 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/1/2012 | 6133.79 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/30/2012 | 6133.78 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/29/2012 | 6133.77 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/28/2012 | 6133.75 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/27/2012 | 6133.73 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/26/2012 | 6133.76 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/25/2012 | 6133.69 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/24/2012 | 6133.62 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/23/2012 | 6133.6 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/22/2012 | 6133.62 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/21/2012 | 6133.63 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/20/2012 | 6133.6 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/19/2012 | 6133.59 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/18/2012 | 6133.56 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/17/2012 | 6133.69 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/16/2012 | 6133.62 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/15/2012 | 6133.55 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/14/2012 | 6133.53 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/13/2012 | 6133.68 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/12/2012 | 6133.81 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/11/2012 | 6133.81 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/10/2012 | 6133.76 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/9/2012 | 6133.75 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/8/2012 | 6133.76 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/7/2012 | 6133.9 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/6/2012 | 6133.86 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/5/2012 | 6133.9 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/4/2012 | 6133.84 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/3/2012 | 6133.88 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/2/2012 | 6133.85 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/1/2012 | 6133.86 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/31/2012 | 6133.91 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/30/2012 | 6133.94 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/29/2012 | 6133.9 | Transducer | 689.04 | 699 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-5 | 8/28/2012 | 6133.87 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/27/2012 | 6133.93 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/26/2012 | 6133.99 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/25/2012 | 6134.06 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/24/2012 | 6133.99 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/23/2012 | 6133.91 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/22/2012 | 6133.85 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/21/2012 | 6133.88 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/21/2012 | 6134.05 | Manual | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/8/2012 | 6133.737 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/7/2012 | 6133.792 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/6/2012 | 6133.656 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/5/2012 | 6133.726 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/4/2012 | 6133.892 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/3/2012 | 6133.782 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/2/2012 | 6133.817 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/1/2012 | 6133.753 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/31/2012 | 6133.808 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/30/2012 | 6133.825 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/29/2012 | 6133.766 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/28/2012 | 6133.748 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/27/2012 | 6133.786 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/26/2012 | 6133.867 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/25/2012 | 6133.854 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/24/2012 | 6133.773 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/23/2012 | 6133.773 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/22/2012 | 6133.779 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/21/2012 | 6133.775 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/20/2012 | 6133.771 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/19/2012 | 6133.812 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/18/2012 | 6133.879 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/17/2012 | 6133.909 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/16/2012 | 6133.867 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/15/2012 | 6133.848 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/14/2012 | 6133.848 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/13/2012 | 6133.881 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/12/2012 | 6133.927 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/11/2012 | 6133.938 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/10/2012 | 6134.008 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/9/2012 | 6134.066 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/8/2012 | 6134.103 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/7/2012 | 6134.145 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/6/2012 | 6134.209 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/5/2012 | 6134.255 | Transducer | 689.04 | 699 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-5 | 7/4/2012 | 6134.258 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/3/2012 | 6134.266 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/2/2012 | 6134.28 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/1/2012 | 6134.326 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/30/2012 | 6134.366 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/29/2012 | 6134.308 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/28/2012 | 6134.361 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/27/2012 | 6134.507 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/26/2012 | 6134.517 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/25/2012 | 6134.48 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/24/2012 | 6134.572 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/23/2012 | 6134.709 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/22/2012 | 6134.599 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/21/2012 | 6134.636 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/20/2012 | 6134.799 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/19/2012 | 6134.78 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/18/2012 | 6134.766 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/17/2012 | 6134.555 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/16/2012 | 6134.705 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/15/2012 | 6134.831 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/14/2012 | 6134.864 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/13/2012 | 6134.817 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/12/2012 | 6134.736 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/11/2012 | 6134.835 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/10/2012 | 6134.985 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/9/2012 | 6134.947 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/8/2012 | 6134.841 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/7/2012 | 6134.941 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/6/2012 | 6134.96 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/5/2012 | 6134.874 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/5/2012 | 6134.862 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/4/2012 | 6134.988 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/3/2012 | 6135.097 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/2/2012 | 6135.171 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/1/2012 | 6135.161 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/31/2012 | 6135.249 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/30/2012 | 6135.267 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/29/2012 | 6135.236 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/28/2012 | 6135.235 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/27/2012 | 6135.247 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/26/2012 | 6135.149 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/25/2012 | 6135.11 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/24/2012 | 6135.136 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/23/2012 | 6134.94 | Transducer | 689.04 | 699 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-5 | 5/22/2012 | 6134.673 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/21/2012 | 6134.563 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/20/2012 | 6134.658 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/19/2012 | 6134.812 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/18/2012 | 6134.81 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/17/2012 | 6134.706 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/16/2012 | 6134.629 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/15/2012 | 6134.688 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/14/2012 | 6134.783 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/13/2012 | 6134.774 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/12/2012 | 6134.834 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/11/2012 | 6135.11 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/10/2012 | 6135.077 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/9/2012 | 6135.008 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/8/2012 | 6135.068 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/7/2012 | 6135.187 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/6/2012 | 6135.26 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/5/2012 | 6135.247 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/4/2012 | 6135.207 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/3/2012 | 6135.242 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/2/2012 | 6135.258 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/1/2012 | 6135.218 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/30/2012 | 6135.077 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/29/2012 | 6135.112 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/28/2012 | 6135.088 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/27/2012 | 6135.134 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/26/2012 | 6134.993 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/25/2012 | 6135.107 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/24/2012 | 6135.125 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/23/2012 | 6135.086 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/22/2012 | 6135.198 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/21/2012 | 6135.31 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/20/2012 | 6135.423 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/19/2012 | 6135.531 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/18/2012 | 6135.439 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/17/2012 | 6135.363 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/16/2012 | 6135.406 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/15/2012 | 6135.622 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/14/2012 | 6135.589 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/13/2012 | 6135.385 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/12/2012 | 6135.47 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/11/2012 | 6135.379 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/10/2012 | 6135.463 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/9/2012 | 6135.518 | Transducer | 689.04 | 699 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-5 | 4/8/2012 | 6135.485 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/7/2012 | 6135.754 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/6/2012 | 6135.906 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/5/2012 | 6135.86 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/4/2012 | 6135.778 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/3/2012 | 6135.834 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/2/2012 | 6135.891 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 4/1/2012 | 6135.717 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/31/2012 | 6135.646 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/30/2012 | 6135.716 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/29/2012 | 6135.8 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/28/2012 | 6135.805 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/27/2012 | 6135.915 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/26/2012 | 6136.015 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/25/2012 | 6135.984 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/24/2012 | 6136.039 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/23/2012 | 6136.094 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/22/2012 | 6136.1 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/21/2012 | 6135.979 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/20/2012 | 6136.085 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/19/2012 | 6135.966 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/18/2012 | 6135.831 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/17/2012 | 6135.705 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/16/2012 | 6135.641 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/15/2012 | 6135.642 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/14/2012 | 6135.754 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/13/2012 | 6135.741 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/12/2012 | 6135.886 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/11/2012 | 6136.014 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/10/2012 | 6135.791 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/9/2012 | 6135.642 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/8/2012 | 6136.048 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/7/2012 | 6136.259 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/6/2012 | 6136.026 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/5/2012 | 6135.951 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/4/2012 | 6136.017 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/3/2012 | 6136.156 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/2/2012 | 6136.363 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 3/1/2012 | 6136.275 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/29/2012 | 6136.173 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/28/2012 | 6136.354 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/27/2012 | 6136.24 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/26/2012 | 6136.405 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/25/2012 | 6136.191 | Transducer | 689.04 | 699 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-5 | 2/24/2012 | 6136.314 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/23/2012 | 6136.542 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/22/2012 | 6136.29 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/21/2012 | 6136.266 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/20/2012 | 6136.518 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/19/2012 | 6136.321 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/18/2012 | 6136.288 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/17/2012 | 6136.178 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/16/2012 | 6136.07 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/15/2012 | 6136.231 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/14/2012 | 6136.045 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/13/2012 | 6136.065 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/12/2012 | 6135.758 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/11/2012 | 6135.772 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/10/2012 | 6135.801 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/9/2012 | 6135.867 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/8/2012 | 6135.812 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/7/2012 | 6136.026 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/6/2012 | 6135.994 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/5/2012 | 6135.911 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/4/2012 | 6135.999 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/3/2012 | 6136.271 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/2/2012 | 6136.127 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 2/1/2012 | 6136.094 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/31/2012 | 6136.299 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/30/2012 | 6136.242 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/29/2012 | 6136.224 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/28/2012 | 6136.335 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/27/2012 | 6136.634 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/26/2012 | 6136.502 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/25/2012 | 6136.469 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/24/2012 | 6136.634 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/23/2012 | 6136.365 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/22/2012 | 6136.681 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/21/2012 | 6136.222 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/20/2012 | 6136.343 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/19/2012 | 6136.18 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/18/2012 | 6136.079 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/17/2012 | 6136.215 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/16/2012 | 6136.215 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/15/2012 | 6136.043 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/14/2012 | 6135.972 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/13/2012 | 6136.083 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/12/2012 | 6135.99 | Transducer | 689.04 | 699 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-5 | 1/11/2012 | 6136.03 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/10/2012 | 6135.794 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/9/2012 | 6135.706 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/8/2012 | 6135.842 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/7/2012 | 6135.71 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/6/2012 | 6135.769 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/5/2012 | 6135.553 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/4/2012 | 6135.71 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/3/2012 | 6135.703 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/2/2012 | 6135.697 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 1/1/2012 | 6135.809 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/31/2011 | 6136.089 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/30/2011 | 6136.079 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/29/2011 | 6136.072 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/28/2011 | 6136.182 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/27/2011 | 6136.184 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/26/2011 | 6136.339 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/25/2011 | 6136.253 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/24/2011 | 6136.356 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/23/2011 | 6136.39 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/22/2011 | 6136.551 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/21/2011 | 6136.474 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/20/2011 | 6136.346 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/19/2011 | 6136.489 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/18/2011 | 6136.171 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/17/2011 | 6136.134 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/16/2011 | 6136.284 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/15/2011 | 6136.357 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/14/2011 | 6136.526 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/13/2011 | 6136.412 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/12/2011 | 6136.443 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/11/2011 | 6136.376 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/10/2011 | 6136.299 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/9/2011 | 6136.501 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/8/2011 | 6136.562 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/7/2011 | 6136.447 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/6/2011 | 6136.487 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/5/2011 | 6136.559 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/4/2011 | 6136.418 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/3/2011 | 6136.573 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/2/2011 | 6136.196 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/1/2011 | 6136.368 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 12/1/2011 | 6136.495 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/30/2011 | 6136.253 | Transducer | 689.04 | 699 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-5 | 11/29/2011 | 6136.317 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/28/2011 | 6136.339 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/27/2011 | 6136.303 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/26/2011 | 6136.727 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/25/2011 | 6136.763 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/24/2011 | 6136.703 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/23/2011 | 6136.685 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/22/2011 | 6136.868 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/21/2011 | 6136.972 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/20/2011 | 6137.04 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/19/2011 | 6137.193 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/18/2011 | 6137.029 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/17/2011 | 6136.8 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/16/2011 | 6137.029 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/15/2011 | 6136.994 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/14/2011 | 6136.999 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/13/2011 | 6136.999 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/12/2011 | 6136.974 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/11/2011 | 6136.791 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/10/2011 | 6136.666 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/9/2011 | 6136.692 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/8/2011 | 6137.102 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/7/2011 | 6136.921 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/6/2011 | 6136.846 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/5/2011 | 6136.913 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/4/2011 | 6136.626 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/3/2011 | 6136.417 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/2/2011 | 6136.826 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 11/1/2011 | 6136.635 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/31/2011 | 6136.522 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/30/2011 | 6136.641 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/29/2011 | 6136.56 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/28/2011 | 6136.634 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/27/2011 | 6136.725 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/26/2011 | 6136.661 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/25/2011 | 6136.621 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/24/2011 | 6136.57 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/23/2011 | 6136.646 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/22/2011 | 6136.701 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/21/2011 | 6136.754 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/20/2011 | 6136.915 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/19/2011 | 6136.818 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/18/2011 | 6136.913 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/17/2011 | 6137.05 | Transducer | 689.04 | 699 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-5 | 10/16/2011 | 6137.015 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/15/2011 | 6137.079 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/14/2011 | 6137.184 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/13/2011 | 6137.12 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/12/2011 | 6137.222 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/11/2011 | 6137.213 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/10/2011 | 6137.083 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/9/2011 | 6137.014 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/8/2011 | 6137.043 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/7/2011 | 6136.876 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/6/2011 | 6136.842 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/5/2011 | 6136.664 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/4/2011 | 6136.558 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/3/2011 | 6136.564 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/2/2011 | 6136.591 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 10/1/2011 | 6136.637 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/30/2011 | 6136.549 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/29/2011 | 6136.728 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/28/2011 | 6136.655 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/27/2011 | 6136.69 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/26/2011 | 6136.751 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/25/2011 | 6136.708 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/24/2011 | 6136.591 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/23/2011 | 6136.564 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/22/2011 | 6136.657 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/21/2011 | 6136.651 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/20/2011 | 6136.635 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/19/2011 | 6136.544 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/18/2011 | 6136.576 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/17/2011 | 6136.595 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/16/2011 | 6136.569 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/15/2011 | 6136.516 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/14/2011 | 6136.503 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/13/2011 | 6136.461 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/12/2011 | 6136.445 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/11/2011 | 6136.509 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/10/2011 | 6136.591 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/9/2011 | 6136.611 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/8/2011 | 6136.553 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/7/2011 | 6136.726 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/6/2011 | 6136.75 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/5/2011 | 6136.701 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/4/2011 | 6136.75 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/3/2011 | 6136.829 | Transducer | 689.04 | 699 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-5 | 9/2/2011 | 6136.715 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 9/1/2011 | 6136.712 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/31/2011 | 6136.732 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/30/2011 | 6136.707 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/29/2011 | 6136.68 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/29/2011 | 6136.686 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/28/2011 | 6136.65 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/27/2011 | 6136.61 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/26/2011 | 6136.65 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/25/2011 | 6136.69 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/24/2011 | 6136.77 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/23/2011 | 6136.79 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/22/2011 | 6136.74 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/21/2011 | 6136.82 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/20/2011 | 6136.9 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/19/2011 | 6136.9 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/18/2011 | 6136.81 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/17/2011 | 6136.86 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/16/2011 | 6137 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/15/2011 | 6136.98 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/14/2011 | 6136.85 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/13/2011 | 6136.94 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/12/2011 | 6136.94 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/11/2011 | 6136.8 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/10/2011 | 6136.96 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/9/2011 | 6136.88 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/8/2011 | 6136.87 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/7/2011 | 6136.81 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/6/2011 | 6136.77 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/5/2011 | 6136.78 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/4/2011 | 6136.79 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/3/2011 | 6136.78 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/2/2011 | 6136.81 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 8/1/2011 | 6136.79 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/31/2011 | 6136.82 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/30/2011 | 6136.87 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/29/2011 | 6136.96 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/28/2011 | 6137.05 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/27/2011 | 6137.06 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/26/2011 | 6137.03 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/25/2011 | 6136.94 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/24/2011 | 6137 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/23/2011 | 6137.09 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/22/2011 | 6137.11 | Transducer | 689.04 | 699 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-5 | 7/21/2011 | 6137.09 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/20/2011 | 6137.07 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/19/2011 | 6137.03 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/18/2011 | 6137.01 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/17/2011 | 6137.09 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/16/2011 | 6137.19 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/15/2011 | 6137.19 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/14/2011 | 6137.14 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/13/2011 | 6137.09 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/12/2011 | 6137.06 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/11/2011 | 6137.05 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/10/2011 | 6137.05 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/9/2011 | 6137.1 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/8/2011 | 6137.06 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/7/2011 | 6137.03 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/6/2011 | 6137.05 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/5/2011 | 6137.1 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/4/2011 | 6137.15 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/3/2011 | 6137.16 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/2/2011 | 6137.26 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 7/1/2011 | 6137.36 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/30/2011 | 6137.41 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/29/2011 | 6137.41 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/28/2011 | 6137.43 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/27/2011 | 6137.61 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/26/2011 | 6137.65 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/25/2011 | 6137.7 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/24/2011 | 6137.74 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/23/2011 | 6137.68 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/22/2011 | 6137.69 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/21/2011 | 6137.73 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/20/2011 | 6137.82 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/19/2011 | 6137.68 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/18/2011 | 6137.58 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/17/2011 | 6137.67 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/16/2011 | 6137.62 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/15/2011 | 6137.46 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/14/2011 | 6137.51 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/13/2011 | 6137.55 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/12/2011 | 6137.58 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/11/2011 | 6137.51 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/10/2011 | 6137.53 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/9/2011 | 6137.57 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/8/2011 | 6137.58 | Transducer | 689.04 | 699 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-5 | 6/7/2011 | 6137.64 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/6/2011 | 6137.57 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/5/2011 | 6137.56 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/4/2011 | 6137.79 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/3/2011 | 6137.96 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/2/2011 | 6137.98 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 6/1/2011 | 6137.88 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/31/2011 | 6137.97 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/30/2011 | 6138.35 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/29/2011 | 6138.29 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/28/2011 | 6138.19 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/27/2011 | 6138.06 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/26/2011 | 6138.13 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/25/2011 | 6138.26 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/24/2011 | 6138.42 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/23/2011 | 6138.34 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/22/2011 | 6138.31 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/21/2011 | 6138.3 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/20/2011 | 6138.31 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/19/2011 | 6138.39 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/18/2011 | 6138.3 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/17/2011 | 6138.23 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/16/2011 | 6138.12 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/15/2011 | 6138.17 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/14/2011 | 6138.09 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/13/2011 | 6138.06 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/12/2011 | 6138.17 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/11/2011 | 6138.27 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/10/2011 | 6138.13 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/9/2011 | 6138.07 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/8/2011 | 6137.96 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/7/2011 | 6137.95 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-5 | 5/6/2011 | 6137.91 | Transducer | 689.04 | 699 | Intermediate |
| MCOI-6 | 5/22/2013 | 6153.12 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/21/2013 | 6153.06 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/20/2013 | 6153.02 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/19/2013 | 6152.88 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/18/2013 | 6152.72 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/17/2013 | 6152.59 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/16/2013 | 6152.41 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/15/2013 | 6152.27 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/14/2013 | 6152.15 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/13/2013 | 6152.18 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/12/2013 | 6152.22 | Transducer | 686 | 708.3 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-6 | 5/11/2013 | 6152.38 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/10/2013 | 6152.58 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/9/2013 | 6152.59 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/8/2013 | 6152.42 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/7/2013 | 6152.32 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/6/2013 | 6152.27 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/5/2013 | 6152.29 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/4/2013 | 6152.37 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/3/2013 | 6152.24 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/2/2013 | 6152.51 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/1/2013 | 6152.78 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/30/2013 | 6152.58 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/29/2013 | 6152.4 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/28/2013 | 6152.34 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/27/2013 | 6152.39 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/26/2013 | 6152.65 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/25/2013 | 6152.73 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/24/2013 | 6152.86 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/23/2013 | 6153.11 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/22/2013 | 6153.02 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/21/2013 | 6153.19 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/20/2013 | 6153.39 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/19/2013 | 6153.52 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/18/2013 | 6153.94 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/17/2013 | 6154.05 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/16/2013 | 6154.04 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/15/2013 | 6154.06 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/14/2013 | 6153.96 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/13/2013 | 6153.74 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/12/2013 | 6153.85 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/11/2013 | 6153.89 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/10/2013 | 6153.88 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/9/2013 | 6153.7 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/8/2013 | 6153.18 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/7/2013 | 6152.92 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/6/2013 | 6152.79 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/5/2013 | 6152.67 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/4/2013 | 6152.75 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/3/2013 | 6152.87 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/2/2013 | 6152.8 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/1/2013 | 6152.71 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/31/2013 | 6152.72 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/30/2013 | 6152.77 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/29/2013 | 6152.92 | Transducer | 686 | 708.3 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-6 | 3/28/2013 | 6153.06 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/27/2013 | 6153.22 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/26/2013 | 6153.24 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/25/2013 | 6153.49 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/24/2013 | 6153.57 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/23/2013 | 6153.65 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/22/2013 | 6153.32 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/21/2013 | 6153.08 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/20/2013 | 6152.89 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/19/2013 | 6153.06 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/18/2013 | 6153 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/17/2013 | 6152.72 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/16/2013 | 6152.51 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/15/2013 | 6152.39 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/14/2013 | 6152.44 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/14/2013 | 6152.45 | Manual | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/14/2013 | 6152.51 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/13/2013 | 6152.75 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/12/2013 | 6153.04 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/11/2013 | 6153.1 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/10/2013 | 6153.25 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/9/2013 | 6153.16 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/8/2013 | 6152.84 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/7/2013 | 6152.76 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/6/2013 | 6152.69 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/5/2013 | 6152.81 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/4/2013 | 6152.86 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/3/2013 | 6152.67 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/2/2013 | 6152.83 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/1/2013 | 6153.21 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/28/2013 | 6153.56 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/27/2013 | 6153.91 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/26/2013 | 6154.09 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/25/2013 | 6154.2 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/24/2013 | 6154.16 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/23/2013 | 6154 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/22/2013 | 6154.07 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/21/2013 | 6153.98 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/20/2013 | 6153.46 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/19/2013 | 6153.16 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/18/2013 | 6153.24 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/17/2013 | 6152.94 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/16/2013 | 6153.02 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/15/2013 | 6153.35 | Transducer | 686 | 708.3 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-6 | 2/14/2013 | 6153.56 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/13/2013 | 6153.67 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/12/2013 | 6153.88 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/11/2013 | 6153.87 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/10/2013 | 6153.79 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/9/2013 | 6153.41 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/8/2013 | 6153.11 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/7/2013 | 6153.18 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/6/2013 | 6152.99 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/5/2013 | 6152.82 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/4/2013 | 6152.82 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/3/2013 | 6152.68 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/2/2013 | 6152.92 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/1/2013 | 6153.1 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/31/2013 | 6153.3 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/30/2013 | 6153.39 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/29/2013 | 6153.08 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/28/2013 | 6152.59 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/27/2013 | 6152.31 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/26/2013 | 6151.98 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/25/2013 | 6151.93 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/24/2013 | 6151.92 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/23/2013 | 6151.97 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/22/2013 | 6152.05 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/21/2013 | 6152.08 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/20/2013 | 6152.13 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/19/2013 | 6152.34 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/18/2013 | 6152.44 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/17/2013 | 6152.75 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/16/2013 | 6153.11 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/15/2013 | 6153.43 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/14/2013 | 6153.44 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/13/2013 | 6153.38 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/12/2013 | 6153.2 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/11/2013 | 6152.93 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/10/2013 | 6152.51 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/9/2013 | 6152.52 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/8/2013 | 6152.64 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/7/2013 | 6152.49 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/6/2013 | 6152.46 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/5/2013 | 6152.76 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/4/2013 | 6152.87 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/3/2013 | 6153.13 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/2/2013 | 6153.34 | Transducer | 686 | 708.3 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-6 | 1/1/2013 | 6153.56 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/31/2012 | 6153.6 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/30/2012 | 6153.49 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/29/2012 | 6153.64 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/28/2012 | 6153.9 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/27/2012 | 6153.79 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/26/2012 | 6153.5 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/25/2012 | 6153.57 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/24/2012 | 6153.14 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/23/2012 | 6153.14 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/22/2012 | 6153.22 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/21/2012 | 6153.43 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/20/2012 | 6153.84 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/19/2012 | 6154.08 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/18/2012 | 6153.84 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/17/2012 | 6153.85 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/16/2012 | 6153.96 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/15/2012 | 6153.72 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/14/2012 | 6153.57 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/13/2012 | 6153.53 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/12/2012 | 6153.61 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/11/2012 | 6153.68 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/10/2012 | 6153.56 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/9/2012 | 6153.55 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/8/2012 | 6153.27 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/7/2012 | 6153.01 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/6/2012 | 6152.77 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/5/2012 | 6152.62 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/4/2012 | 6152.77 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/3/2012 | 6152.87 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/3/2012 | 6152.82 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/2/2012 | 6152.64 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/1/2012 | 6152.6 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/30/2012 | 6152.5 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/29/2012 | 6152.48 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/28/2012 | 6152.47 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/27/2012 | 6152.54 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/26/2012 | 6152.65 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/25/2012 | 6152.46 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/24/2012 | 6152.28 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/23/2012 | 6152.4 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/22/2012 | 6152.55 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/21/2012 | 6152.48 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/20/2012 | 6152.5 | Transducer | 686 | 708.3 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-6 | 11/19/2012 | 6152.62 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/18/2012 | 6152.65 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/17/2012 | 6152.63 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/16/2012 | 6152.62 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/15/2012 | 6152.84 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/14/2012 | 6152.93 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/13/2012 | 6153.09 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/12/2012 | 6153.27 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/11/2012 | 6153.49 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/10/2012 | 6153.12 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/9/2012 | 6152.75 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/8/2012 | 6152.54 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/7/2012 | 6152.42 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/6/2012 | 6152.52 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/5/2012 | 6152.58 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/4/2012 | 6152.69 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/3/2012 | 6152.74 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/2/2012 | 6152.66 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/1/2012 | 6152.59 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/31/2012 | 6152.68 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/30/2012 | 6152.75 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/29/2012 | 6152.86 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/28/2012 | 6153.01 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/27/2012 | 6153.09 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/26/2012 | 6153.31 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/25/2012 | 6153.49 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/24/2012 | 6153.42 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/23/2012 | 6153.39 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/22/2012 | 6153.39 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/21/2012 | 6153.34 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/20/2012 | 6153.2 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/19/2012 | 6153.16 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/18/2012 | 6153.19 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/17/2012 | 6153.12 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/16/2012 | 6152.89 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/15/2012 | 6152.83 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/14/2012 | 6152.97 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/13/2012 | 6153.1 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/12/2012 | 6153.02 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/11/2012 | 6153.1 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/10/2012 | 6153.12 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/9/2012 | 6153.16 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/8/2012 | 6153.12 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/7/2012 | 6153.08 | Transducer | 686 | 708.3 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-6 | 10/6/2012 | 6153.04 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/5/2012 | 6152.97 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/4/2012 | 6152.99 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/3/2012 | 6153.01 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/3/2012 | 6153.05 | Manual | 686 | 708.3 | Intermediate |
| MCOI-6 | 9/8/2012 | 6152.811 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 9/7/2012 | 6152.947 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 9/6/2012 | 6152.89 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 9/5/2012 | 6152.896 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 9/4/2012 | 6152.842 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 9/3/2012 | 6152.868 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 9/2/2012 | 6152.838 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 9/1/2012 | 6152.85 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/31/2012 | 6152.864 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/30/2012 | 6152.825 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/29/2012 | 6152.795 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/28/2012 | 6152.882 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/27/2012 | 6153.084 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/26/2012 | 6153.242 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/25/2012 | 6153.268 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/24/2012 | 6153.128 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/23/2012 | 6153.023 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/22/2012 | 6152.985 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/21/2012 | 6153.06 | Manual | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/21/2012 | 6153.04 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/20/2012 | 6153.001 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/19/2012 | 6152.974 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/18/2012 | 6152.862 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/17/2012 | 6152.77 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/16/2012 | 6152.806 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/15/2012 | 6152.701 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/14/2012 | 6152.549 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/13/2012 | 6152.485 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/12/2012 | 6152.551 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/11/2012 | 6152.466 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/10/2012 | 6152.402 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/9/2012 | 6152.393 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/8/2012 | 6152.477 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/7/2012 | 6152.525 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/6/2012 | 6152.491 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/5/2012 | 6152.673 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/4/2012 | 6152.826 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/3/2012 | 6152.67 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/2/2012 | 6152.665 | Transducer | 686 | 708.3 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-6 | 8/1/2012 | 6152.595 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/31/2012 | 6152.638 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/30/2012 | 6152.658 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/29/2012 | 6152.642 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/28/2012 | 6152.692 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/27/2012 | 6152.779 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/26/2012 | 6152.818 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/25/2012 | 6152.698 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/24/2012 | 6152.561 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/23/2012 | 6152.547 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/22/2012 | 6152.568 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/21/2012 | 6152.601 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/20/2012 | 6152.68 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/19/2012 | 6152.791 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/18/2012 | 6152.852 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/17/2012 | 6152.796 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/16/2012 | 6152.658 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/15/2012 | 6152.582 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/14/2012 | 6152.543 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/13/2012 | 6152.529 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/12/2012 | 6152.529 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/11/2012 | 6152.527 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/10/2012 | 6152.606 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/9/2012 | 6152.692 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/8/2012 | 6152.784 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/7/2012 | 6152.937 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/6/2012 | 6153.073 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/5/2012 | 6153.117 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/4/2012 | 6153.091 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/3/2012 | 6153.074 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/2/2012 | 6153.04 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/1/2012 | 6153.006 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/30/2012 | 6152.972 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/29/2012 | 6152.927 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/28/2012 | 6153.016 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/27/2012 | 6153.143 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/26/2012 | 6153.135 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/25/2012 | 6153.165 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/24/2012 | 6153.301 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/23/2012 | 6153.44 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/22/2012 | 6153.422 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/21/2012 | 6153.582 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/20/2012 | 6153.687 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/19/2012 | 6153.531 | Transducer | 686 | 708.3 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-6 | 6/18/2012 | 6153.426 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/17/2012 | 6153.285 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/16/2012 | 6153.483 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/15/2012 | 6153.565 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/14/2012 | 6153.529 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/13/2012 | 6153.485 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/12/2012 | 6153.531 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/11/2012 | 6153.725 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/10/2012 | 6153.81 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/9/2012 | 6153.696 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/8/2012 | 6153.599 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/7/2012 | 6153.664 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/6/2012 | 6153.57 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/5/2012 | 6153.506 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/5/2012 | 6153.511 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/4/2012 | 6153.491 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/3/2012 | 6153.591 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/2/2012 | 6153.632 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/1/2012 | 6153.648 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/31/2012 | 6153.765 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/30/2012 | 6153.838 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/29/2012 | 6153.958 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/28/2012 | 6154.142 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/27/2012 | 6154.291 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/26/2012 | 6154.284 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/25/2012 | 6154.248 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/24/2012 | 6154.054 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/23/2012 | 6153.644 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/22/2012 | 6153.393 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/21/2012 | 6153.422 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/20/2012 | 6153.62 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/19/2012 | 6153.632 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/18/2012 | 6153.371 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/17/2012 | 6153.112 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/16/2012 | 6153.006 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/15/2012 | 6153.088 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/14/2012 | 6153.214 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/13/2012 | 6153.288 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/12/2012 | 6153.473 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/11/2012 | 6153.665 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/10/2012 | 6153.532 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/9/2012 | 6153.526 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/8/2012 | 6153.665 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/7/2012 | 6153.811 | Transducer | 686 | 708.3 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-6 | 5/6/2012 | 6153.903 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/5/2012 | 6153.932 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/4/2012 | 6153.981 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/3/2012 | 6154.093 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/2/2012 | 6154.107 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/1/2012 | 6154.054 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/30/2012 | 6153.964 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/29/2012 | 6153.987 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/28/2012 | 6153.873 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/27/2012 | 6153.756 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/26/2012 | 6153.512 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/25/2012 | 6153.52 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/24/2012 | 6153.479 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/23/2012 | 6153.473 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/22/2012 | 6153.644 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/21/2012 | 6153.813 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/20/2012 | 6153.971 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/19/2012 | 6154.062 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/18/2012 | 6154.049 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/17/2012 | 6154.214 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/16/2012 | 6154.483 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/15/2012 | 6154.643 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/14/2012 | 6154.295 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/13/2012 | 6153.918 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/12/2012 | 6153.784 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/11/2012 | 6153.594 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/10/2012 | 6153.656 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/9/2012 | 6153.757 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/8/2012 | 6153.906 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/7/2012 | 6154.353 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/6/2012 | 6154.575 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/5/2012 | 6154.624 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/4/2012 | 6154.697 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/3/2012 | 6154.806 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/2/2012 | 6154.569 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 4/1/2012 | 6154.249 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/31/2012 | 6154.151 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/30/2012 | 6154.173 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/29/2012 | 6154.195 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/28/2012 | 6154.216 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/27/2012 | 6154.309 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/26/2012 | 6154.375 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/25/2012 | 6154.44 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/24/2012 | 6154.656 | Transducer | 686 | 708.3 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-6 | 3/23/2012 | 6154.901 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/22/2012 | 6155.066 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/21/2012 | 6155.144 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/20/2012 | 6155.27 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/19/2012 | 6154.933 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/18/2012 | 6154.508 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/17/2012 | 6154.234 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/16/2012 | 6154.13 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/15/2012 | 6154.194 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/14/2012 | 6154.32 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/13/2012 | 6154.355 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/12/2012 | 6154.469 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/11/2012 | 6154.422 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/10/2012 | 6154.226 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/9/2012 | 6154.332 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/8/2012 | 6154.747 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/7/2012 | 6154.591 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/6/2012 | 6154.195 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/5/2012 | 6154.013 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/4/2012 | 6154.269 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/3/2012 | 6154.571 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/2/2012 | 6154.653 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 3/1/2012 | 6154.473 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/29/2012 | 6154.428 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/28/2012 | 6154.502 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/27/2012 | 6154.44 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/26/2012 | 6154.553 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/25/2012 | 6154.463 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/24/2012 | 6154.724 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/23/2012 | 6154.801 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/22/2012 | 6154.622 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/21/2012 | 6154.763 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/20/2012 | 6154.971 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/19/2012 | 6154.738 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/18/2012 | 6154.769 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/17/2012 | 6154.781 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/16/2012 | 6154.895 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/15/2012 | 6155.05 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/14/2012 | 6154.722 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/13/2012 | 6154.473 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/12/2012 | 6154.065 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/11/2012 | 6154.049 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/10/2012 | 6154.057 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/9/2012 | 6154.073 | Transducer | 686 | 708.3 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-6 | 2/8/2012 | 6154.092 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/7/2012 | 6154.308 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/6/2012 | 6154.261 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/5/2012 | 6154.302 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/4/2012 | 6154.516 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/3/2012 | 6154.648 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/2/2012 | 6154.334 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 2/1/2012 | 6154.289 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/31/2012 | 6154.345 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/30/2012 | 6154.243 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/29/2012 | 6154.353 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/28/2012 | 6154.636 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/27/2012 | 6154.918 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/26/2012 | 6154.949 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/25/2012 | 6155.119 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/24/2012 | 6155.325 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/23/2012 | 6155.217 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/22/2012 | 6155.34 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/21/2012 | 6154.871 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/20/2012 | 6154.895 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/19/2012 | 6154.736 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/18/2012 | 6154.738 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/17/2012 | 6154.877 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/16/2012 | 6154.716 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/15/2012 | 6154.575 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/14/2012 | 6154.691 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/13/2012 | 6154.944 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/12/2012 | 6154.926 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/11/2012 | 6154.883 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/10/2012 | 6154.687 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/9/2012 | 6154.667 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/8/2012 | 6154.591 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/7/2012 | 6154.179 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/6/2012 | 6153.965 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/5/2012 | 6153.694 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/4/2012 | 6153.88 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/3/2012 | 6153.912 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/2/2012 | 6154.063 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 1/1/2012 | 6154.342 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/31/2011 | 6154.516 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/30/2011 | 6154.402 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/29/2011 | 6154.298 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/28/2011 | 6154.363 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/27/2011 | 6154.347 | Transducer | 686 | 708.3 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-6 | 12/26/2011 | 6154.495 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/25/2011 | 6154.577 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/24/2011 | 6154.905 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/23/2011 | 6155.176 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/22/2011 | 6155.376 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/21/2011 | 6155.189 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/20/2011 | 6154.93 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/19/2011 | 6154.724 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/18/2011 | 6154.412 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/17/2011 | 6154.548 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/16/2011 | 6154.854 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/15/2011 | 6155.034 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/14/2011 | 6155.081 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/13/2011 | 6154.854 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/12/2011 | 6154.756 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/11/2011 | 6154.626 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/10/2011 | 6154.648 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/9/2011 | 6154.915 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/8/2011 | 6154.991 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/7/2011 | 6155.042 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/6/2011 | 6155.234 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/5/2011 | 6155.391 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/4/2011 | 6155.262 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/3/2011 | 6155.197 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/2/2011 | 6154.752 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/1/2011 | 6154.787 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 12/1/2011 | 6154.738 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/30/2011 | 6154.369 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/29/2011 | 6154.428 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/28/2011 | 6154.475 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/27/2011 | 6154.583 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/26/2011 | 6154.995 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/25/2011 | 6154.838 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/24/2011 | 6154.785 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/23/2011 | 6154.901 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/22/2011 | 6155.231 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/21/2011 | 6155.407 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/20/2011 | 6155.541 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/19/2011 | 6155.574 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/18/2011 | 6155.372 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/17/2011 | 6155.353 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/16/2011 | 6155.702 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/15/2011 | 6155.686 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/14/2011 | 6155.59 | Transducer | 686 | 708.3 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-6 | 11/13/2011 | 6155.382 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/12/2011 | 6155.151 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/11/2011 | 6154.95 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/10/2011 | 6155.012 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/9/2011 | 6155.35 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/8/2011 | 6155.703 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/7/2011 | 6155.584 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/6/2011 | 6155.505 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/5/2011 | 6155.248 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/4/2011 | 6154.883 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/3/2011 | 6154.809 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/2/2011 | 6155.132 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 11/1/2011 | 6154.842 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/31/2011 | 6154.767 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/30/2011 | 6154.948 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/29/2011 | 6154.938 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/28/2011 | 6155.107 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/27/2011 | 6155.144 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/26/2011 | 6154.913 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/25/2011 | 6154.789 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/24/2011 | 6154.73 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/23/2011 | 6154.811 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/22/2011 | 6154.879 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/21/2011 | 6154.948 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/20/2011 | 6155.021 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/19/2011 | 6154.94 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/18/2011 | 6155.077 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/17/2011 | 6155.148 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/16/2011 | 6155.15 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/15/2011 | 6155.295 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/14/2011 | 6155.45 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/13/2011 | 6155.497 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/12/2011 | 6155.698 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/11/2011 | 6155.729 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/10/2011 | 6155.731 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/9/2011 | 6155.841 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/8/2011 | 6155.964 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/7/2011 | 6155.772 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/6/2011 | 6155.47 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/5/2011 | 6155.13 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/4/2011 | 6154.948 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/3/2011 | 6154.922 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/2/2011 | 6154.94 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 10/1/2011 | 6155.014 | Transducer | 686 | 708.3 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-6 | 9/30/2011 | 6155.06 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 9/29/2011 | 6155.3 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 9/28/2011 | 6155.295 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 9/27/2011 | 6155.378 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 9/26/2011 | 6155.362 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 9/25/2011 | 6155.209 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 9/24/2011 | 6155.087 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 9/23/2011 | 6155.13 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 9/22/2011 | 6155.266 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 9/21/2011 | 6155.262 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 9/20/2011 | 6155.254 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 9/19/2011 | 6155.246 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 9/18/2011 | 6155.36 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 9/17/2011 | 6155.375 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 9/16/2011 | 6155.291 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 9/15/2011 | 6155.146 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 9/14/2011 | 6155.017 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 9/13/2011 | 6154.917 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 9/12/2011 | 6154.896 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 9/11/2011 | 6154.954 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 9/10/2011 | 6155.017 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 9/9/2011 | 6155.028 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 9/8/2011 | 6155.036 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 9/7/2011 | 6155.242 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 9/6/2011 | 6155.287 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 9/5/2011 | 6155.331 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 9/4/2011 | 6155.486 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 9/3/2011 | 6155.562 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 9/2/2011 | 6155.48 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 9/1/2011 | 6155.513 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/31/2011 | 6155.486 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/30/2011 | 6155.362 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/29/2011 | 6155.258 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/28/2011 | 6155.156 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/27/2011 | 6155.13 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/26/2011 | 6155.191 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/25/2011 | 6155.274 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/24/2011 | 6155.342 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/23/2011 | 6155.34 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/22/2011 | 6155.329 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/21/2011 | 6155.454 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/20/2011 | 6155.482 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/19/2011 | 6155.42 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/19/2011 | 6155.496 | Transducer | 686 | 708.3 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-6 | 8/18/2011 | 6155.37 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/17/2011 | 6155.49 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/16/2011 | 6155.61 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/15/2011 | 6155.58 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/14/2011 | 6155.56 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/13/2011 | 6155.73 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/12/2011 | 6155.78 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/11/2011 | 6155.69 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/10/2011 | 6155.67 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/9/2011 | 6155.58 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/8/2011 | 6155.53 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/7/2011 | 6155.45 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/6/2011 | 6155.4 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/5/2011 | 6155.37 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/4/2011 | 6155.3 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/3/2011 | 6155.23 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/2/2011 | 6155.2 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 8/1/2011 | 6155.19 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/31/2011 | 6155.29 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/30/2011 | 6155.41 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/29/2011 | 6155.58 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/28/2011 | 6155.64 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/27/2011 | 6155.59 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/26/2011 | 6155.51 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/25/2011 | 6155.51 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/24/2011 | 6155.65 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/23/2011 | 6155.73 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/22/2011 | 6155.69 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/21/2011 | 6155.6 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/20/2011 | 6155.53 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/19/2011 | 6155.5 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/18/2011 | 6155.58 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/17/2011 | 6155.75 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/16/2011 | 6155.89 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/15/2011 | 6155.87 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/14/2011 | 6155.79 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/13/2011 | 6155.74 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/12/2011 | 6155.74 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/11/2011 | 6155.75 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/10/2011 | 6155.73 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/9/2011 | 6155.71 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/8/2011 | 6155.59 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/7/2011 | 6155.51 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/6/2011 | 6155.51 | Transducer | 686 | 708.3 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-6 | 7/5/2011 | 6155.52 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/4/2011 | 6155.55 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/3/2011 | 6155.56 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/2/2011 | 6155.66 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 7/1/2011 | 6155.7 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/30/2011 | 6155.7 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/29/2011 | 6155.71 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/28/2011 | 6155.8 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/27/2011 | 6156.01 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/26/2011 | 6156.04 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/25/2011 | 6156.08 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/24/2011 | 6156.12 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/23/2011 | 6156.15 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/22/2011 | 6156.3 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/21/2011 | 6156.48 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/20/2011 | 6156.51 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/19/2011 | 6156.3 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/18/2011 | 6156.25 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/17/2011 | 6156.28 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/16/2011 | 6156.14 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/15/2011 | 6156.02 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/14/2011 | 6156.11 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/13/2011 | 6156.18 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/12/2011 | 6156.21 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/11/2011 | 6156.12 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/10/2011 | 6156.12 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/9/2011 | 6156.08 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/8/2011 | 6155.94 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/7/2011 | 6155.83 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/6/2011 | 6155.69 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/5/2011 | 6155.71 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/4/2011 | 6155.94 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/3/2011 | 6156.06 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/2/2011 | 6156.07 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 6/1/2011 | 6156.08 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/31/2011 | 6156.22 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/30/2011 | 6156.59 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/29/2011 | 6156.4 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/28/2011 | 6156.2 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/27/2011 | 6156.12 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/26/2011 | 6156.1 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/25/2011 | 6156.31 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/24/2011 | 6156.42 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/23/2011 | 6156.39 | Transducer | 686 | 708.3 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| MCOI-6 | 5/22/2011 | 6156.48 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/21/2011 | 6156.63 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/20/2011 | 6156.78 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/19/2011 | 6156.78 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/18/2011 | 6156.5 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/17/2011 | 6156.25 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/16/2011 | 6156.11 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/15/2011 | 6156.2 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/14/2011 | 6156.26 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/13/2011 | 6156.5 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/12/2011 | 6156.84 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/11/2011 | 6157 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/10/2011 | 6156.74 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/9/2011 | 6156.45 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/8/2011 | 6156.12 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/7/2011 | 6155.9 | Transducer | 686 | 708.3 | Intermediate |
| MCOI-6 | 5/6/2011 | 6155.7 | Transducer | 686 | 708.3 | Intermediate |
| R-11 | 5/22/2013 | 5835.11 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/21/2013 | 5835.07 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/20/2013 | 5835.16 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/19/2013 | 5835.19 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/18/2013 | 5835.16 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/17/2013 | 5835.19 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/16/2013 | 5835.14 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/15/2013 | 5835.11 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/14/2013 | 5834.97 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/13/2013 | 5834.91 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/12/2013 | 5834.8 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/11/2013 | 5834.84 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/10/2013 | 5835.02 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/9/2013 | 5835.11 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/8/2013 | 5835.2 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/7/2013 | 5835.12 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/6/2013 | 5835.09 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/5/2013 | 5835.08 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/4/2013 | 5835.16 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/3/2013 | 5834.8 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/2/2013 | 5834.92 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/1/2013 | 5835.32 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/30/2013 | 5835.33 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/29/2013 | 5835.23 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/28/2013 | 5835.05 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/27/2013 | 5834.93 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/26/2013 | 5835.09 | Transducer | 855 | 877.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-11 | 4/25/2013 | 5835.04 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/24/2013 | 5835.02 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/23/2013 | 5835.29 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/22/2013 | 5835.1 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/22/2013 | 5835.13 | Manual | 855 | 877.9 | Regional |
| R-11 | 4/21/2013 | 5835.07 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/20/2013 | 5835.11 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/19/2013 | 5834.94 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/18/2013 | 5835.2 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/17/2013 | 5835.35 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/16/2013 | 5835.32 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/15/2013 | 5835.4 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/14/2013 | 5835.44 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/13/2013 | 5835.17 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/12/2013 | 5835.23 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/11/2013 | 5835.24 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/10/2013 | 5835.33 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/9/2013 | 5835.69 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/8/2013 | 5835.42 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/7/2013 | 5835.29 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/6/2013 | 5835.28 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/5/2013 | 5835.09 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/4/2013 | 5835.07 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/3/2013 | 5835.22 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/2/2013 | 5835.26 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/1/2013 | 5835.19 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/31/2013 | 5835.14 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/30/2013 | 5835.05 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/29/2013 | 5835.05 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/28/2013 | 5835.11 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/27/2013 | 5835.17 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/27/2013 | 5835.17 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/26/2013 | 5835.01 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/25/2013 | 5835.12 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/24/2013 | 5835.18 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/23/2013 | 5835.5 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/22/2013 | 5835.42 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/21/2013 | 5835.32 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/20/2013 | 5834.99 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/19/2013 | 5835.21 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/18/2013 | 5835.37 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/17/2013 | 5835.33 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/16/2013 | 5835.23 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/15/2013 | 5834.98 | Transducer | 855 | 877.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-11 | 3/14/2013 | 5834.93 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/13/2013 | 5834.93 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/12/2013 | 5835.1 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/11/2013 | 5835.06 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/10/2013 | 5835.25 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/9/2013 | 5835.46 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/8/2013 | 5835.25 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/7/2013 | 5835.17 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/6/2013 | 5835.03 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/5/2013 | 5835.09 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/4/2013 | 5835.3 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/3/2013 | 5834.99 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/2/2013 | 5834.84 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/1/2013 | 5834.89 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/28/2013 | 5834.94 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/27/2013 | 5835.1 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/26/2013 | 5835.23 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/25/2013 | 5835.33 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/24/2013 | 5835.43 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/23/2013 | 5835.19 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/22/2013 | 5835.34 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/21/2013 | 5835.66 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/20/2013 | 5835.43 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/19/2013 | 5835.16 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/18/2013 | 5835.44 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/17/2013 | 5835.06 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/16/2013 | 5834.87 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/15/2013 | 5835 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/14/2013 | 5835.1 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/13/2013 | 5835.08 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/12/2013 | 5835.25 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/11/2013 | 5835.26 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/10/2013 | 5835.46 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/9/2013 | 5835.39 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/8/2013 | 5835.07 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/7/2013 | 5835.21 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/6/2013 | 5835.23 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/5/2013 | 5835.21 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/4/2013 | 5835.25 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/3/2013 | 5834.93 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/2/2013 | 5834.92 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/1/2013 | 5834.96 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/31/2013 | 5835.06 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/30/2013 | 5835.32 | Transducer | 855 | 877.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-11 | 1/29/2013 | 5835.5 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/28/2013 | 5835.32 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/27/2013 | 5835.33 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/26/2013 | 5835.1 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/25/2013 | 5835.02 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/24/2013 | 5834.97 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/23/2013 | 5834.95 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/22/2013 | 5835 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/21/2013 | 5835 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/20/2013 | 5834.93 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/19/2013 | 5834.96 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/18/2013 | 5834.81 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/17/2013 | 5834.79 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/16/2013 | 5834.9 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/15/2013 | 5835.19 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/14/2013 | 5835.24 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/13/2013 | 5835.28 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/12/2013 | 5835.36 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/11/2013 | 5835.49 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/10/2013 | 5835.06 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/9/2013 | 5835 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/8/2013 | 5835.25 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/7/2013 | 5835.1 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/6/2013 | 5834.87 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/5/2013 | 5835.03 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/4/2013 | 5834.93 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/3/2013 | 5834.97 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/2/2013 | 5835 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/1/2013 | 5835.17 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/31/2012 | 5835.32 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/30/2012 | 5835.07 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/29/2012 | 5835 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/28/2012 | 5835.32 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/27/2012 | 5835.44 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/26/2012 | 5835.16 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/25/2012 | 5835.51 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/24/2012 | 5835.18 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/23/2012 | 5835.07 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/22/2012 | 5834.91 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/21/2012 | 5834.74 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/20/2012 | 5834.95 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/19/2012 | 5835.45 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/18/2012 | 5835.19 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/17/2012 | 5835.14 | Transducer | 855 | 877.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-11 | 12/16/2012 | 5835.33 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/15/2012 | 5835.24 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/14/2012 | 5835.21 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/13/2012 | 5835.1 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/12/2012 | 5835.14 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/11/2012 | 5835.23 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/10/2012 | 5835.13 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/9/2012 | 5835.36 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/8/2012 | 5835.3 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/7/2012 | 5835.31 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/6/2012 | 5835.19 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/5/2012 | 5834.94 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/4/2012 | 5835.03 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/3/2012 | 5835.24 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/2/2012 | 5835.09 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/1/2012 | 5835.14 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/30/2012 | 5835.07 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/29/2012 | 5835.05 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/28/2012 | 5834.92 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/27/2012 | 5834.95 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/26/2012 | 5835.25 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/26/2012 | 5835.12 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/25/2012 | 5835.15 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/24/2012 | 5834.86 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/23/2012 | 5834.91 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/22/2012 | 5835.09 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/21/2012 | 5834.98 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/20/2012 | 5834.92 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/19/2012 | 5835 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/18/2012 | 5835.07 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/17/2012 | 5835 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/16/2012 | 5834.86 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/15/2012 | 5834.97 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/14/2012 | 5834.88 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/13/2012 | 5834.86 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/12/2012 | 5834.87 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/11/2012 | 5835.36 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/10/2012 | 5835.4 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/9/2012 | 5835.23 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/8/2012 | 5835.11 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/7/2012 | 5834.92 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/6/2012 | 5834.94 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/5/2012 | 5834.9 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/4/2012 | 5834.96 | Transducer | 855 | 877.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-11 | 11/3/2012 | 5835.05 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/2/2012 | 5835.11 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/1/2012 | 5834.99 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/31/2012 | 5835 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/30/2012 | 5834.96 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/29/2012 | 5834.97 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/28/2012 | 5835 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/27/2012 | 5834.9 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/26/2012 | 5834.97 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/25/2012 | 5835.19 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/24/2012 | 5835.15 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/23/2012 | 5835.15 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/22/2012 | 5835.19 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/21/2012 | 5835.23 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/20/2012 | 5835.14 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/19/2012 | 5835.05 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/18/2012 | 5835.15 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/17/2012 | 5835.31 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/16/2012 | 5835.16 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/15/2012 | 5834.94 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/14/2012 | 5834.98 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/13/2012 | 5835.14 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/12/2012 | 5835.06 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/11/2012 | 5835.09 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/10/2012 | 5835.08 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/9/2012 | 5835.16 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/8/2012 | 5835.15 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/7/2012 | 5835.13 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/6/2012 | 5835.19 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/5/2012 | 5835.11 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/4/2012 | 5835.11 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/3/2012 | 5835.23 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/2/2012 | 5835.07 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/1/2012 | 5835.06 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/30/2012 | 5835.08 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/29/2012 | 5835.1 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/28/2012 | 5835.11 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/27/2012 | 5835.14 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/26/2012 | 5835.22 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/25/2012 | 5835.17 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/24/2012 | 5835.1 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/23/2012 | 5835.05 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/22/2012 | 5835.1 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/21/2012 | 5835.13 | Transducer | 855 | 877.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-11 | 9/20/2012 | 5835.11 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/19/2012 | 5835.1 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/18/2012 | 5835.1 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/17/2012 | 5835.23 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/16/2012 | 5835.13 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/15/2012 | 5834.96 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/14/2012 | 5834.87 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/13/2012 | 5834.92 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/13/2012 | 5835.058 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/12/2012 | 5835.21 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/11/2012 | 5835.17 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/10/2012 | 5835.055 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/9/2012 | 5834.982 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/8/2012 | 5835.003 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/7/2012 | 5835.197 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/6/2012 | 5835.171 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/5/2012 | 5835.185 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/4/2012 | 5835.143 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/3/2012 | 5835.156 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/2/2012 | 5835.139 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/1/2012 | 5835.139 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/31/2012 | 5835.185 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/30/2012 | 5835.176 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/29/2012 | 5835.063 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/28/2012 | 5835.001 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/27/2012 | 5835.038 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/26/2012 | 5835.195 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/25/2012 | 5835.336 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/24/2012 | 5835.296 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/23/2012 | 5835.2 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/22/2012 | 5835.157 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/21/2012 | 5835.196 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/20/2012 | 5835.202 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/19/2012 | 5835.244 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/18/2012 | 5835.204 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/17/2012 | 5835.13 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/16/2012 | 5835.27 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/15/2012 | 5835.311 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/14/2012 | 5835.224 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/13/2012 | 5835.12 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/12/2012 | 5835.244 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/11/2012 | 5835.241 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/10/2012 | 5835.156 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/9/2012 | 5835.127 | Transducer | 855 | 877.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-11 | 8/8/2012 | 5835.149 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/7/2012 | 5835.153 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/6/2012 | 5834.972 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/5/2012 | 5835.09 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/4/2012 | 5835.299 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/3/2012 | 5835.222 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/2/2012 | 5835.247 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/1/2012 | 5835.152 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/31/2012 | 5835.208 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/30/2012 | 5835.227 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/29/2012 | 5835.153 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/28/2012 | 5835.138 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/27/2012 | 5835.196 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/26/2012 | 5835.332 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/25/2012 | 5835.348 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/24/2012 | 5835.154 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/24/2012 | 5835.27 | Manual | 855 | 877.9 | Regional |
| R-11 | 7/23/2012 | 5835.137 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/22/2012 | 5835.114 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/21/2012 | 5835.078 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/20/2012 | 5835.044 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/19/2012 | 5835.111 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/18/2012 | 5835.238 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/17/2012 | 5835.297 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/16/2012 | 5835.248 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/15/2012 | 5835.217 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/14/2012 | 5835.185 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/13/2012 | 5835.186 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/12/2012 | 5835.167 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/11/2012 | 5835.11 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/10/2012 | 5835.095 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/9/2012 | 5835.11 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/8/2012 | 5835.066 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/7/2012 | 5835.115 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/6/2012 | 5835.179 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/5/2012 | 5835.261 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/4/2012 | 5835.275 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/3/2012 | 5835.275 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/2/2012 | 5835.268 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/1/2012 | 5835.317 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/30/2012 | 5835.295 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/29/2012 | 5835.154 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/28/2012 | 5835.197 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/27/2012 | 5835.297 | Transducer | 855 | 877.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-11 | 6/26/2012 | 5835.239 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/25/2012 | 5835.154 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/24/2012 | 5835.23 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/23/2012 | 5835.338 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/22/2012 | 5835.207 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/21/2012 | 5835.292 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/20/2012 | 5835.52 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/19/2012 | 5835.516 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/18/2012 | 5835.436 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/17/2012 | 5835.16 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/16/2012 | 5835.316 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/15/2012 | 5835.457 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/14/2012 | 5835.456 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/13/2012 | 5835.355 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/12/2012 | 5835.25 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/11/2012 | 5835.375 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/10/2012 | 5835.463 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/9/2012 | 5835.533 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/8/2012 | 5835.389 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/7/2012 | 5835.508 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/6/2012 | 5835.479 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/6/2012 | 5835.458 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/5/2012 | 5835.39 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/4/2012 | 5835.353 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/3/2012 | 5835.438 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/2/2012 | 5835.488 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/1/2012 | 5835.406 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/31/2012 | 5835.472 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/30/2012 | 5835.43 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/29/2012 | 5835.394 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/28/2012 | 5835.412 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/27/2012 | 5835.563 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/26/2012 | 5835.604 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/25/2012 | 5835.739 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/24/2012 | 5835.901 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/23/2012 | 5835.722 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/22/2012 | 5835.401 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/21/2012 | 5835.302 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/20/2012 | 5835.465 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/19/2012 | 5835.712 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/18/2012 | 5835.724 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/17/2012 | 5835.563 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/16/2012 | 5835.376 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/15/2012 | 5835.363 | Transducer | 855 | 877.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-11 | 5/14/2012 | 5835.358 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/13/2012 | 5835.292 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/12/2012 | 5835.368 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/11/2012 | 5835.659 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/10/2012 | 5835.539 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/9/2012 | 5835.411 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/8/2012 | 5835.419 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/7/2012 | 5835.531 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/6/2012 | 5835.612 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/5/2012 | 5835.578 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/4/2012 | 5835.551 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/3/2012 | 5835.645 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/2/2012 | 5835.704 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/1/2012 | 5835.716 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/30/2012 | 5835.601 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/29/2012 | 5835.721 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/28/2012 | 5835.723 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/27/2012 | 5835.775 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/26/2012 | 5835.607 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/25/2012 | 5835.673 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/24/2012 | 5835.585 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/23/2012 | 5835.425 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/22/2012 | 5835.487 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/21/2012 | 5835.539 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/20/2012 | 5835.592 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/19/2012 | 5835.685 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/18/2012 | 5835.517 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/17/2012 | 5835.424 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/16/2012 | 5835.59 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/15/2012 | 5835.957 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/14/2012 | 5835.99 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/13/2012 | 5835.774 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/12/2012 | 5835.784 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/11/2012 | 5835.577 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/10/2012 | 5835.528 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/9/2012 | 5835.437 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/8/2012 | 5835.292 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/7/2012 | 5835.545 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/6/2012 | 5835.704 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/5/2012 | 5835.659 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/4/2012 | 5835.626 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/3/2012 | 5835.817 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/2/2012 | 5835.97 | Transducer | 855 | 877.9 | Regional |
| R-11 | 4/1/2012 | 5835.764 | Transducer | 855 | 877.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-11 | 3/31/2012 | 5835.651 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/30/2012 | 5835.674 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/29/2012 | 5835.685 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/28/2012 | 5835.613 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/27/2012 | 5835.63 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/26/2012 | 5835.652 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/25/2012 | 5835.522 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/24/2012 | 5835.542 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/23/2012 | 5835.619 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/22/2012 | 5835.671 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/21/2012 | 5835.689 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/20/2012 | 5836.002 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/19/2012 | 5836.012 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/18/2012 | 5835.903 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/17/2012 | 5835.755 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/16/2012 | 5835.596 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/15/2012 | 5835.558 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/14/2012 | 5835.61 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/13/2012 | 5835.566 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/12/2012 | 5835.719 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/11/2012 | 5835.792 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/10/2012 | 5835.458 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/9/2012 | 5835.244 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/8/2012 | 5835.761 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/7/2012 | 5835.966 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/6/2012 | 5835.597 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/6/2012 | 5835.727 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/5/2012 | 5835.414 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/4/2012 | 5835.401 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/3/2012 | 5835.577 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/2/2012 | 5835.842 | Transducer | 855 | 877.9 | Regional |
| R-11 | 3/1/2012 | 5835.707 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/29/2012 | 5835.579 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/28/2012 | 5835.733 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/27/2012 | 5835.567 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/26/2012 | 5835.669 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/25/2012 | 5835.387 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/24/2012 | 5835.572 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/23/2012 | 5835.817 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/22/2012 | 5835.536 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/21/2012 | 5835.518 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/20/2012 | 5835.847 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/19/2012 | 5835.677 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/18/2012 | 5835.662 | Transducer | 855 | 877.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-11 | 2/17/2012 | 5835.59 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/16/2012 | 5835.616 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/15/2012 | 5835.957 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/14/2012 | 5835.879 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/13/2012 | 5835.949 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/12/2012 | 5835.606 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/11/2012 | 5835.601 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/10/2012 | 5835.592 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/9/2012 | 5835.583 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/8/2012 | 5835.479 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/7/2012 | 5835.678 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/6/2012 | 5835.564 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/5/2012 | 5835.421 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/4/2012 | 5835.542 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/3/2012 | 5835.876 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/2/2012 | 5835.665 | Transducer | 855 | 877.9 | Regional |
| R-11 | 2/1/2012 | 5835.59 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/31/2012 | 5835.729 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/30/2012 | 5835.543 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/29/2012 | 5835.37 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/28/2012 | 5835.446 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/27/2012 | 5835.743 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/26/2012 | 5835.552 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/25/2012 | 5835.561 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/24/2012 | 5835.808 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/23/2012 | 5835.664 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/22/2012 | 5836.096 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/21/2012 | 5835.657 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/20/2012 | 5835.807 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/19/2012 | 5835.649 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/18/2012 | 5835.548 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/17/2012 | 5835.754 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/16/2012 | 5835.784 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/15/2012 | 5835.563 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/14/2012 | 5835.473 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/13/2012 | 5835.649 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/12/2012 | 5835.667 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/11/2012 | 5835.803 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/10/2012 | 5835.593 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/9/2012 | 5835.612 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/8/2012 | 5835.871 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/7/2012 | 5835.742 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/6/2012 | 5835.743 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/5/2012 | 5835.397 | Transducer | 855 | 877.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-11 | 1/4/2012 | 5835.477 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/3/2012 | 5835.328 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/2/2012 | 5835.234 | Transducer | 855 | 877.9 | Regional |
| R-11 | 1/1/2012 | 5835.391 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/31/2011 | 5835.68 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/30/2011 | 5835.619 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/29/2011 | 5835.528 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/28/2011 | 5835.566 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/27/2011 | 5835.499 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/26/2011 | 5835.521 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/25/2011 | 5835.353 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/24/2011 | 5835.399 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/23/2011 | 5835.517 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/22/2011 | 5835.811 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/21/2011 | 5835.811 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/20/2011 | 5835.771 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/19/2011 | 5835.869 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/18/2011 | 5835.432 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/17/2011 | 5835.296 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/16/2011 | 5835.47 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/15/2011 | 5835.577 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/14/2011 | 5835.813 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/13/2011 | 5835.703 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/12/2011 | 5835.692 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/11/2011 | 5835.541 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/10/2011 | 5835.389 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/9/2011 | 5835.556 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/8/2011 | 5835.609 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/7/2011 | 5835.456 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/6/2011 | 5835.53 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/5/2011 | 5835.716 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/4/2011 | 5835.667 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/3/2011 | 5835.903 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/2/2011 | 5835.547 | Transducer | 855 | 877.9 | Regional |
| R-11 | 12/1/2011 | 5835.843 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/30/2011 | 5835.479 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/29/2011 | 5835.455 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/28/2011 | 5835.316 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/27/2011 | 5835.221 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/26/2011 | 5835.66 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/25/2011 | 5835.619 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/24/2011 | 5835.435 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/23/2011 | 5835.313 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/22/2011 | 5835.463 | Transducer | 855 | 877.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-11 | 11/21/2011 | 5835.561 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/20/2011 | 5835.637 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/19/2011 | 5835.825 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/18/2011 | 5835.619 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/17/2011 | 5835.359 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/16/2011 | 5835.634 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/15/2011 | 5835.694 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/14/2011 | 5835.762 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/13/2011 | 5835.765 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/12/2011 | 5835.719 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/11/2011 | 5835.406 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/10/2011 | 5835.197 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/9/2011 | 5835.378 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/8/2011 | 5835.745 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/7/2011 | 5835.664 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/6/2011 | 5835.735 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/5/2011 | 5835.899 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/4/2011 | 5835.541 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/3/2011 | 5835.327 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/2/2011 | 5835.788 | Transducer | 855 | 877.9 | Regional |
| R-11 | 11/1/2011 | 5835.547 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/31/2011 | 5835.406 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/30/2011 | 5835.505 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/29/2011 | 5835.41 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/28/2011 | 5835.519 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/27/2011 | 5835.662 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/26/2011 | 5835.594 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/25/2011 | 5835.522 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/24/2011 | 5835.42 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/23/2011 | 5835.449 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/22/2011 | 5835.443 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/21/2011 | 5835.456 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/20/2011 | 5835.57 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/19/2011 | 5835.383 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/18/2011 | 5835.458 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/17/2011 | 5835.546 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/16/2011 | 5835.416 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/15/2011 | 5835.447 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/14/2011 | 5835.524 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/13/2011 | 5835.426 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/12/2011 | 5835.562 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/11/2011 | 5835.605 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/10/2011 | 5835.505 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/9/2011 | 5835.538 | Transducer | 855 | 877.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-11 | 10/8/2011 | 5835.722 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/7/2011 | 5835.732 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/6/2011 | 5835.79 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/5/2011 | 5835.609 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/4/2011 | 5835.488 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/3/2011 | 5835.449 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/2/2011 | 5835.417 | Transducer | 855 | 877.9 | Regional |
| R-11 | 10/1/2011 | 5835.407 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/30/2011 | 5835.306 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/29/2011 | 5835.494 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/28/2011 | 5835.43 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/27/2011 | 5835.502 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/26/2011 | 5835.621 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/25/2011 | 5835.602 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/24/2011 | 5835.457 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/23/2011 | 5835.412 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/22/2011 | 5835.521 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/21/2011 | 5835.525 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/20/2011 | 5835.508 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/19/2011 | 5835.407 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/18/2011 | 5835.475 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/17/2011 | 5835.561 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/16/2011 | 5835.57 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/15/2011 | 5835.543 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/14/2011 | 5835.513 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/13/2011 | 5835.418 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/12/2011 | 5835.349 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/11/2011 | 5835.392 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/10/2011 | 5835.411 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/9/2011 | 5835.376 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/8/2011 | 5835.283 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/7/2011 | 5835.418 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/6/2011 | 5835.417 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/5/2011 | 5835.34 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/4/2011 | 5835.427 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/3/2011 | 5835.542 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/2/2011 | 5835.459 | Transducer | 855 | 877.9 | Regional |
| R-11 | 9/1/2011 | 5835.49 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/31/2011 | 5835.58 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/30/2011 | 5835.554 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/29/2011 | 5835.542 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/28/2011 | 5835.46 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/27/2011 | 5835.367 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/26/2011 | 5835.386 | Transducer | 855 | 877.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-11 | 8/25/2011 | 5835.414 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/24/2011 | 5835.478 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/24/2011 | 5835.47 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/23/2011 | 5835.47 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/22/2011 | 5835.38 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/21/2011 | 5835.45 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/20/2011 | 5835.53 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/19/2011 | 5835.51 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/18/2011 | 5835.34 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/17/2011 | 5835.4 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/16/2011 | 5835.54 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/15/2011 | 5835.5 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/14/2011 | 5835.35 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/13/2011 | 5835.49 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/12/2011 | 5835.52 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/11/2011 | 5835.54 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/10/2011 | 5835.6 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/9/2011 | 5835.57 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/8/2011 | 5835.6 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/7/2011 | 5835.54 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/6/2011 | 5835.52 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/5/2011 | 5835.53 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/4/2011 | 5835.51 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/3/2011 | 5835.5 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/2/2011 | 5835.47 | Transducer | 855 | 877.9 | Regional |
| R-11 | 8/1/2011 | 5835.38 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/31/2011 | 5835.34 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/30/2011 | 5835.35 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/29/2011 | 5835.47 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/28/2011 | 5835.56 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/27/2011 | 5835.6 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/26/2011 | 5835.51 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/25/2011 | 5835.39 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/24/2011 | 5835.46 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/23/2011 | 5835.57 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/22/2011 | 5835.59 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/21/2011 | 5835.56 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/20/2011 | 5835.51 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/19/2011 | 5835.41 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/18/2011 | 5835.38 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/17/2011 | 5835.47 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/16/2011 | 5835.6 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/15/2011 | 5835.64 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/14/2011 | 5835.61 | Transducer | 855 | 877.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-11 | 7/13/2011 | 5835.58 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/12/2011 | 5835.56 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/11/2011 | 5835.57 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/10/2011 | 5835.58 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/9/2011 | 5835.64 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/8/2011 | 5835.61 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/7/2011 | 5835.53 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/6/2011 | 5835.52 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/5/2011 | 5835.52 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/4/2011 | 5835.52 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/3/2011 | 5835.48 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/2/2011 | 5835.53 | Transducer | 855 | 877.9 | Regional |
| R-11 | 7/1/2011 | 5835.61 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/30/2011 | 5835.6 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/29/2011 | 5835.5 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/28/2011 | 5835.48 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/27/2011 | 5835.65 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/26/2011 | 5835.65 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/25/2011 | 5835.69 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/24/2011 | 5835.69 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/23/2011 | 5835.6 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/22/2011 | 5835.61 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/21/2011 | 5835.74 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/20/2011 | 5835.9 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/19/2011 | 5835.81 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/18/2011 | 5835.73 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/17/2011 | 5835.89 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/16/2011 | 5835.85 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/15/2011 | 5835.66 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/14/2011 | 5835.72 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/13/2011 | 5835.75 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/12/2011 | 5835.82 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/11/2011 | 5835.75 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/10/2011 | 5835.78 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/9/2011 | 5835.84 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/8/2011 | 5835.83 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/7/2011 | 5835.82 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/6/2011 | 5835.62 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/5/2011 | 5835.51 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/4/2011 | 5835.69 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/3/2011 | 5835.79 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/2/2011 | 5835.69 | Transducer | 855 | 877.9 | Regional |
| R-11 | 6/1/2011 | 5835.48 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/31/2011 | 5835.6 | Transducer | 855 | 877.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-11 | 5/30/2011 | 5836.08 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/29/2011 | 5836.07 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/28/2011 | 5835.97 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/27/2011 | 5835.88 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/26/2011 | 5835.72 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/25/2011 | 5835.83 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/24/2011 | 5836.01 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/23/2011 | 5835.9 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/22/2011 | 5835.87 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/21/2011 | 5835.9 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/20/2011 | 5835.98 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/19/2011 | 5836.18 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/18/2011 | 5836.17 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/17/2011 | 5836.08 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/16/2011 | 5835.92 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/15/2011 | 5835.93 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/14/2011 | 5835.8 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/13/2011 | 5835.78 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/12/2011 | 5836.01 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/11/2011 | 5836.28 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/10/2011 | 5836.27 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/9/2011 | 5836.27 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/8/2011 | 5836.15 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/7/2011 | 5836.12 | Transducer | 855 | 877.9 | Regional |
| R-11 | 5/6/2011 | 5835.97 | Transducer | 855 | 877.9 | Regional |
| R-13 | 5/22/2013 | 5833.26 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/21/2013 | 5833.23 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/20/2013 | 5833.31 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/19/2013 | 5833.32 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/18/2013 | 5833.31 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/17/2013 | 5833.32 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/16/2013 | 5833.27 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/15/2013 | 5833.25 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/14/2013 | 5833.13 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/13/2013 | 5833.09 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/12/2013 | 5833.01 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/11/2013 | 5833.05 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/10/2013 | 5833.21 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/9/2013 | 5833.3 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/8/2013 | 5833.36 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/7/2013 | 5833.3 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/6/2013 | 5833.27 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/5/2013 | 5833.28 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/4/2013 | 5833.36 | Transducer | 958.33 | 1018.72 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-13 | 5/3/2013 | 5833.02 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/2/2013 | 5833.14 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/1/2013 | 5833.52 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/30/2013 | 5833.51 | Manual | 958.33 | 1018.72 | Regional |
| R-13 | 4/30/2013 | 5833.65 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/29/2013 | 5833.54 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/28/2013 | 5833.4 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/27/2013 | 5833.28 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/26/2013 | 5833.45 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/25/2013 | 5833.39 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/24/2013 | 5833.39 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/23/2013 | 5833.63 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/22/2013 | 5833.46 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/21/2013 | 5833.47 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/20/2013 | 5833.51 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/19/2013 | 5833.36 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/18/2013 | 5833.6 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/17/2013 | 5833.72 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/16/2013 | 5833.71 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/15/2013 | 5833.77 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/14/2013 | 5833.78 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/13/2013 | 5833.55 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/12/2013 | 5833.61 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/11/2013 | 5833.61 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/10/2013 | 5833.68 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/9/2013 | 5833.98 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/8/2013 | 5833.74 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/7/2013 | 5833.64 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/6/2013 | 5833.62 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/5/2013 | 5833.46 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/4/2013 | 5833.44 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/3/2013 | 5833.56 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/2/2013 | 5833.61 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/1/2013 | 5833.53 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/31/2013 | 5833.49 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/30/2013 | 5833.41 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/29/2013 | 5833.43 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/28/2013 | 5833.47 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/27/2013 | 5833.54 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/26/2013 | 5833.39 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/25/2013 | 5833.51 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/24/2013 | 5833.54 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/23/2013 | 5833.83 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/22/2013 | 5833.75 | Transducer | 958.33 | 1018.72 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-13 | 3/21/2013 | 5833.67 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/20/2013 | 5833.39 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/19/2013 | 5833.56 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/18/2013 | 5833.7 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/17/2013 | 5833.68 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/16/2013 | 5833.58 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/15/2013 | 5833.35 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/14/2013 | 5833.3 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/13/2013 | 5833.31 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/13/2013 | 5833.24 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/12/2013 | 5833.47 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/11/2013 | 5833.42 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/10/2013 | 5833.61 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/9/2013 | 5833.78 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/8/2013 | 5833.59 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/7/2013 | 5833.53 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/6/2013 | 5833.38 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/5/2013 | 5833.46 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/4/2013 | 5833.65 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/3/2013 | 5833.35 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/2/2013 | 5833.23 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/1/2013 | 5833.3 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/28/2013 | 5833.34 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/27/2013 | 5833.48 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/26/2013 | 5833.59 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/25/2013 | 5833.68 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/24/2013 | 5833.77 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/23/2013 | 5833.57 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/22/2013 | 5833.7 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/21/2013 | 5833.98 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/20/2013 | 5833.79 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/19/2013 | 5833.51 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/18/2013 | 5833.78 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/17/2013 | 5833.44 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/16/2013 | 5833.26 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/15/2013 | 5833.38 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/14/2013 | 5833.49 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/13/2013 | 5833.46 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/12/2013 | 5833.6 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/11/2013 | 5833.62 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/10/2013 | 5833.8 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/9/2013 | 5833.73 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/8/2013 | 5833.42 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/7/2013 | 5833.58 | Transducer | 958.33 | 1018.72 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-13 | 2/6/2013 | 5833.57 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/5/2013 | 5833.55 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/4/2013 | 5833.58 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/3/2013 | 5833.3 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/2/2013 | 5833.32 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/1/2013 | 5833.35 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/31/2013 | 5833.43 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/30/2013 | 5833.68 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/29/2013 | 5833.8 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/28/2013 | 5833.65 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/27/2013 | 5833.65 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/26/2013 | 5833.42 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/25/2013 | 5833.37 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/24/2013 | 5833.31 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/23/2013 | 5833.31 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/22/2013 | 5833.36 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/21/2013 | 5833.35 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/20/2013 | 5833.29 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/19/2013 | 5833.34 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/18/2013 | 5833.2 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/17/2013 | 5833.19 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/16/2013 | 5833.31 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/15/2013 | 5833.54 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/14/2013 | 5833.59 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/13/2013 | 5833.63 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/12/2013 | 5833.69 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/11/2013 | 5833.79 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/10/2013 | 5833.41 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/9/2013 | 5833.35 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/8/2013 | 5833.6 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/7/2013 | 5833.46 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/6/2013 | 5833.27 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/5/2013 | 5833.42 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/4/2013 | 5833.33 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/3/2013 | 5833.36 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/2/2013 | 5833.38 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/1/2013 | 5833.53 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/31/2012 | 5833.66 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/30/2012 | 5833.43 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/29/2012 | 5833.38 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/28/2012 | 5833.67 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/27/2012 | 5833.76 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/26/2012 | 5833.5 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/25/2012 | 5833.84 | Transducer | 958.33 | 1018.72 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-13 | 12/24/2012 | 5833.52 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/23/2012 | 5833.43 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/22/2012 | 5833.31 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/21/2012 | 5833.17 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/20/2012 | 5833.35 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/19/2012 | 5833.8 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/18/2012 | 5833.56 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/17/2012 | 5833.51 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/16/2012 | 5833.69 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/15/2012 | 5833.58 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/14/2012 | 5833.56 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/13/2012 | 5833.46 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/12/2012 | 5833.49 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/11/2012 | 5833.57 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/10/2012 | 5833.48 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/9/2012 | 5833.69 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/8/2012 | 5833.63 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/7/2012 | 5833.65 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/6/2012 | 5833.54 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/5/2012 | 5833.3 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/4/2012 | 5833.39 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/3/2012 | 5833.53 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/3/2012 | 5833.56 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/2/2012 | 5833.44 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/1/2012 | 5833.47 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/30/2012 | 5833.4 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/29/2012 | 5833.38 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/28/2012 | 5833.28 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/27/2012 | 5833.3 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/26/2012 | 5833.58 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/25/2012 | 5833.49 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/24/2012 | 5833.24 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/23/2012 | 5833.27 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/22/2012 | 5833.45 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/21/2012 | 5833.34 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/20/2012 | 5833.27 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/19/2012 | 5833.36 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/18/2012 | 5833.41 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/17/2012 | 5833.33 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/16/2012 | 5833.21 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/15/2012 | 5833.31 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/14/2012 | 5833.24 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/13/2012 | 5833.23 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/12/2012 | 5833.25 | Transducer | 958.33 | 1018.72 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-13 | 11/11/2012 | 5833.67 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/10/2012 | 5833.68 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/9/2012 | 5833.55 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/8/2012 | 5833.42 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/7/2012 | 5833.27 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/6/2012 | 5833.28 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/5/2012 | 5833.24 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/4/2012 | 5833.27 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/3/2012 | 5833.37 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/2/2012 | 5833.4 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/1/2012 | 5833.31 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/31/2012 | 5833.31 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/30/2012 | 5833.28 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/29/2012 | 5833.27 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/28/2012 | 5833.32 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/27/2012 | 5833.24 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/26/2012 | 5833.3 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/25/2012 | 5833.5 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/24/2012 | 5833.47 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/23/2012 | 5833.45 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/22/2012 | 5833.49 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/21/2012 | 5833.53 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/20/2012 | 5833.44 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/19/2012 | 5833.35 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/18/2012 | 5833.43 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/17/2012 | 5833.59 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/16/2012 | 5833.43 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/15/2012 | 5833.25 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/14/2012 | 5833.29 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/13/2012 | 5833.44 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/12/2012 | 5833.36 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/11/2012 | 5833.4 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/10/2012 | 5833.38 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/9/2012 | 5833.45 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/8/2012 | 5833.43 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/7/2012 | 5833.41 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/6/2012 | 5833.45 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/5/2012 | 5833.4 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/4/2012 | 5833.39 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/3/2012 | 5833.49 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/2/2012 | 5833.34 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/1/2012 | 5833.36 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/30/2012 | 5833.36 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/29/2012 | 5833.37 | Transducer | 958.33 | 1018.72 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-13 | 9/28/2012 | 5833.38 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/27/2012 | 5833.42 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/26/2012 | 5833.5 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/25/2012 | 5833.44 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/24/2012 | 5833.36 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/23/2012 | 5833.34 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/22/2012 | 5833.37 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/21/2012 | 5833.41 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/20/2012 | 5833.39 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/19/2012 | 5833.37 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/18/2012 | 5833.38 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/17/2012 | 5833.49 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/16/2012 | 5833.42 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/15/2012 | 5833.24 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/14/2012 | 5833.17 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/13/2012 | 5833.33 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/12/2012 | 5833.46 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/11/2012 | 5833.45 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/10/2012 | 5833.35 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/9/2012 | 5833.28 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/8/2012 | 5833.29 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/7/2012 | 5833.46 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/6/2012 | 5833.43 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/5/2012 | 5833.46 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/4/2012 | 5833.4 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/3/2012 | 5833.42 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/2/2012 | 5833.4 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/1/2012 | 5833.4 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/31/2012 | 5833.46 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/30/2012 | 5833.45 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/29/2012 | 5833.38 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/28/2012 | 5833.32 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/27/2012 | 5833.36 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/26/2012 | 5833.48 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/25/2012 | 5833.6 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/24/2012 | 5833.56 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/23/2012 | 5833.48 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/22/2012 | 5833.44 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/21/2012 | 5833.48 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/20/2012 | 5833.46 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/19/2012 | 5833.5 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/18/2012 | 5833.47 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/17/2012 | 5833.42 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/16/2012 | 5833.56 | Transducer | 958.33 | 1018.72 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-13 | 8/15/2012 | 5833.58 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/14/2012 | 5833.49 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/13/2012 | 5833.4 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/12/2012 | 5833.53 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/11/2012 | 5833.51 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/10/2012 | 5833.45 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/9/2012 | 5833.4 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/8/2012 | 5833.43 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/7/2012 | 5833.42 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/6/2012 | 5833.24 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/5/2012 | 5833.33 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/4/2012 | 5833.52 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/3/2012 | 5833.43 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/2/2012 | 5833.47 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/1/2012 | 5833.4 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/31/2012 | 5833.45 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/30/2012 | 5833.46 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/29/2012 | 5833.4 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/28/2012 | 5833.4 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/27/2012 | 5833.46 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/26/2012 | 5833.57 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/25/2012 | 5833.57 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/24/2012 | 5833.46 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/23/2012 | 5833.43 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/22/2012 | 5833.4 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/21/2012 | 5833.38 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/20/2012 | 5833.36 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/19/2012 | 5833.43 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/18/2012 | 5833.54 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/17/2012 | 5833.6 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/16/2012 | 5833.55 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/15/2012 | 5833.51 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/14/2012 | 5833.48 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/13/2012 | 5833.48 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/12/2012 | 5833.47 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/11/2012 | 5833.41 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/10/2012 | 5833.41 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/9/2012 | 5833.41 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/8/2012 | 5833.39 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/7/2012 | 5833.44 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/6/2012 | 5833.5 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/5/2012 | 5833.55 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/4/2012 | 5833.57 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/3/2012 | 5833.55 | Transducer | 958.33 | 1018.72 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-13 | 7/2/2012 | 5833.56 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/1/2012 | 5833.59 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/30/2012 | 5833.59 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/29/2012 | 5833.47 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/28/2012 | 5833.51 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/27/2012 | 5833.62 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/26/2012 | 5833.57 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/25/2012 | 5833.54 | Manual | 958.33 | 1018.72 | Regional |
| R-13 | 6/25/2012 | 5833.29 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/24/2012 | 5833.35 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/23/2012 | 5833.46 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/22/2012 | 5833.32 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/21/2012 | 5833.4 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/20/2012 | 5833.62 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/19/2012 | 5833.61 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/18/2012 | 5833.55 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/17/2012 | 5833.3 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/16/2012 | 5833.44 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/15/2012 | 5833.57 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/14/2012 | 5833.58 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/13/2012 | 5833.5 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/12/2012 | 5833.39 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/11/2012 | 5833.51 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/10/2012 | 5833.69 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/9/2012 | 5833.66 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/8/2012 | 5833.54 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/8/2012 | 5833.556 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/7/2012 | 5833.65 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/6/2012 | 5833.624 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/5/2012 | 5833.539 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/4/2012 | 5833.524 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/3/2012 | 5833.61 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/2/2012 | 5833.65 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/1/2012 | 5833.604 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/31/2012 | 5833.657 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/30/2012 | 5833.644 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/29/2012 | 5833.604 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/28/2012 | 5833.64 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/27/2012 | 5833.755 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/26/2012 | 5833.795 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/25/2012 | 5833.923 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/24/2012 | 5834.06 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/23/2012 | 5833.892 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/22/2012 | 5833.618 | Transducer | 958.33 | 1018.72 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-13 | 5/21/2012 | 5833.521 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/20/2012 | 5833.686 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/19/2012 | 5833.914 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/18/2012 | 5833.917 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/17/2012 | 5833.753 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/16/2012 | 5833.604 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/15/2012 | 5833.59 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/14/2012 | 5833.604 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/13/2012 | 5833.534 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/12/2012 | 5833.602 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/11/2012 | 5833.862 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/10/2012 | 5833.757 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/9/2012 | 5833.626 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/8/2012 | 5833.645 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/7/2012 | 5833.751 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/6/2012 | 5833.816 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/5/2012 | 5833.813 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/4/2012 | 5833.798 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/3/2012 | 5833.875 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/2/2012 | 5833.937 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/1/2012 | 5833.925 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/30/2012 | 5833.838 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/29/2012 | 5833.928 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/28/2012 | 5833.963 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/27/2012 | 5834.007 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/26/2012 | 5833.847 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/25/2012 | 5833.902 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/24/2012 | 5833.82 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/23/2012 | 5833.701 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/22/2012 | 5833.751 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/21/2012 | 5833.801 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/20/2012 | 5833.879 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/19/2012 | 5833.943 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/18/2012 | 5833.813 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/17/2012 | 5833.729 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/16/2012 | 5833.87 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/15/2012 | 5834.201 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/14/2012 | 5834.223 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/13/2012 | 5834.017 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/12/2012 | 5834.041 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/11/2012 | 5833.848 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/10/2012 | 5833.805 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/9/2012 | 5833.734 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/8/2012 | 5833.6 | Transducer | 958.33 | 1018.72 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-13 | 4/7/2012 | 5833.829 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/6/2012 | 5833.97 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/5/2012 | 5833.946 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/4/2012 | 5833.919 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/3/2012 | 5834.086 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/2/2012 | 5834.196 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 4/1/2012 | 5834.012 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/31/2012 | 5833.917 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/30/2012 | 5833.937 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/29/2012 | 5833.942 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/28/2012 | 5833.88 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/27/2012 | 5833.909 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/26/2012 | 5833.928 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/25/2012 | 5833.821 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/24/2012 | 5833.832 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/23/2012 | 5833.909 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/22/2012 | 5833.971 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/21/2012 | 5833.975 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/20/2012 | 5834.257 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/19/2012 | 5834.267 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/18/2012 | 5834.168 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/17/2012 | 5834.021 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/16/2012 | 5833.895 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/15/2012 | 5833.854 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/14/2012 | 5833.913 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/13/2012 | 5833.871 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/12/2012 | 5834.008 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/11/2012 | 5834.067 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/10/2012 | 5833.751 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/9/2012 | 5833.578 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/8/2012 | 5834.029 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/7/2012 | 5834.188 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/7/2012 | 5834.218 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/6/2012 | 5833.895 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/5/2012 | 5833.716 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/4/2012 | 5833.729 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/3/2012 | 5833.889 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/2/2012 | 5834.119 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 3/1/2012 | 5833.992 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/29/2012 | 5833.877 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/28/2012 | 5834 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/27/2012 | 5833.854 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/26/2012 | 5833.958 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/25/2012 | 5833.698 | Transducer | 958.33 | 1018.72 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-13 | 2/24/2012 | 5833.853 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/23/2012 | 5834.065 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/22/2012 | 5833.806 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/21/2012 | 5833.811 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/20/2012 | 5834.111 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/19/2012 | 5833.934 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/18/2012 | 5833.939 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/17/2012 | 5833.872 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/16/2012 | 5833.883 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/15/2012 | 5834.188 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/14/2012 | 5834.121 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/13/2012 | 5834.177 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/12/2012 | 5833.851 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/11/2012 | 5833.836 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/10/2012 | 5833.839 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/9/2012 | 5833.84 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/8/2012 | 5833.732 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/7/2012 | 5833.907 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/6/2012 | 5833.825 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/5/2012 | 5833.707 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/4/2012 | 5833.818 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/3/2012 | 5834.111 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/2/2012 | 5833.927 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 2/1/2012 | 5833.85 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/31/2012 | 5833.978 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/30/2012 | 5833.799 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/29/2012 | 5833.671 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/28/2012 | 5833.741 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/27/2012 | 5833.993 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/26/2012 | 5833.835 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/25/2012 | 5833.839 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/24/2012 | 5834.059 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/23/2012 | 5833.919 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/22/2012 | 5834.318 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/21/2012 | 5833.933 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/20/2012 | 5834.072 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/19/2012 | 5833.921 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/18/2012 | 5833.842 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/17/2012 | 5834.027 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/16/2012 | 5834.032 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/15/2012 | 5833.837 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/14/2012 | 5833.774 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/13/2012 | 5833.936 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/12/2012 | 5833.943 | Transducer | 958.33 | 1018.72 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-13 | 1/11/2012 | 5834.04 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/10/2012 | 5833.864 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/9/2012 | 5833.863 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/8/2012 | 5834.094 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/7/2012 | 5833.979 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/6/2012 | 5833.987 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/5/2012 | 5833.666 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/4/2012 | 5833.746 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/3/2012 | 5833.616 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/2/2012 | 5833.545 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 1/1/2012 | 5833.695 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/31/2011 | 5833.941 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/30/2011 | 5833.893 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/29/2011 | 5833.811 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/28/2011 | 5833.852 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/27/2011 | 5833.771 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/26/2011 | 5833.809 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/25/2011 | 5833.653 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/24/2011 | 5833.719 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/23/2011 | 5833.813 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/22/2011 | 5834.08 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/21/2011 | 5834.078 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/20/2011 | 5834.029 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/19/2011 | 5834.129 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/18/2011 | 5833.721 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/17/2011 | 5833.621 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/16/2011 | 5833.761 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/15/2011 | 5833.868 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/14/2011 | 5834.066 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/13/2011 | 5833.957 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/12/2011 | 5833.943 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/11/2011 | 5833.8 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/10/2011 | 5833.669 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/9/2011 | 5833.849 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/8/2011 | 5833.872 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/7/2011 | 5833.76 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/6/2011 | 5833.823 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/5/2011 | 5833.978 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/4/2011 | 5833.941 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/3/2011 | 5834.134 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/2/2011 | 5833.801 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 12/1/2011 | 5834.066 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/30/2011 | 5833.738 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/29/2011 | 5833.711 | Transducer | 958.33 | 1018.72 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-13 | 11/28/2011 | 5833.6 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/27/2011 | 5833.495 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/26/2011 | 5833.897 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/25/2011 | 5833.854 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/24/2011 | 5833.703 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/23/2011 | 5833.608 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/22/2011 | 5833.732 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/21/2011 | 5833.821 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/20/2011 | 5833.906 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/19/2011 | 5834.059 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/18/2011 | 5833.87 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/17/2011 | 5833.631 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/16/2011 | 5833.897 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/15/2011 | 5833.92 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/14/2011 | 5833.982 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/13/2011 | 5833.989 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/12/2011 | 5833.932 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/11/2011 | 5833.665 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/10/2011 | 5833.489 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/9/2011 | 5833.639 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/8/2011 | 5833.875 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/7/2011 | 5833.91 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/6/2011 | 5833.971 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/5/2011 | 5834.098 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/4/2011 | 5833.788 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/3/2011 | 5833.572 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/2/2011 | 5833.99 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 11/1/2011 | 5833.778 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/31/2011 | 5833.63 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/30/2011 | 5833.728 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/29/2011 | 5833.641 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/28/2011 | 5833.733 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/27/2011 | 5833.877 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/26/2011 | 5833.807 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/25/2011 | 5833.726 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/24/2011 | 5833.638 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/23/2011 | 5833.67 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/22/2011 | 5833.662 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/21/2011 | 5833.666 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/20/2011 | 5833.772 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/19/2011 | 5833.611 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/18/2011 | 5833.66 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/17/2011 | 5833.732 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/16/2011 | 5833.635 | Transducer | 958.33 | 1018.72 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-13 | 10/15/2011 | 5833.651 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/14/2011 | 5833.718 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/13/2011 | 5833.645 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/12/2011 | 5833.77 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/11/2011 | 5833.785 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/10/2011 | 5833.716 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/9/2011 | 5833.75 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/8/2011 | 5833.912 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/7/2011 | 5833.908 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/6/2011 | 5833.948 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/5/2011 | 5833.779 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/4/2011 | 5833.645 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/3/2011 | 5833.616 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/2/2011 | 5833.597 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 10/1/2011 | 5833.592 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/30/2011 | 5833.479 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/29/2011 | 5833.653 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/28/2011 | 5833.591 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/27/2011 | 5833.669 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/26/2011 | 5833.779 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/25/2011 | 5833.75 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/24/2011 | 5833.625 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/23/2011 | 5833.587 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/22/2011 | 5833.687 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/21/2011 | 5833.69 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/20/2011 | 5833.67 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/19/2011 | 5833.586 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/18/2011 | 5833.644 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/17/2011 | 5833.692 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/16/2011 | 5833.704 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/15/2011 | 5833.665 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/14/2011 | 5833.636 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/13/2011 | 5833.541 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/12/2011 | 5833.489 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/11/2011 | 5833.519 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/10/2011 | 5833.555 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/9/2011 | 5833.52 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/8/2011 | 5833.42 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/7/2011 | 5833.55 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/6/2011 | 5833.54 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/5/2011 | 5833.475 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/4/2011 | 5833.55 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/3/2011 | 5833.655 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 9/2/2011 | 5833.578 | Transducer | 958.33 | 1018.72 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-13 | 9/1/2011 | 5833.598 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/31/2011 | 5833.666 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/30/2011 | 5833.653 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/29/2011 | 5833.62 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/28/2011 | 5833.558 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/27/2011 | 5833.481 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/26/2011 | 5833.496 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/25/2011 | 5833.526 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/24/2011 | 5833.584 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/23/2011 | 5833.554 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/22/2011 | 5833.479 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/21/2011 | 5833.541 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/20/2011 | 5833.6 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/19/2011 | 5833.631 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/19/2011 | 5833.58 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/18/2011 | 5833.45 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/17/2011 | 5833.49 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/16/2011 | 5833.61 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/15/2011 | 5833.57 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/14/2011 | 5833.44 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/13/2011 | 5833.56 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/12/2011 | 5833.61 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/11/2011 | 5833.62 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/10/2011 | 5833.68 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/9/2011 | 5833.64 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/8/2011 | 5833.65 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/7/2011 | 5833.61 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/6/2011 | 5833.57 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/5/2011 | 5833.58 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/4/2011 | 5833.57 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/3/2011 | 5833.55 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/2/2011 | 5833.52 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 8/1/2011 | 5833.42 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/31/2011 | 5833.39 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/30/2011 | 5833.39 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/29/2011 | 5833.48 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/28/2011 | 5833.57 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/27/2011 | 5833.58 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/26/2011 | 5833.5 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/25/2011 | 5833.38 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/24/2011 | 5833.41 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/23/2011 | 5833.5 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/22/2011 | 5833.53 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/21/2011 | 5833.51 | Transducer | 958.33 | 1018.72 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-13 | 7/20/2011 | 5833.45 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/19/2011 | 5833.36 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/18/2011 | 5833.31 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/17/2011 | 5833.4 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/16/2011 | 5833.53 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/15/2011 | 5833.57 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/14/2011 | 5833.55 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/13/2011 | 5833.5 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/12/2011 | 5833.48 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/11/2011 | 5833.49 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/10/2011 | 5833.52 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/9/2011 | 5833.57 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/8/2011 | 5833.54 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/7/2011 | 5833.48 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/6/2011 | 5833.47 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/5/2011 | 5833.47 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/4/2011 | 5833.47 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/3/2011 | 5833.42 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/2/2011 | 5833.48 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 7/1/2011 | 5833.52 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/30/2011 | 5833.52 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/29/2011 | 5833.44 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/28/2011 | 5833.41 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/27/2011 | 5833.56 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/26/2011 | 5833.59 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/25/2011 | 5833.63 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/24/2011 | 5833.63 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/23/2011 | 5833.56 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/22/2011 | 5833.57 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/21/2011 | 5833.69 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/20/2011 | 5833.84 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/19/2011 | 5833.73 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/18/2011 | 5833.68 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/17/2011 | 5833.81 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/16/2011 | 5833.77 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/15/2011 | 5833.62 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/14/2011 | 5833.66 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/13/2011 | 5833.7 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/12/2011 | 5833.76 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/11/2011 | 5833.71 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/10/2011 | 5833.74 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/9/2011 | 5833.79 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/8/2011 | 5833.77 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/7/2011 | 5833.78 | Transducer | 958.33 | 1018.72 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-13 | 6/6/2011 | 5833.6 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/5/2011 | 5833.49 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/4/2011 | 5833.65 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/3/2011 | 5833.76 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/2/2011 | 5833.68 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 6/1/2011 | 5833.5 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/31/2011 | 5833.6 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/30/2011 | 5834.04 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/29/2011 | 5834.03 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/28/2011 | 5833.96 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/27/2011 | 5833.9 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/26/2011 | 5833.77 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/25/2011 | 5833.87 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/24/2011 | 5834.01 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/23/2011 | 5833.93 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/22/2011 | 5833.91 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/21/2011 | 5833.95 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/20/2011 | 5834.04 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/19/2011 | 5834.22 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/18/2011 | 5834.19 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/17/2011 | 5834.11 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/16/2011 | 5833.96 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/15/2011 | 5833.98 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/14/2011 | 5833.87 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/13/2011 | 5833.9 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/12/2011 | 5834.11 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/11/2011 | 5834.35 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/10/2011 | 5834.34 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/9/2011 | 5834.33 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/8/2011 | 5834.23 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/7/2011 | 5834.2 | Transducer | 958.33 | 1018.72 | Regional |
| R-13 | 5/6/2011 | 5834.07 | Transducer | 958.33 | 1018.72 | Regional |
| R-15 | 5/22/2013 | 5848.11 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/21/2013 | 5848.02 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/20/2013 | 5848.13 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/19/2013 | 5848.08 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/18/2013 | 5848.08 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/17/2013 | 5848.09 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/16/2013 | 5848.02 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/15/2013 | 5847.98 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/14/2013 | 5847.88 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/13/2013 | 5847.81 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/12/2013 | 5847.68 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/11/2013 | 5847.79 | Transducer | 958.6 | 1020.3 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-15 | 5/10/2013 | 5847.97 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/9/2013 | 5848.02 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/8/2013 | 5848.13 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/7/2013 | 5848.06 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/6/2013 | 5847.96 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/5/2013 | 5848.01 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/4/2013 | 5848.12 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/3/2013 | 5847.71 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/2/2013 | 5847.89 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/1/2013 | 5848.3 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/30/2013 | 5848.32 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/29/2013 | 5848.16 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/28/2013 | 5848.03 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/27/2013 | 5847.91 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/26/2013 | 5848.12 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/25/2013 | 5848.06 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/24/2013 | 5848.04 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/23/2013 | 5848.35 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/22/2013 | 5848.18 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/21/2013 | 5848.16 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/20/2013 | 5848.23 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/19/2013 | 5848.07 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/18/2013 | 5848.32 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/17/2013 | 5848.48 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/16/2013 | 5848.44 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/15/2013 | 5848.52 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/14/2013 | 5848.49 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/13/2013 | 5848.21 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/12/2013 | 5848.31 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/11/2013 | 5848.29 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/10/2013 | 5848.41 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/9/2013 | 5848.68 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/8/2013 | 5848.44 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/7/2013 | 5848.27 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/6/2013 | 5848.22 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/5/2013 | 5848.05 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/4/2013 | 5848.08 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/3/2013 | 5848.21 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/2/2013 | 5848.26 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/1/2013 | 5848.2 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/31/2013 | 5848.13 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/30/2013 | 5848.01 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/29/2013 | 5848.1 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/28/2013 | 5848.15 | Transducer | 958.6 | 1020.3 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-15 | 3/27/2013 | 5848.23 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/26/2013 | 5848.11 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/25/2013 | 5848.17 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/24/2013 | 5848.25 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/23/2013 | 5848.54 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/22/2013 | 5848.4 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/21/2013 | 5848.36 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/20/2013 | 5848.03 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/19/2013 | 5848.21 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/18/2013 | 5848.39 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/17/2013 | 5848.28 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/16/2013 | 5848.17 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/15/2013 | 5847.98 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/14/2013 | 5847.94 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/13/2013 | 5847.84 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/13/2013 | 5847.91 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/12/2013 | 5848.12 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/11/2013 | 5848.08 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/10/2013 | 5848.25 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/9/2013 | 5848.47 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/8/2013 | 5848.26 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/7/2013 | 5848.16 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/6/2013 | 5848.05 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/5/2013 | 5848.11 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/4/2013 | 5848.36 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/3/2013 | 5847.97 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/2/2013 | 5847.86 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/1/2013 | 5848.01 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/28/2013 | 5848.07 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/27/2013 | 5848.2 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/26/2013 | 5848.39 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/25/2013 | 5848.44 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/24/2013 | 5848.52 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/23/2013 | 5848.3 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/22/2013 | 5848.45 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/21/2013 | 5848.73 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/20/2013 | 5848.53 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/19/2013 | 5848.2 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/18/2013 | 5848.52 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/17/2013 | 5848.08 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/16/2013 | 5847.95 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/15/2013 | 5848.1 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/14/2013 | 5848.22 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/13/2013 | 5848.16 | Transducer | 958.6 | 1020.3 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-15 | 2/12/2013 | 5848.37 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/11/2013 | 5848.4 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/10/2013 | 5848.51 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/9/2013 | 5848.48 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/8/2013 | 5848.1 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/7/2013 | 5848.26 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/6/2013 | 5848.31 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/5/2013 | 5848.25 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/4/2013 | 5848.28 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/3/2013 | 5847.95 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/2/2013 | 5848.06 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/1/2013 | 5848.07 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/31/2013 | 5848.17 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/30/2013 | 5848.44 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/29/2013 | 5848.58 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/28/2013 | 5848.38 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/27/2013 | 5848.34 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/26/2013 | 5848.06 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/25/2013 | 5848.06 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/24/2013 | 5848.02 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/23/2013 | 5847.97 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/22/2013 | 5848.03 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/21/2013 | 5848.02 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/20/2013 | 5847.97 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/19/2013 | 5848.02 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/18/2013 | 5847.94 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/17/2013 | 5847.96 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/16/2013 | 5848.07 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/15/2013 | 5848.32 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/14/2013 | 5848.41 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/13/2013 | 5848.4 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/12/2013 | 5848.44 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/11/2013 | 5848.53 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/10/2013 | 5848.1 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/9/2013 | 5848.04 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/8/2013 | 5848.36 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/7/2013 | 5848.22 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/6/2013 | 5847.94 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/5/2013 | 5848.12 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/4/2013 | 5848.09 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/3/2013 | 5848.15 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/2/2013 | 5848.15 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/1/2013 | 5848.37 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/31/2012 | 5848.5 | Transducer | 958.6 | 1020.3 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-15 | 12/30/2012 | 5848.18 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/29/2012 | 5848.14 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/28/2012 | 5848.49 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/27/2012 | 5848.6 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/26/2012 | 5848.31 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/25/2012 | 5848.68 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/24/2012 | 5848.34 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/23/2012 | 5848.17 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/22/2012 | 5848.07 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/21/2012 | 5847.98 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/20/2012 | 5848.14 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/19/2012 | 5848.69 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/18/2012 | 5848.4 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/17/2012 | 5848.32 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/16/2012 | 5848.5 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/15/2012 | 5848.38 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/14/2012 | 5848.37 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/13/2012 | 5848.27 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/12/2012 | 5848.35 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/11/2012 | 5848.37 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/10/2012 | 5848.27 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/9/2012 | 5848.45 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/8/2012 | 5848.43 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/7/2012 | 5848.45 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/6/2012 | 5848.29 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/5/2012 | 5848.08 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/4/2012 | 5848.16 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/3/2012 | 5848.33 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/3/2012 | 5848.34 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/2/2012 | 5848.16 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/1/2012 | 5848.27 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/30/2012 | 5848.19 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/29/2012 | 5848.13 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/28/2012 | 5848.04 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/27/2012 | 5848.11 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/26/2012 | 5848.39 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/25/2012 | 5848.33 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/24/2012 | 5848.02 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/23/2012 | 5848.03 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/22/2012 | 5848.24 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/21/2012 | 5848.1 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/20/2012 | 5848.05 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/19/2012 | 5848.18 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/18/2012 | 5848.18 | Transducer | 958.6 | 1020.3 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-15 | 11/17/2012 | 5848.11 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/16/2012 | 5848 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/15/2012 | 5848.11 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/14/2012 | 5848.07 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/13/2012 | 5848.05 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/12/2012 | 5848.09 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/11/2012 | 5848.52 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/10/2012 | 5848.54 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/9/2012 | 5848.33 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/8/2012 | 5848.2 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/7/2012 | 5848.09 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/6/2012 | 5848.13 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/5/2012 | 5848.08 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/4/2012 | 5848.08 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/3/2012 | 5848.19 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/2/2012 | 5848.3 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/1/2012 | 5848.18 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/31/2012 | 5848.19 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/30/2012 | 5848.16 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/29/2012 | 5848.15 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/28/2012 | 5848.26 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/27/2012 | 5848.18 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/26/2012 | 5848.2 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/25/2012 | 5848.44 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/25/2012 | 5848.24 | Manual | 958.6 | 1020.3 | Regional |
| R-15 | 10/24/2012 | 5848.4 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/23/2012 | 5848.37 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/22/2012 | 5848.41 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/21/2012 | 5848.4 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/20/2012 | 5848.31 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/19/2012 | 5848.21 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/18/2012 | 5848.33 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/17/2012 | 5848.5 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/16/2012 | 5848.39 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/15/2012 | 5848.19 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/14/2012 | 5848.24 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/13/2012 | 5848.4 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/12/2012 | 5848.25 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/11/2012 | 5848.29 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/10/2012 | 5848.26 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/9/2012 | 5848.4 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/8/2012 | 5848.32 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/7/2012 | 5848.3 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/6/2012 | 5848.4 | Transducer | 958.6 | 1020.3 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-15 | 10/5/2012 | 5848.34 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/4/2012 | 5848.27 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/3/2012 | 5848.37 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/2/2012 | 5848.27 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/1/2012 | 5848.23 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/30/2012 | 5848.29 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/29/2012 | 5848.29 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/28/2012 | 5848.28 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/27/2012 | 5848.36 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/26/2012 | 5848.44 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/25/2012 | 5848.38 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/24/2012 | 5848.29 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/23/2012 | 5848.27 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/22/2012 | 5848.25 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/21/2012 | 5848.29 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/20/2012 | 5848.26 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/19/2012 | 5848.3 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/18/2012 | 5848.3 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/17/2012 | 5848.36 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/16/2012 | 5848.25 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/15/2012 | 5848.1 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/14/2012 | 5848.04 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/13/2012 | 5848.26 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/12/2012 | 5848.34 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/11/2012 | 5848.37 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/10/2012 | 5848.23 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/9/2012 | 5848.17 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/8/2012 | 5848.23 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/7/2012 | 5848.34 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/6/2012 | 5848.34 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/5/2012 | 5848.4 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/4/2012 | 5848.34 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/3/2012 | 5848.32 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/2/2012 | 5848.31 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/1/2012 | 5848.37 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/31/2012 | 5848.35 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/30/2012 | 5848.32 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/29/2012 | 5848.3 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/28/2012 | 5848.2 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/27/2012 | 5848.26 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/26/2012 | 5848.41 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/25/2012 | 5848.61 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/24/2012 | 5848.56 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/23/2012 | 5848.47 | Transducer | 958.6 | 1020.3 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-15 | 8/22/2012 | 5848.36 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/21/2012 | 5848.38 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/20/2012 | 5848.41 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/19/2012 | 5848.5 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/18/2012 | 5848.47 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/17/2012 | 5848.36 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/16/2012 | 5848.47 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/15/2012 | 5848.45 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/14/2012 | 5848.42 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/13/2012 | 5848.28 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/12/2012 | 5848.47 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/11/2012 | 5848.46 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/10/2012 | 5848.41 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/9/2012 | 5848.38 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/8/2012 | 5848.36 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/7/2012 | 5848.4 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/6/2012 | 5848.21 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/5/2012 | 5848.27 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/4/2012 | 5848.52 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/3/2012 | 5848.45 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/2/2012 | 5848.49 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/1/2012 | 5848.37 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/31/2012 | 5848.46 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/30/2012 | 5848.51 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/29/2012 | 5848.37 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/28/2012 | 5848.39 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/27/2012 | 5848.48 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/26/2012 | 5848.66 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/25/2012 | 5848.66 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/24/2012 | 5848.54 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/23/2012 | 5848.45 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/22/2012 | 5848.49 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/21/2012 | 5848.4 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/20/2012 | 5848.44 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/19/2012 | 5848.46 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/18/2012 | 5848.63 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/17/2012 | 5848.62 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/16/2012 | 5848.58 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/15/2012 | 5848.57 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/14/2012 | 5848.55 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/13/2012 | 5848.54 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/12/2012 | 5848.53 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/11/2012 | 5848.48 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/10/2012 | 5848.42 | Transducer | 958.6 | 1020.3 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-15 | 7/9/2012 | 5848.48 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/8/2012 | 5848.5 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/7/2012 | 5848.55 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/6/2012 | 5848.61 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/5/2012 | 5848.68 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/4/2012 | 5848.65 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/3/2012 | 5848.64 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/2/2012 | 5848.66 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/1/2012 | 5848.72 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/30/2012 | 5848.72 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/29/2012 | 5848.62 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/28/2012 | 5848.62 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/27/2012 | 5848.74 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/26/2012 | 5848.71 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/25/2012 | 5848.68 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/24/2012 | 5848.78 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/23/2012 | 5848.86 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/22/2012 | 5848.79 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/21/2012 | 5848.89 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/20/2012 | 5849.14 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/19/2012 | 5849.12 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/18/2012 | 5849.01 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/17/2012 | 5848.75 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/16/2012 | 5848.9 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/15/2012 | 5849.04 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/14/2012 | 5849.08 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/13/2012 | 5849.01 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/12/2012 | 5848.89 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/11/2012 | 5849.07 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/10/2012 | 5849.26 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/9/2012 | 5849.15 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/8/2012 | 5849.09 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/7/2012 | 5849.22 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/6/2012 | 5849.18 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/5/2012 | 5849.274 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/5/2012 | 5849.09 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/4/2012 | 5849.255 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/3/2012 | 5849.34 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/2/2012 | 5849.41 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/1/2012 | 5849.323 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/31/2012 | 5849.454 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/30/2012 | 5849.452 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/29/2012 | 5849.341 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/28/2012 | 5849.369 | Transducer | 958.6 | 1020.3 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-15 | 5/27/2012 | 5849.522 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/26/2012 | 5849.551 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/25/2012 | 5849.682 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/24/2012 | 5849.852 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/23/2012 | 5849.599 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/22/2012 | 5849.353 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/21/2012 | 5849.186 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/20/2012 | 5849.395 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/19/2012 | 5849.618 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/18/2012 | 5849.623 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/17/2012 | 5849.38 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/16/2012 | 5849.247 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/15/2012 | 5849.281 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/14/2012 | 5849.334 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/13/2012 | 5849.216 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/12/2012 | 5849.328 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/11/2012 | 5849.599 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/10/2012 | 5849.478 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/9/2012 | 5849.277 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/8/2012 | 5849.368 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/7/2012 | 5849.438 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/6/2012 | 5849.521 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/5/2012 | 5849.534 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/4/2012 | 5849.516 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/3/2012 | 5849.542 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/2/2012 | 5849.668 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/1/2012 | 5849.665 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/30/2012 | 5849.532 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/29/2012 | 5849.589 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/28/2012 | 5849.674 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/27/2012 | 5849.733 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/26/2012 | 5849.488 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/25/2012 | 5849.603 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/24/2012 | 5849.485 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/23/2012 | 5849.387 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/22/2012 | 5849.457 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/21/2012 | 5849.54 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/20/2012 | 5849.587 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/19/2012 | 5849.71 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/18/2012 | 5849.559 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/17/2012 | 5849.484 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/16/2012 | 5849.58 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/15/2012 | 5849.964 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/14/2012 | 5849.933 | Transducer | 958.6 | 1020.3 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-15 | 4/13/2012 | 5849.717 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/12/2012 | 5849.774 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/11/2012 | 5849.523 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/10/2012 | 5849.485 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/9/2012 | 5849.418 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/8/2012 | 5849.321 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/7/2012 | 5849.602 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/6/2012 | 5849.694 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/5/2012 | 5849.734 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/4/2012 | 5849.698 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/3/2012 | 5849.796 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/2/2012 | 5849.92 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 4/1/2012 | 5849.688 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/31/2012 | 5849.629 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/30/2012 | 5849.62 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/29/2012 | 5849.644 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/28/2012 | 5849.617 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/27/2012 | 5849.599 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/26/2012 | 5849.683 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/25/2012 | 5849.527 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/24/2012 | 5849.532 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/23/2012 | 5849.662 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/22/2012 | 5849.723 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/21/2012 | 5849.713 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/20/2012 | 5849.974 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/19/2012 | 5850.001 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/18/2012 | 5849.834 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/17/2012 | 5849.654 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/16/2012 | 5849.525 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/15/2012 | 5849.466 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/14/2012 | 5849.603 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/13/2012 | 5849.545 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/12/2012 | 5849.701 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/11/2012 | 5849.725 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/10/2012 | 5849.401 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/9/2012 | 5849.213 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/8/2012 | 5849.686 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/7/2012 | 5849.889 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/7/2012 | 5849.882 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/6/2012 | 5849.5 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/5/2012 | 5849.376 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/4/2012 | 5849.367 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/3/2012 | 5849.536 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 3/2/2012 | 5849.785 | Transducer | 958.6 | 1020.3 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-15 | 3/1/2012 | 5849.69 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/29/2012 | 5849.541 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/28/2012 | 5849.707 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/27/2012 | 5849.515 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/26/2012 | 5849.652 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/25/2012 | 5849.38 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/24/2012 | 5849.537 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/23/2012 | 5849.738 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/22/2012 | 5849.475 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/21/2012 | 5849.422 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/20/2012 | 5849.742 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/19/2012 | 5849.59 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/18/2012 | 5849.517 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/17/2012 | 5849.49 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/16/2012 | 5849.471 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/15/2012 | 5849.737 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/14/2012 | 5849.634 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/13/2012 | 5849.689 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/12/2012 | 5849.341 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/11/2012 | 5849.324 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/10/2012 | 5849.37 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/9/2012 | 5849.347 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/8/2012 | 5849.208 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/7/2012 | 5849.404 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/6/2012 | 5849.338 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/5/2012 | 5849.209 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/4/2012 | 5849.319 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/3/2012 | 5849.622 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/2/2012 | 5849.413 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 2/1/2012 | 5849.28 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/31/2012 | 5849.487 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/30/2012 | 5849.313 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/29/2012 | 5849.128 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/28/2012 | 5849.227 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/27/2012 | 5849.494 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/26/2012 | 5849.324 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/25/2012 | 5849.336 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/24/2012 | 5849.582 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/23/2012 | 5849.369 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/22/2012 | 5849.815 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/21/2012 | 5849.392 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/20/2012 | 5849.537 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/19/2012 | 5849.334 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/18/2012 | 5849.29 | Transducer | 958.6 | 1020.3 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-15 | 1/17/2012 | 5849.425 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/16/2012 | 5849.415 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/15/2012 | 5849.18 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/14/2012 | 5849.151 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/13/2012 | 5849.383 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/12/2012 | 5849.377 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/11/2012 | 5849.417 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/10/2012 | 5849.268 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/9/2012 | 5849.226 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/8/2012 | 5849.403 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/7/2012 | 5849.353 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/6/2012 | 5849.288 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/5/2012 | 5848.935 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/4/2012 | 5849.039 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/3/2012 | 5848.907 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/2/2012 | 5848.797 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 1/1/2012 | 5848.924 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/31/2011 | 5849.205 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/30/2011 | 5849.163 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/29/2011 | 5849.074 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/28/2011 | 5849.175 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/27/2011 | 5849.095 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/26/2011 | 5849.149 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/25/2011 | 5848.907 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/24/2011 | 5849.055 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/23/2011 | 5849.125 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/22/2011 | 5849.427 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/21/2011 | 5849.366 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/20/2011 | 5849.327 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/19/2011 | 5849.389 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/18/2011 | 5848.958 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/17/2011 | 5848.826 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/16/2011 | 5848.975 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/15/2011 | 5849.139 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/14/2011 | 5849.308 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/13/2011 | 5849.225 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/12/2011 | 5849.15 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/11/2011 | 5849.009 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/10/2011 | 5848.878 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/9/2011 | 5849.066 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/8/2011 | 5849.041 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/7/2011 | 5848.972 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/6/2011 | 5848.993 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/5/2011 | 5849.18 | Transducer | 958.6 | 1020.3 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-15 | 12/4/2011 | 5849.08 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/3/2011 | 5849.274 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/2/2011 | 5848.954 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 12/1/2011 | 5849.169 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/30/2011 | 5848.863 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/29/2011 | 5848.791 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/28/2011 | 5848.739 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/27/2011 | 5848.568 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/26/2011 | 5849.045 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/25/2011 | 5848.955 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/24/2011 | 5848.839 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/23/2011 | 5848.717 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/22/2011 | 5848.829 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/21/2011 | 5848.956 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/20/2011 | 5848.99 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/19/2011 | 5849.201 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/18/2011 | 5848.961 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/17/2011 | 5848.75 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/16/2011 | 5848.982 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/15/2011 | 5849.053 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/14/2011 | 5849.115 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/13/2011 | 5849.074 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/12/2011 | 5848.97 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/11/2011 | 5848.699 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/10/2011 | 5848.483 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/9/2011 | 5848.701 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/8/2011 | 5849.053 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/7/2011 | 5848.904 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/6/2011 | 5848.997 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/5/2011 | 5849.078 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/4/2011 | 5848.747 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/3/2011 | 5848.561 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/2/2011 | 5849.006 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 11/1/2011 | 5848.729 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/31/2011 | 5848.586 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/30/2011 | 5848.665 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/29/2011 | 5848.616 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/28/2011 | 5848.665 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/27/2011 | 5848.791 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/26/2011 | 5848.739 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/25/2011 | 5848.633 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/24/2011 | 5848.496 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/23/2011 | 5848.541 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/22/2011 | 5848.532 | Transducer | 958.6 | 1020.3 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-15 | 10/21/2011 | 5848.462 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/20/2011 | 5848.576 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/19/2011 | 5848.447 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/18/2011 | 5848.497 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/17/2011 | 5848.572 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/16/2011 | 5848.45 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/15/2011 | 5848.441 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/14/2011 | 5848.453 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/13/2011 | 5848.397 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/12/2011 | 5848.448 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/11/2011 | 5848.48 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/10/2011 | 5848.392 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/9/2011 | 5848.447 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/8/2011 | 5848.584 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/7/2011 | 5848.475 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/6/2011 | 5848.543 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/5/2011 | 5848.313 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/4/2011 | 5848.187 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/3/2011 | 5848.087 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/2/2011 | 5848.095 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 10/1/2011 | 5848.071 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/30/2011 | 5848.003 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/29/2011 | 5848.102 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/28/2011 | 5848.066 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/27/2011 | 5848.115 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/26/2011 | 5848.186 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/25/2011 | 5848.171 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/24/2011 | 5847.974 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/23/2011 | 5847.922 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/22/2011 | 5848.026 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/21/2011 | 5848.039 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/20/2011 | 5848.052 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/19/2011 | 5847.961 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/18/2011 | 5848.026 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/17/2011 | 5848.07 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/16/2011 | 5848.055 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/15/2011 | 5848.005 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/14/2011 | 5847.987 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/13/2011 | 5847.876 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/13/2011 | 5847.77 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/12/2011 | 5847.7 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/11/2011 | 5847.68 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/10/2011 | 5847.71 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/9/2011 | 5847.66 | Transducer | 958.6 | 1020.3 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-15 | 9/8/2011 | 5847.56 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/7/2011 | 5847.72 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/6/2011 | 5847.71 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/5/2011 | 5847.59 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/4/2011 | 5847.68 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/3/2011 | 5847.76 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/2/2011 | 5847.66 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 9/1/2011 | 5847.64 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/31/2011 | 5847.69 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/30/2011 | 5847.69 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/29/2011 | 5847.61 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/28/2011 | 5847.51 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/27/2011 | 5847.39 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/26/2011 | 5847.34 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/25/2011 | 5847.37 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/24/2011 | 5847.43 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/23/2011 | 5847.41 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/22/2011 | 5847.3 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/21/2011 | 5847.37 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/20/2011 | 5847.39 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/19/2011 | 5847.33 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/18/2011 | 5847.16 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/17/2011 | 5847.18 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/16/2011 | 5847.31 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/15/2011 | 5847.23 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/14/2011 | 5847.03 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/13/2011 | 5847.14 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/12/2011 | 5847.16 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/11/2011 | 5847.12 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/10/2011 | 5847.14 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/9/2011 | 5847.09 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/8/2011 | 5847.07 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/7/2011 | 5847.01 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/6/2011 | 5846.92 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/5/2011 | 5846.87 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/4/2011 | 5846.82 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/3/2011 | 5846.77 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/2/2011 | 5846.7 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 8/1/2011 | 5846.57 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/31/2011 | 5846.49 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/30/2011 | 5846.44 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/29/2011 | 5846.45 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/28/2011 | 5846.44 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/27/2011 | 5846.34 | Transducer | 958.6 | 1020.3 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-15 | 7/26/2011 | 5846.24 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/25/2011 | 5846.09 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/24/2011 | 5846.09 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/23/2011 | 5846.16 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/22/2011 | 5846.19 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/21/2011 | 5846.16 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/20/2011 | 5846.13 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/19/2011 | 5846.06 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/18/2011 | 5846.01 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/17/2011 | 5846.12 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/16/2011 | 5846.29 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/15/2011 | 5846.36 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/14/2011 | 5846.36 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/13/2011 | 5846.33 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/12/2011 | 5846.31 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/11/2011 | 5846.32 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/10/2011 | 5846.41 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/9/2011 | 5846.47 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/8/2011 | 5846.51 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/7/2011 | 5846.47 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/6/2011 | 5846.46 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/5/2011 | 5846.49 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/4/2011 | 5846.61 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/3/2011 | 5846.58 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/2/2011 | 5846.66 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 7/1/2011 | 5846.73 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/30/2011 | 5846.73 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/29/2011 | 5846.61 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/28/2011 | 5846.61 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/27/2011 | 5846.87 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/26/2011 | 5846.9 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/25/2011 | 5846.99 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/24/2011 | 5847 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/23/2011 | 5846.94 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/22/2011 | 5846.99 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/21/2011 | 5847.13 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/20/2011 | 5847.34 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/19/2011 | 5847.27 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/18/2011 | 5847.2 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/17/2011 | 5847.36 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/16/2011 | 5847.34 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/15/2011 | 5847.22 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/14/2011 | 5847.3 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/13/2011 | 5847.35 | Transducer | 958.6 | 1020.3 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-15 | 6/12/2011 | 5847.4 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/11/2011 | 5847.37 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/10/2011 | 5847.44 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/9/2011 | 5847.51 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/8/2011 | 5847.55 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/7/2011 | 5847.57 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/6/2011 | 5847.42 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/5/2011 | 5847.34 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/4/2011 | 5847.54 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/3/2011 | 5847.68 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/2/2011 | 5847.62 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 6/1/2011 | 5847.46 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/31/2011 | 5847.59 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/30/2011 | 5848.09 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/29/2011 | 5848.08 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/28/2011 | 5847.99 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/27/2011 | 5847.98 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/26/2011 | 5847.82 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/25/2011 | 5847.96 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/24/2011 | 5848.16 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/23/2011 | 5848.08 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/22/2011 | 5848.06 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/21/2011 | 5848.14 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/20/2011 | 5848.27 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/19/2011 | 5848.46 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/18/2011 | 5848.43 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/17/2011 | 5848.38 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/16/2011 | 5848.25 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/15/2011 | 5848.29 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/14/2011 | 5848.2 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/13/2011 | 5848.22 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/12/2011 | 5848.45 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/11/2011 | 5848.73 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/10/2011 | 5848.73 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/9/2011 | 5848.76 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/8/2011 | 5848.66 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/7/2011 | 5848.64 | Transducer | 958.6 | 1020.3 | Regional |
| R-15 | 5/6/2011 | 5848.52 | Transducer | 958.6 | 1020.3 | Regional |
| R-28 | 5/22/2013 | 5835.8 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/21/2013 | 5835.72 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/20/2013 | 5835.85 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/19/2013 | 5835.85 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/18/2013 | 5835.79 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/17/2013 | 5835.85 | Transducer | 934.3 | 958.1 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-28 | 5/16/2013 | 5835.77 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/15/2013 | 5835.74 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/14/2013 | 5835.6 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/13/2013 | 5835.59 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/12/2013 | 5835.49 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/11/2013 | 5835.53 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/10/2013 | 5835.7 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/9/2013 | 5835.75 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/8/2013 | 5835.86 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/7/2013 | 5835.74 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/6/2013 | 5835.72 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/5/2013 | 5835.71 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/4/2013 | 5835.79 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/3/2013 | 5835.43 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/2/2013 | 5835.56 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/1/2013 | 5835.96 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/30/2013 | 5836.02 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/29/2013 | 5835.9 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/28/2013 | 5835.74 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/27/2013 | 5835.56 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/26/2013 | 5835.79 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/25/2013 | 5835.64 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/25/2013 | 5835.66 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/25/2013 | 5835.63 | Manual | 934.3 | 958.1 | Regional |
| R-28 | 4/24/2013 | 5835.65 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/23/2013 | 5835.92 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/22/2013 | 5835.77 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/21/2013 | 5835.76 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/20/2013 | 5835.8 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/19/2013 | 5835.59 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/18/2013 | 5835.87 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/17/2013 | 5836 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/16/2013 | 5835.98 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/15/2013 | 5836.1 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/14/2013 | 5836.08 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/13/2013 | 5835.86 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/12/2013 | 5835.89 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/11/2013 | 5835.94 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/10/2013 | 5835.98 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/9/2013 | 5836.35 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/8/2013 | 5836.04 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/7/2013 | 5835.93 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/6/2013 | 5835.93 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/5/2013 | 5835.76 | Transducer | 934.3 | 958.1 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-28 | 4/4/2013 | 5835.74 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/3/2013 | 5835.83 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/2/2013 | 5835.88 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/1/2013 | 5835.84 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/31/2013 | 5835.75 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/30/2013 | 5835.67 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/29/2013 | 5835.68 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/28/2013 | 5835.73 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/27/2013 | 5835.84 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/26/2013 | 5835.65 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/25/2013 | 5835.77 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/24/2013 | 5835.85 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/23/2013 | 5836.12 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/22/2013 | 5836.08 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/21/2013 | 5835.99 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/20/2013 | 5835.63 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/19/2013 | 5835.88 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/18/2013 | 5835.98 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/17/2013 | 5835.96 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/16/2013 | 5835.89 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/15/2013 | 5835.59 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/14/2013 | 5835.54 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/13/2013 | 5835.67 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/12/2013 | 5835.89 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/11/2013 | 5835.8 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/10/2013 | 5836.05 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/9/2013 | 5836.23 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/8/2013 | 5835.97 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/7/2013 | 5835.91 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/6/2013 | 5835.75 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/5/2013 | 5835.84 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/4/2013 | 5836.03 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/3/2013 | 5835.71 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/2/2013 | 5835.62 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/1/2013 | 5835.69 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/28/2013 | 5835.7 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/27/2013 | 5835.86 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/26/2013 | 5836.02 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/25/2013 | 5836.12 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/24/2013 | 5836.22 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/23/2013 | 5835.97 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/22/2013 | 5836.14 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/21/2013 | 5836.4 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/20/2013 | 5836.22 | Transducer | 934.3 | 958.1 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-28 | 2/19/2013 | 5835.89 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/18/2013 | 5836.23 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/17/2013 | 5835.81 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/16/2013 | 5835.65 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/15/2013 | 5835.75 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/14/2013 | 5835.86 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/13/2013 | 5835.84 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/12/2013 | 5836 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/11/2013 | 5836.06 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/10/2013 | 5836.22 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/9/2013 | 5836.17 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/8/2013 | 5835.82 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/7/2013 | 5836.01 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/6/2013 | 5835.97 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/5/2013 | 5835.98 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/4/2013 | 5836.02 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/3/2013 | 5835.71 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/2/2013 | 5835.74 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/1/2013 | 5835.76 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/31/2013 | 5835.82 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/30/2013 | 5836.14 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/29/2013 | 5836.23 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/28/2013 | 5836.06 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/27/2013 | 5836.1 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/26/2013 | 5835.85 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/25/2013 | 5835.8 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/24/2013 | 5835.73 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/23/2013 | 5835.73 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/22/2013 | 5835.74 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/21/2013 | 5835.73 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/20/2013 | 5835.69 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/19/2013 | 5835.71 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/18/2013 | 5835.56 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/17/2013 | 5835.59 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/16/2013 | 5835.73 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/15/2013 | 5835.98 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/14/2013 | 5836.04 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/13/2013 | 5836.04 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/12/2013 | 5836.1 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/11/2013 | 5836.26 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/10/2013 | 5835.8 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/9/2013 | 5835.74 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/8/2013 | 5836 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/7/2013 | 5835.85 | Transducer | 934.3 | 958.1 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-28 | 1/6/2013 | 5835.62 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/5/2013 | 5835.83 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/4/2013 | 5835.69 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/3/2013 | 5835.73 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/2/2013 | 5835.75 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/1/2013 | 5835.92 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/31/2012 | 5836.07 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/30/2012 | 5835.82 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/29/2012 | 5835.76 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/28/2012 | 5836.11 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/27/2012 | 5836.18 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/26/2012 | 5835.94 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/25/2012 | 5836.31 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/24/2012 | 5835.91 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/23/2012 | 5835.86 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/22/2012 | 5835.68 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/21/2012 | 5835.56 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/20/2012 | 5835.73 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/19/2012 | 5836.25 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/18/2012 | 5836 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/17/2012 | 5835.91 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/16/2012 | 5836.11 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/15/2012 | 5836 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/14/2012 | 5836.02 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/13/2012 | 5835.9 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/12/2012 | 5835.94 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/11/2012 | 5835.98 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/10/2012 | 5835.92 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/9/2012 | 5836.14 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/8/2012 | 5836.08 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/7/2012 | 5836.06 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/6/2012 | 5835.99 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/5/2012 | 5835.72 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/4/2012 | 5835.68 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/3/2012 | 5836.03 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/2/2012 | 5835.88 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/1/2012 | 5835.88 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/30/2012 | 5835.85 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/29/2012 | 5835.83 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/28/2012 | 5835.72 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/27/2012 | 5835.73 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/26/2012 | 5836.04 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/25/2012 | 5835.89 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/24/2012 | 5835.63 | Transducer | 934.3 | 958.1 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-28 | 11/23/2012 | 5835.66 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/22/2012 | 5835.86 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/21/2012 | 5835.74 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/20/2012 | 5835.67 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/19/2012 | 5835.8 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/18/2012 | 5835.82 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/17/2012 | 5835.78 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/16/2012 | 5835.64 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/15/2012 | 5835.76 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/14/2012 | 5835.65 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/13/2012 | 5835.63 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/12/2012 | 5835.7 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/11/2012 | 5836.12 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/10/2012 | 5836.16 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/9/2012 | 5835.97 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/8/2012 | 5835.84 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/7/2012 | 5835.67 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/6/2012 | 5835.73 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/5/2012 | 5835.65 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/4/2012 | 5835.69 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/3/2012 | 5835.84 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/2/2012 | 5835.83 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/1/2012 | 5835.73 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/31/2012 | 5835.78 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/30/2012 | 5835.75 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/29/2012 | 5835.71 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/28/2012 | 5835.8 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/27/2012 | 5835.67 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/26/2012 | 5835.74 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/25/2012 | 5835.99 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/24/2012 | 5835.92 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/23/2012 | 5835.9 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/22/2012 | 5835.94 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/21/2012 | 5836.04 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/20/2012 | 5835.9 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/19/2012 | 5835.81 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/18/2012 | 5835.94 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/17/2012 | 5836.07 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/16/2012 | 5835.9 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/15/2012 | 5835.7 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/14/2012 | 5835.79 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/13/2012 | 5835.95 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/12/2012 | 5835.81 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/11/2012 | 5835.9 | Transducer | 934.3 | 958.1 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-28 | 10/10/2012 | 5835.84 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/9/2012 | 5835.92 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/8/2012 | 5835.94 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/7/2012 | 5835.92 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/6/2012 | 5835.97 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/5/2012 | 5835.92 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/4/2012 | 5835.86 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/3/2012 | 5836 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/2/2012 | 5835.81 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/1/2012 | 5835.82 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/30/2012 | 5835.87 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/29/2012 | 5835.84 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/28/2012 | 5835.9 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/27/2012 | 5835.93 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/26/2012 | 5835.98 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/25/2012 | 5835.92 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/24/2012 | 5835.83 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/23/2012 | 5835.85 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/22/2012 | 5835.85 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/21/2012 | 5835.88 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/20/2012 | 5835.9 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/19/2012 | 5835.85 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/18/2012 | 5835.89 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/17/2012 | 5835.98 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/16/2012 | 5835.85 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/15/2012 | 5835.74 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/14/2012 | 5835.62 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/13/2012 | 5835.84 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/12/2012 | 5835.99 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/11/2012 | 5835.96 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/10/2012 | 5835.83 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/10/2012 | 5835.813 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/9/2012 | 5835.778 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/8/2012 | 5835.76 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/7/2012 | 5835.939 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/6/2012 | 5835.913 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/5/2012 | 5835.947 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/4/2012 | 5835.922 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/3/2012 | 5835.953 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/2/2012 | 5835.918 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/1/2012 | 5835.914 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/31/2012 | 5835.968 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/30/2012 | 5835.914 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/29/2012 | 5835.82 | Transducer | 934.3 | 958.1 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-28 | 8/28/2012 | 5835.75 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/27/2012 | 5835.806 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/26/2012 | 5835.938 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/25/2012 | 5836.116 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/24/2012 | 5836.035 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/23/2012 | 5835.958 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/22/2012 | 5835.912 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/21/2012 | 5835.994 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/20/2012 | 5835.942 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/19/2012 | 5836.024 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/18/2012 | 5835.987 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/17/2012 | 5835.927 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/16/2012 | 5836.067 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/15/2012 | 5836.044 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/14/2012 | 5835.994 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/13/2012 | 5835.853 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/12/2012 | 5835.988 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/11/2012 | 5836.006 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/10/2012 | 5835.901 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/9/2012 | 5835.854 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/8/2012 | 5835.89 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/7/2012 | 5835.884 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/6/2012 | 5835.756 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/5/2012 | 5835.843 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/4/2012 | 5836.017 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/3/2012 | 5835.976 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/2/2012 | 5836.005 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/1/2012 | 5835.886 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/31/2012 | 5835.982 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/30/2012 | 5835.937 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/29/2012 | 5835.869 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/28/2012 | 5835.864 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/27/2012 | 5835.965 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/26/2012 | 5836.096 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/25/2012 | 5836.103 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/24/2012 | 5835.983 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/23/2012 | 5835.943 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/22/2012 | 5835.933 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/21/2012 | 5835.854 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/20/2012 | 5835.84 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/19/2012 | 5835.914 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/18/2012 | 5836.069 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/17/2012 | 5836.077 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/16/2012 | 5836.036 | Transducer | 934.3 | 958.1 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-28 | 7/15/2012 | 5835.985 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/14/2012 | 5835.995 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/13/2012 | 5835.94 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/12/2012 | 5835.922 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/11/2012 | 5835.908 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/10/2012 | 5835.879 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/9/2012 | 5835.914 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/8/2012 | 5835.898 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/7/2012 | 5835.939 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/6/2012 | 5835.976 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/5/2012 | 5836.082 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/4/2012 | 5836.063 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/3/2012 | 5836.087 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/2/2012 | 5836.096 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/1/2012 | 5836.083 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/30/2012 | 5836.105 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/29/2012 | 5835.978 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/28/2012 | 5835.973 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/27/2012 | 5836.088 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/26/2012 | 5836.027 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/25/2012 | 5835.942 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/24/2012 | 5836.047 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/23/2012 | 5836.171 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/22/2012 | 5835.987 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/21/2012 | 5836.103 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/20/2012 | 5836.327 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/19/2012 | 5836.327 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/18/2012 | 5836.255 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/17/2012 | 5836 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/16/2012 | 5836.151 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/15/2012 | 5836.271 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/14/2012 | 5836.25 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/13/2012 | 5836.189 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/12/2012 | 5836.041 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/11/2012 | 5836.113 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/10/2012 | 5836.359 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/9/2012 | 5836.327 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/8/2012 | 5836.202 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/7/2012 | 5836.307 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/6/2012 | 5836.274 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/5/2012 | 5836.22 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/5/2012 | 5836.227 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/4/2012 | 5836.178 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/3/2012 | 5836.309 | Transducer | 934.3 | 958.1 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-28 | 6/2/2012 | 5836.343 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/1/2012 | 5836.246 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/31/2012 | 5836.298 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/30/2012 | 5836.32 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/29/2012 | 5836.272 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/28/2012 | 5836.309 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/27/2012 | 5836.406 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/26/2012 | 5836.453 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/25/2012 | 5836.622 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/24/2012 | 5836.724 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/23/2012 | 5836.581 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/22/2012 | 5836.243 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/21/2012 | 5836.179 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/20/2012 | 5836.355 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/19/2012 | 5836.604 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/18/2012 | 5836.604 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/17/2012 | 5836.379 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/16/2012 | 5836.249 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/15/2012 | 5836.195 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/14/2012 | 5836.25 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/13/2012 | 5836.138 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/12/2012 | 5836.212 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/11/2012 | 5836.487 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/10/2012 | 5836.419 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/9/2012 | 5836.247 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/8/2012 | 5836.319 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/7/2012 | 5836.427 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/6/2012 | 5836.495 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/5/2012 | 5836.479 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/4/2012 | 5836.451 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/3/2012 | 5836.544 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/2/2012 | 5836.567 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/1/2012 | 5836.599 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/30/2012 | 5836.516 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/29/2012 | 5836.601 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/28/2012 | 5836.628 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/27/2012 | 5836.679 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/26/2012 | 5836.451 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/25/2012 | 5836.511 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/24/2012 | 5836.421 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/23/2012 | 5836.29 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/22/2012 | 5836.34 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/21/2012 | 5836.425 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/20/2012 | 5836.503 | Transducer | 934.3 | 958.1 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-28 | 4/19/2012 | 5836.529 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/18/2012 | 5836.427 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/17/2012 | 5836.312 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/16/2012 | 5836.46 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/15/2012 | 5836.825 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/14/2012 | 5836.879 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/13/2012 | 5836.616 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/12/2012 | 5836.639 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/11/2012 | 5836.465 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/10/2012 | 5836.384 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/9/2012 | 5836.302 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/8/2012 | 5836.191 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/7/2012 | 5836.411 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/6/2012 | 5836.564 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/5/2012 | 5836.54 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/4/2012 | 5836.554 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/3/2012 | 5836.696 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/2/2012 | 5836.821 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 4/1/2012 | 5836.611 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/31/2012 | 5836.533 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/30/2012 | 5836.553 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/29/2012 | 5836.573 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/28/2012 | 5836.492 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/27/2012 | 5836.499 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/26/2012 | 5836.55 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/25/2012 | 5836.396 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/24/2012 | 5836.439 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/23/2012 | 5836.525 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/22/2012 | 5836.559 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/21/2012 | 5836.604 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/20/2012 | 5836.906 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/19/2012 | 5836.877 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/18/2012 | 5836.8 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/17/2012 | 5836.633 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/16/2012 | 5836.495 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/15/2012 | 5836.441 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/14/2012 | 5836.513 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/13/2012 | 5836.411 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/12/2012 | 5836.422 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/12/2012 | 5836.4 | Manual | 934.3 | 958.1 | Regional |
| R-28 | 3/6/2012 | 5836.628 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/5/2012 | 5836.628 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/4/2012 | 5836.618 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/3/2012 | 5836.611 | Transducer | 934.3 | 958.1 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-28 | 3/2/2012 | 5836.596 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 3/1/2012 | 5836.594 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/29/2012 | 5836.573 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/28/2012 | 5836.545 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/27/2012 | 5836.52 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/26/2012 | 5836.484 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/25/2012 | 5834.299 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/24/2012 | 5834.294 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/23/2012 | 5834.263 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/22/2012 | 5834.229 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/21/2012 | 5834.294 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/20/2012 | 5834.325 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/19/2012 | 5834.343 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/18/2012 | 5834.313 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/17/2012 | 5834.395 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/16/2012 | 5834.459 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/15/2012 | 5836.654 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/14/2012 | 5836.589 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/9/2012 | 5836.206 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/8/2012 | 5836.087 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/7/2012 | 5836.286 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/6/2012 | 5836.193 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/5/2012 | 5836.06 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/4/2012 | 5836.181 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/3/2012 | 5836.491 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/2/2012 | 5836.291 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 2/1/2012 | 5836.203 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/31/2012 | 5836.334 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/30/2012 | 5836.151 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/29/2012 | 5836.01 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/28/2012 | 5836.084 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/27/2012 | 5836.355 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/26/2012 | 5836.194 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/25/2012 | 5836.206 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/24/2012 | 5836.451 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/23/2012 | 5836.294 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/22/2012 | 5836.715 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/21/2012 | 5836.294 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/20/2012 | 5836.444 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/19/2012 | 5836.279 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/18/2012 | 5836.191 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/17/2012 | 5836.398 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/16/2012 | 5836.398 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/15/2012 | 5836.186 | Transducer | 934.3 | 958.1 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-28 | 1/14/2012 | 5836.124 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/13/2012 | 5836.299 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/12/2012 | 5836.313 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/11/2012 | 5836.423 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/10/2012 | 5836.234 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/9/2012 | 5836.24 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/8/2012 | 5836.484 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/7/2012 | 5836.361 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/6/2012 | 5836.36 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/5/2012 | 5836.011 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/4/2012 | 5836.093 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/3/2012 | 5835.953 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/2/2012 | 5835.872 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 1/1/2012 | 5836.034 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/31/2011 | 5836.298 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/30/2011 | 5836.252 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/29/2011 | 5836.163 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/28/2011 | 5836.202 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/27/2011 | 5836.115 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/26/2011 | 5836.159 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/25/2011 | 5835.984 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/24/2011 | 5836.06 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/23/2011 | 5836.16 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/22/2011 | 5836.448 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/21/2011 | 5836.444 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/20/2011 | 5836.389 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/19/2011 | 5836.496 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/18/2011 | 5836.051 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/17/2011 | 5835.946 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/16/2011 | 5836.096 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/15/2011 | 5836.218 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/14/2011 | 5836.43 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/13/2011 | 5836.313 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/12/2011 | 5836.308 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/11/2011 | 5836.155 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/10/2011 | 5836.006 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/9/2011 | 5836.192 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/8/2011 | 5836.221 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/7/2011 | 5836.099 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/6/2011 | 5836.171 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/5/2011 | 5836.339 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/4/2011 | 5836.299 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/3/2011 | 5836.513 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 12/2/2011 | 5836.151 | Transducer | 934.3 | 958.1 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-28 | 12/1/2011 | 5836.425 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/30/2011 | 5836.073 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/29/2011 | 5836.04 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/28/2011 | 5835.927 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/27/2011 | 5835.82 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/26/2011 | 5836.252 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/25/2011 | 5836.199 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/24/2011 | 5836.03 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/23/2011 | 5835.914 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/22/2011 | 5836.071 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/21/2011 | 5836.166 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/20/2011 | 5836.261 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/19/2011 | 5836.429 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/18/2011 | 5836.222 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/17/2011 | 5835.97 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/16/2011 | 5836.261 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/15/2011 | 5836.287 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/14/2011 | 5836.351 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/13/2011 | 5836.359 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/12/2011 | 5836.292 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/11/2011 | 5836.001 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/10/2011 | 5835.806 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/9/2011 | 5835.975 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/8/2011 | 5836.34 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/7/2011 | 5836.271 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/6/2011 | 5836.342 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/5/2011 | 5836.473 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/4/2011 | 5836.137 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/3/2011 | 5835.906 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/2/2011 | 5836.363 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 11/1/2011 | 5836.137 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/31/2011 | 5835.977 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/30/2011 | 5836.084 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/29/2011 | 5835.987 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/28/2011 | 5836.099 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/27/2011 | 5836.249 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/26/2011 | 5836.171 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/25/2011 | 5836.087 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/24/2011 | 5835.984 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/23/2011 | 5836.016 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/22/2011 | 5836.008 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/21/2011 | 5836.018 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/20/2011 | 5836.133 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/19/2011 | 5835.961 | Transducer | 934.3 | 958.1 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-28 | 10/18/2011 | 5836.015 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/17/2011 | 5836.101 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/16/2011 | 5835.991 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/15/2011 | 5836.011 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/14/2011 | 5836.084 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/13/2011 | 5836.001 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/12/2011 | 5836.137 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/11/2011 | 5836.163 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/10/2011 | 5836.084 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/9/2011 | 5836.116 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/8/2011 | 5836.29 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/7/2011 | 5836.292 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/6/2011 | 5836.337 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/5/2011 | 5836.156 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/4/2011 | 5836.018 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/3/2011 | 5835.977 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/2/2011 | 5835.959 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 10/1/2011 | 5835.956 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/30/2011 | 5835.835 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/29/2011 | 5836.028 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/28/2011 | 5835.961 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/27/2011 | 5836.047 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/26/2011 | 5836.163 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/25/2011 | 5836.12 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/24/2011 | 5835.98 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/23/2011 | 5835.937 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/22/2011 | 5836.044 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/21/2011 | 5836.047 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/20/2011 | 5836.03 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/19/2011 | 5835.942 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/18/2011 | 5836.015 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/17/2011 | 5836.073 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/16/2011 | 5836.082 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/15/2011 | 5836.044 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/14/2011 | 5836.015 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/13/2011 | 5835.916 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/12/2011 | 5835.863 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/11/2011 | 5835.892 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/10/2011 | 5835.928 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/9/2011 | 5835.891 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/8/2011 | 5835.785 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/7/2011 | 5835.934 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/6/2011 | 5835.928 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/5/2011 | 5835.858 | Transducer | 934.3 | 958.1 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-28 | 9/4/2011 | 5835.94 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/3/2011 | 5836.052 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/2/2011 | 5835.97 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 9/1/2011 | 5835.996 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/31/2011 | 5836.063 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/30/2011 | 5836.052 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/29/2011 | 5836.016 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/28/2011 | 5835.944 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/27/2011 | 5835.863 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/26/2011 | 5835.872 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/25/2011 | 5835.896 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/24/2011 | 5835.959 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/23/2011 | 5835.939 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/22/2011 | 5835.858 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/21/2011 | 5835.932 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/20/2011 | 5836.001 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/19/2011 | 5835.97 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/19/2011 | 5836.039 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/18/2011 | 5835.82 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/17/2011 | 5835.87 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/16/2011 | 5836 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/15/2011 | 5835.96 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/14/2011 | 5835.81 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/13/2011 | 5835.95 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/12/2011 | 5836 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/11/2011 | 5836.01 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/10/2011 | 5836.07 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/9/2011 | 5836.03 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/8/2011 | 5836.04 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/7/2011 | 5835.99 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/6/2011 | 5835.95 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/5/2011 | 5835.97 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/4/2011 | 5835.95 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/3/2011 | 5835.92 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/2/2011 | 5835.87 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 8/1/2011 | 5835.78 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/31/2011 | 5835.76 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/30/2011 | 5835.77 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/29/2011 | 5835.86 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/28/2011 | 5835.96 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/27/2011 | 5835.97 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/26/2011 | 5835.89 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/25/2011 | 5835.77 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/24/2011 | 5835.82 | Transducer | 934.3 | 958.1 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-28 | 7/23/2011 | 5835.93 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/22/2011 | 5835.96 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/21/2011 | 5835.93 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/20/2011 | 5835.88 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/19/2011 | 5835.79 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/18/2011 | 5835.73 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/17/2011 | 5835.83 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/16/2011 | 5835.97 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/15/2011 | 5836.01 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/14/2011 | 5835.98 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/13/2011 | 5835.94 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/12/2011 | 5835.91 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/11/2011 | 5835.93 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/10/2011 | 5835.95 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/9/2011 | 5836.01 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/8/2011 | 5835.96 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/7/2011 | 5835.9 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/6/2011 | 5835.89 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/5/2011 | 5835.89 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/4/2011 | 5835.89 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/3/2011 | 5835.84 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/2/2011 | 5835.91 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 7/1/2011 | 5835.96 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/30/2011 | 5835.96 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/29/2011 | 5835.88 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/28/2011 | 5835.85 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/27/2011 | 5836.02 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/26/2011 | 5836.03 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/25/2011 | 5836.08 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/24/2011 | 5836.08 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/23/2011 | 5835.99 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/22/2011 | 5836.01 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/21/2011 | 5836.13 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/20/2011 | 5836.29 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/19/2011 | 5836.18 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/18/2011 | 5836.12 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/17/2011 | 5836.26 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/16/2011 | 5836.21 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/15/2011 | 5836.04 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/14/2011 | 5836.09 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/13/2011 | 5836.14 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/12/2011 | 5836.19 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/11/2011 | 5836.13 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/10/2011 | 5836.16 | Transducer | 934.3 | 958.1 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-28 | 6/9/2011 | 5836.21 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/8/2011 | 5836.19 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/7/2011 | 5836.19 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/6/2011 | 5836 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/5/2011 | 5835.89 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/4/2011 | 5836.07 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/3/2011 | 5836.17 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/2/2011 | 5836.1 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 6/1/2011 | 5835.89 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/31/2011 | 5836 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/30/2011 | 5836.47 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/29/2011 | 5836.46 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/28/2011 | 5836.37 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/27/2011 | 5836.3 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/26/2011 | 5836.15 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/25/2011 | 5836.27 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/24/2011 | 5836.44 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/23/2011 | 5836.34 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/22/2011 | 5836.31 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/21/2011 | 5836.35 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/20/2011 | 5836.45 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/19/2011 | 5836.64 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/18/2011 | 5836.61 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/17/2011 | 5836.52 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/16/2011 | 5836.36 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/15/2011 | 5836.38 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/14/2011 | 5836.26 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/13/2011 | 5836.26 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/12/2011 | 5836.48 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/11/2011 | 5836.74 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/10/2011 | 5836.73 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/9/2011 | 5836.72 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/8/2011 | 5836.61 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/7/2011 | 5836.57 | Transducer | 934.3 | 958.1 | Regional |
| R-28 | 5/6/2011 | 5836.42 | Transducer | 934.3 | 958.1 | Regional |
| R-35a | 5/22/2013 | 5820.36 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/21/2013 | 5822.5 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/20/2013 | 5823.66 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/19/2013 | 5819.3 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/18/2013 | 5826.37 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/17/2013 | 5820.25 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/16/2013 | 5822.9 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/15/2013 | 5820.55 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/14/2013 | 5822.98 | Transducer | 1013.1 | 1062.2 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-35a | 5/13/2013 | 5819.43 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/12/2013 | 5824.49 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/11/2013 | 5825.66 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/10/2013 | 5826.15 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/9/2013 | 5821.18 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/8/2013 | 5822.9 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/8/2013 | 5821.41 | Manual | 1013.1 | 1062.2 | Regional |
| R-35a | 5/8/2013 | 5821.41 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/7/2013 | 5825.29 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/6/2013 | 5821.72 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/5/2013 | 5825.59 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/4/2013 | 5826.56 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/3/2013 | 5827.7 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/2/2013 | 5826.27 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/1/2013 | 5826.78 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/30/2013 | 5827.33 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/29/2013 | 5824.96 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/28/2013 | 5826.76 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/27/2013 | 5823.3 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/26/2013 | 5828.42 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/25/2013 | 5824.78 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/24/2013 | 5828.19 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/23/2013 | 5822.78 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/22/2013 | 5826.04 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/21/2013 | 5827.62 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/20/2013 | 5829.05 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/19/2013 | 5828.91 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/18/2013 | 5829.05 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/17/2013 | 5828.96 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/16/2013 | 5828.97 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/15/2013 | 5828.46 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/14/2013 | 5827.81 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/13/2013 | 5828.88 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/12/2013 | 5828.96 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/11/2013 | 5828.84 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/10/2013 | 5828.75 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/9/2013 | 5828.4 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/8/2013 | 5822.61 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/7/2013 | 5826.9 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/6/2013 | 5828.06 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/5/2013 | 5828 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/4/2013 | 5828.89 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/3/2013 | 5828.97 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/2/2013 | 5828.78 | Transducer | 1013.1 | 1062.2 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-35a | 4/1/2013 | 5827.6 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/31/2013 | 5827.98 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/30/2013 | 5828.17 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/29/2013 | 5828.97 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/28/2013 | 5828.99 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/27/2013 | 5828.91 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/26/2013 | 5828.88 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/25/2013 | 5828.81 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/24/2013 | 5828.01 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/23/2013 | 5829.44 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/22/2013 | 5829.32 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/21/2013 | 5829.16 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/20/2013 | 5828.98 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/19/2013 | 5829.05 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/18/2013 | 5829.04 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/17/2013 | 5828.53 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/16/2013 | 5829.13 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/15/2013 | 5828.93 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/14/2013 | 5828.9 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/13/2013 | 5828.92 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/12/2013 | 5829.14 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/11/2013 | 5828.87 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/10/2013 | 5829.08 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/9/2013 | 5829.25 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/8/2013 | 5829.06 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/7/2013 | 5829.01 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/6/2013 | 5828.93 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/5/2013 | 5829.1 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/4/2013 | 5828.93 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/3/2013 | 5828.75 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/2/2013 | 5828.77 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/1/2013 | 5828.85 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/28/2013 | 5828.94 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/27/2013 | 5829.05 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/26/2013 | 5829.01 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/25/2013 | 5829.1 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/24/2013 | 5829.14 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/23/2013 | 5829.07 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/22/2013 | 5829.23 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/21/2013 | 5829.42 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/20/2013 | 5829.27 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/19/2013 | 5829.05 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/18/2013 | 5828.98 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/17/2013 | 5828.74 | Transducer | 1013.1 | 1062.2 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-35a | 2/16/2013 | 5828.67 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/15/2013 | 5828.89 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/14/2013 | 5828.99 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/13/2013 | 5829.04 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/12/2013 | 5829.05 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/11/2013 | 5828.8 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/10/2013 | 5828.94 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/9/2013 | 5828.9 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/8/2013 | 5828.66 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/7/2013 | 5828.78 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/6/2013 | 5828.74 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/5/2013 | 5828.69 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/4/2013 | 5828.59 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/3/2013 | 5828.38 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/2/2013 | 5828.54 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/1/2013 | 5828.54 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/31/2013 | 5828.67 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/30/2013 | 5828.84 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/29/2013 | 5828.81 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/28/2013 | 5828.57 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/27/2013 | 5828.59 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/26/2013 | 5828.42 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/25/2013 | 5828.42 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/24/2013 | 5828.29 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/23/2013 | 5828.25 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/22/2013 | 5828.24 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/21/2013 | 5828.17 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/20/2013 | 5828.12 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/19/2013 | 5828.17 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/18/2013 | 5828.04 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/17/2013 | 5828 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/16/2013 | 5827.57 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/15/2013 | 5828.43 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/14/2013 | 5828.36 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/13/2013 | 5828.28 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/12/2013 | 5827.96 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/11/2013 | 5828.53 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/10/2013 | 5828.13 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/9/2013 | 5828.03 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/8/2013 | 5827.88 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/7/2013 | 5825.18 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/6/2013 | 5828.19 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/5/2013 | 5828.43 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/4/2013 | 5828.34 | Transducer | 1013.1 | 1062.2 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-35a | 1/3/2013 | 5828.38 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/2/2013 | 5828.41 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/1/2013 | 5828.6 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/31/2012 | 5828.4 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/30/2012 | 5828.21 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/29/2012 | 5828.31 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/28/2012 | 5828.52 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/27/2012 | 5828.52 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/26/2012 | 5828.26 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/25/2012 | 5828.48 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/24/2012 | 5828.07 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/23/2012 | 5828.01 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/22/2012 | 5827.99 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/21/2012 | 5827.7 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/20/2012 | 5828.23 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/19/2012 | 5828.46 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/18/2012 | 5828.24 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/17/2012 | 5828.01 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/16/2012 | 5828.17 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/15/2012 | 5828 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/14/2012 | 5827.04 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/13/2012 | 5828.11 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/12/2012 | 5828.02 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/11/2012 | 5828.06 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/10/2012 | 5827.93 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/9/2012 | 5828.13 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/8/2012 | 5828.05 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/7/2012 | 5827.97 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/6/2012 | 5827.7 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/5/2012 | 5826.93 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/4/2012 | 5827.81 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/3/2012 | 5827.72 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/2/2012 | 5827.55 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/1/2012 | 5827.02 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/30/2012 | 5827.74 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/29/2012 | 5827.65 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/28/2012 | 5827.56 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/27/2012 | 5827.62 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/26/2012 | 5827.58 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/26/2012 | 5827.72 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/25/2012 | 5827.58 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/24/2012 | 5827.46 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/23/2012 | 5827.53 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/22/2012 | 5827.66 | Transducer | 1013.1 | 1062.2 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-35a | 11/21/2012 | 5827.51 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/20/2012 | 5827.4 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/19/2012 | 5827.32 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/18/2012 | 5827.28 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/17/2012 | 5827.14 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/16/2012 | 5827.26 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/15/2012 | 5827.3 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/14/2012 | 5827.17 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/13/2012 | 5827.04 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/12/2012 | 5827 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/11/2012 | 5827.21 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/10/2012 | 5826.92 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/9/2012 | 5827.23 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/8/2012 | 5826.73 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/7/2012 | 5825.62 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/6/2012 | 5825.29 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/5/2012 | 5826.9 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/4/2012 | 5825.35 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/3/2012 | 5826.6 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/2/2012 | 5826.64 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/1/2012 | 5826.28 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/31/2012 | 5823.43 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/30/2012 | 5826.52 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/29/2012 | 5826.58 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/28/2012 | 5826.56 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/27/2012 | 5826.39 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/26/2012 | 5826.57 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/25/2012 | 5826.75 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/24/2012 | 5826.57 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/23/2012 | 5826.36 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/22/2012 | 5824.14 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/21/2012 | 5826.61 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/20/2012 | 5826.41 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/19/2012 | 5826.19 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/18/2012 | 5826.09 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/17/2012 | 5826.1 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/16/2012 | 5825.86 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/15/2012 | 5825.55 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/14/2012 | 5825.44 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/13/2012 | 5825.66 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/12/2012 | 5825.79 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/11/2012 | 5825.7 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/10/2012 | 5825.42 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/9/2012 | 5821.94 | Transducer | 1013.1 | 1062.2 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-35a | 10/8/2012 | 5821.04 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/7/2012 | 5821.74 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/6/2012 | 5825.13 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/5/2012 | 5821.02 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/4/2012 | 5819.55 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/3/2012 | 5819.48 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/2/2012 | 5822.96 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/1/2012 | 5819.27 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/30/2012 | 5819.63 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/29/2012 | 5825.13 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/28/2012 | 5820.48 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/27/2012 | 5821.41 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/26/2012 | 5824.49 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/25/2012 | 5819.42 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/24/2012 | 5819.9 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/23/2012 | 5819.88 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/22/2012 | 5817.41 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/21/2012 | 5819.28 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/20/2012 | 5818.71 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/19/2012 | 5818.36 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/18/2012 | 5821.79 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/17/2012 | 5821.16 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/16/2012 | 5821.36 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/15/2012 | 5824.02 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/14/2012 | 5823.93 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/13/2012 | 5819.88 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/12/2012 | 5818.12 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/11/2012 | 5817.39 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/10/2012 | 5816.97 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/9/2012 | 5818.51 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/8/2012 | 5822.83 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/7/2012 | 5817.17 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/6/2012 | 5817.47 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/5/2012 | 5816.7 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/4/2012 | 5816.71 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/3/2012 | 5816.74 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/2/2012 | 5816.88 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/1/2012 | 5817.41 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/31/2012 | 5817.41 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/30/2012 | 5818.05 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/29/2012 | 5818.48 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/28/2012 | 5821.16 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/27/2012 | 5818.73 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/26/2012 | 5819.14 | Transducer | 1013.1 | 1062.2 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-35a | 8/25/2012 | 5824.53 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/24/2012 | 5820.19 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/23/2012 | 5818.51 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/22/2012 | 5818.42 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/21/2012 | 5818.39 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/20/2012 | 5817.67 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/19/2012 | 5822.44 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/18/2012 | 5823.67 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/17/2012 | 5818.77 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/16/2012 | 5816.99 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/15/2012 | 5817.23 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/14/2012 | 5816.42 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/13/2012 | 5815.52 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/12/2012 | 5815.88 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/11/2012 | 5817.8 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/10/2012 | 5816.98 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/9/2012 | 5817.12 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/8/2012 | 5817.96 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/7/2012 | 5817.7 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/6/2012 | 5818.42 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/5/2012 | 5818.42 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/4/2012 | 5823.65 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/3/2012 | 5819.74 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/2/2012 | 5816.41 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/1/2012 | 5816.13 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/31/2012 | 5816.46 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/30/2012 | 5816.18 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/29/2012 | 5817.04 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/28/2012 | 5817.52 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/27/2012 | 5823.3 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/27/2012 | 5817.76 | Manual | 1013.1 | 1062.2 | Regional |
| R-35a | 7/26/2012 | 5818.04 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/25/2012 | 5816.35 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/24/2012 | 5817.1 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/23/2012 | 5820.35 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/22/2012 | 5814.79 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/21/2012 | 5815.08 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/20/2012 | 5816.38 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/19/2012 | 5816.47 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/18/2012 | 5816.83 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/17/2012 | 5817 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/16/2012 | 5815.66 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/15/2012 | 5817.15 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/14/2012 | 5822.72 | Transducer | 1013.1 | 1062.2 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-35a | 7/13/2012 | 5818.35 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/12/2012 | 5817.97 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/11/2012 | 5816.8 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/10/2012 | 5816.19 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/9/2012 | 5816.87 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/8/2012 | 5822.99 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/7/2012 | 5823.31 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/6/2012 | 5819 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/5/2012 | 5817.94 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/4/2012 | 5821.19 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/3/2012 | 5819.15 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/2/2012 | 5814.34 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/1/2012 | 5814.28 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/30/2012 | 5814.49 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/29/2012 | 5814.83 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/28/2012 | 5815.7 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/27/2012 | 5814.84 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/26/2012 | 5814.83 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/25/2012 | 5814.82 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/24/2012 | 5815.07 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/23/2012 | 5815.08 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/22/2012 | 5816.49 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/21/2012 | 5815.4 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/20/2012 | 5815.69 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/19/2012 | 5816.44 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/18/2012 | 5815.72 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/17/2012 | 5817.58 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/16/2012 | 5815.17 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/15/2012 | 5815.63 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/14/2012 | 5815.75 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/13/2012 | 5815.99 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/12/2012 | 5816.31 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/11/2012 | 5816.18 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/11/2012 | 5816.957 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/10/2012 | 5816.068 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/9/2012 | 5816.736 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/8/2012 | 5817.883 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/7/2012 | 5818.003 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/6/2012 | 5818.083 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/5/2012 | 5819.085 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/4/2012 | 5816.811 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/3/2012 | 5816.888 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/2/2012 | 5818.228 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/1/2012 | 5818.528 | Transducer | 1013.1 | 1062.2 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-35a | 5/31/2012 | 5818.707 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/30/2012 | 5818.732 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/29/2012 | 5817.908 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/28/2012 | 5820.34 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/27/2012 | 5824.854 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/26/2012 | 5822.334 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/25/2012 | 5818.747 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/24/2012 | 5819.743 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/23/2012 | 5819.947 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/22/2012 | 5819.737 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/21/2012 | 5818.649 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/20/2012 | 5820.023 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/19/2012 | 5825.241 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/18/2012 | 5821.088 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/17/2012 | 5821.313 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/16/2012 | 5823.924 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/15/2012 | 5821.598 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/14/2012 | 5827.06 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/13/2012 | 5826.356 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/12/2012 | 5825.423 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/11/2012 | 5820.627 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/10/2012 | 5823.307 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/9/2012 | 5821.918 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/8/2012 | 5822.526 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/7/2012 | 5820.146 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/6/2012 | 5821.813 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/5/2012 | 5823.555 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/4/2012 | 5822.974 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/3/2012 | 5825.484 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/2/2012 | 5821.246 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/1/2012 | 5822.207 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/30/2012 | 5826.164 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/29/2012 | 5825.201 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/28/2012 | 5822.964 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/27/2012 | 5823.757 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/26/2012 | 5827.074 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/25/2012 | 5826.816 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/24/2012 | 5826.322 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/23/2012 | 5825.718 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/22/2012 | 5825.218 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/21/2012 | 5826.863 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/20/2012 | 5827.685 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/19/2012 | 5822.897 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/18/2012 | 5824.147 | Transducer | 1013.1 | 1062.2 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-35a | 4/17/2012 | 5824.649 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/16/2012 | 5827.206 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/15/2012 | 5828.417 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/14/2012 | 5827.946 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/13/2012 | 5824.505 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/12/2012 | 5824.344 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/11/2012 | 5824.949 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/10/2012 | 5824.186 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/9/2012 | 5823.902 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/8/2012 | 5826.835 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/7/2012 | 5827.698 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/6/2012 | 5824.215 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/5/2012 | 5823.383 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/4/2012 | 5824.55 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/3/2012 | 5827.594 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/2/2012 | 5823.043 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 4/1/2012 | 5825.559 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/31/2012 | 5826.766 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/30/2012 | 5827.84 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/29/2012 | 5824.333 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/28/2012 | 5825.332 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/27/2012 | 5823.871 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/26/2012 | 5822.656 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/25/2012 | 5825.797 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/24/2012 | 5827.709 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/23/2012 | 5824.583 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/22/2012 | 5824.79 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/21/2012 | 5824.417 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/20/2012 | 5824.572 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/19/2012 | 5825.564 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/18/2012 | 5827.525 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/17/2012 | 5828.161 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/16/2012 | 5824.479 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/15/2012 | 5824.559 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/14/2012 | 5824.71 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/13/2012 | 5824.986 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/12/2012 | 5824.891 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/11/2012 | 5826.653 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/10/2012 | 5827.934 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/9/2012 | 5828.192 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/8/2012 | 5828.163 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/7/2012 | 5827.534 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/6/2012 | 5827.067 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/6/2012 | 5827.271 | Transducer | 1013.1 | 1062.2 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-35a | 3/5/2012 | 5826.015 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/4/2012 | 5826.978 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/3/2012 | 5828.08 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/2/2012 | 5826.741 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 3/1/2012 | 5828.158 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/29/2012 | 5827.643 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/28/2012 | 5826.521 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/27/2012 | 5827.763 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/26/2012 | 5827.125 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/25/2012 | 5828.548 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/24/2012 | 5828.954 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/23/2012 | 5828.929 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/22/2012 | 5828.702 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/21/2012 | 5828.605 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/20/2012 | 5828.684 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/19/2012 | 5828.355 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/18/2012 | 5828.445 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/17/2012 | 5828.58 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/16/2012 | 5828.477 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/15/2012 | 5828.29 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/14/2012 | 5828.273 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/13/2012 | 5828.224 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/12/2012 | 5826.41 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/11/2012 | 5827.902 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/10/2012 | 5827.941 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/9/2012 | 5827.979 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/8/2012 | 5827.027 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/7/2012 | 5827.455 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/6/2012 | 5828.113 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/5/2012 | 5827.555 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/4/2012 | 5827.836 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/3/2012 | 5827.447 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/2/2012 | 5826.081 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 2/1/2012 | 5827.765 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/31/2012 | 5827.293 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/30/2012 | 5827.068 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/29/2012 | 5827.18 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/28/2012 | 5827.925 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/27/2012 | 5828.02 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/26/2012 | 5828.607 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/25/2012 | 5828.339 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/24/2012 | 5828.304 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/23/2012 | 5827.561 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/22/2012 | 5828.64 | Transducer | 1013.1 | 1062.2 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-35a | 1/21/2012 | 5828.137 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/20/2012 | 5828.174 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/19/2012 | 5828.042 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/18/2012 | 5827.817 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/17/2012 | 5828.151 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/16/2012 | 5827.23 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/15/2012 | 5828.322 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/14/2012 | 5827.812 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/13/2012 | 5827.104 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/12/2012 | 5827.842 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/11/2012 | 5826.984 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/10/2012 | 5827.151 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/9/2012 | 5826.638 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/8/2012 | 5827.825 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/7/2012 | 5827.346 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/6/2012 | 5826.848 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/5/2012 | 5826.086 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/4/2012 | 5825.907 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/3/2012 | 5826.835 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/2/2012 | 5825.087 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 1/1/2012 | 5827.743 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/31/2011 | 5827.858 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/30/2011 | 5827.156 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/29/2011 | 5825.38 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/28/2011 | 5827.158 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/27/2011 | 5825.639 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/26/2011 | 5825.262 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/25/2011 | 5826.81 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/24/2011 | 5826.977 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/23/2011 | 5826.122 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/22/2011 | 5825.049 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/21/2011 | 5827.31 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/20/2011 | 5827.374 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/19/2011 | 5826.785 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/18/2011 | 5827.288 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/17/2011 | 5826.739 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/16/2011 | 5825.909 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/15/2011 | 5825.511 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/14/2011 | 5826.692 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/13/2011 | 5827.693 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/12/2011 | 5827.367 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/11/2011 | 5826.503 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/10/2011 | 5826.708 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/9/2011 | 5827.092 | Transducer | 1013.1 | 1062.2 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-35a | 12/8/2011 | 5826.84 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/7/2011 | 5827.323 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/6/2011 | 5825.433 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/5/2011 | 5826.394 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/4/2011 | 5826.841 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/3/2011 | 5826.968 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/2/2011 | 5826.1 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 12/1/2011 | 5825.819 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/30/2011 | 5825.697 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/29/2011 | 5826.073 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/28/2011 | 5826.304 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/27/2011 | 5825.916 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/26/2011 | 5826.806 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/25/2011 | 5826.691 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/24/2011 | 5826.638 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/23/2011 | 5826.717 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/22/2011 | 5826.563 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/21/2011 | 5827.161 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/20/2011 | 5826.88 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/19/2011 | 5826.688 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/18/2011 | 5825.754 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/17/2011 | 5825.739 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/16/2011 | 5825.409 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/15/2011 | 5825.918 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/14/2011 | 5825.951 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/13/2011 | 5825.548 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/12/2011 | 5826.669 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/11/2011 | 5826.272 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/10/2011 | 5825.02 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/9/2011 | 5824.599 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/8/2011 | 5824.975 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/7/2011 | 5825.779 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/6/2011 | 5825.95 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/5/2011 | 5826.529 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/4/2011 | 5823.2 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/3/2011 | 5823.156 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/2/2011 | 5822.474 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 11/1/2011 | 5822.07 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/31/2011 | 5821.133 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/30/2011 | 5818.675 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/29/2011 | 5825.464 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/28/2011 | 5819.696 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/27/2011 | 5818.959 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/26/2011 | 5819.021 | Transducer | 1013.1 | 1062.2 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-35a | 10/25/2011 | 5818.994 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/24/2011 | 5818.745 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/23/2011 | 5819.942 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/22/2011 | 5820.639 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/21/2011 | 5818.951 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/20/2011 | 5819.896 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/19/2011 | 5818.814 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/18/2011 | 5819.259 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/17/2011 | 5818.675 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/16/2011 | 5819.712 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/15/2011 | 5819.207 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/14/2011 | 5819.297 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/13/2011 | 5819.557 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/12/2011 | 5820.686 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/11/2011 | 5818.765 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/10/2011 | 5818.63 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/9/2011 | 5818.899 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/8/2011 | 5820.322 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/7/2011 | 5821.128 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/6/2011 | 5826.126 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/5/2011 | 5825.266 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/4/2011 | 5818.771 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/3/2011 | 5819.03 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/2/2011 | 5824.277 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 10/1/2011 | 5819.939 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/30/2011 | 5821.147 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/29/2011 | 5819.211 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/28/2011 | 5823.714 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/27/2011 | 5819.457 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/26/2011 | 5817.868 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/25/2011 | 5820.176 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/24/2011 | 5825.719 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/23/2011 | 5825.841 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/22/2011 | 5826.476 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/21/2011 | 5826.249 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/20/2011 | 5820.159 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/19/2011 | 5826.373 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/18/2011 | 5826.221 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/17/2011 | 5825.697 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/16/2011 | 5821.38 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/15/2011 | 5825.649 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/14/2011 | 5824.972 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/13/2011 | 5818.362 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/12/2011 | 5818.265 | Transducer | 1013.1 | 1062.2 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-35a | 9/11/2011 | 5818.797 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/10/2011 | 5824.707 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/9/2011 | 5824.736 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/8/2011 | 5823.25 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/7/2011 | 5815.643 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/6/2011 | 5815.358 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/5/2011 | 5815.175 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/4/2011 | 5815.358 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/3/2011 | 5815.695 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/2/2011 | 5816.438 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 9/1/2011 | 5815.519 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/31/2011 | 5815.686 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/30/2011 | 5815.959 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/29/2011 | 5815.756 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/28/2011 | 5816.98 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/27/2011 | 5815.726 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/26/2011 | 5816.137 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/25/2011 | 5816.726 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/24/2011 | 5818.6 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/24/2011 | 5817.284 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/23/2011 | 5822.35 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/22/2011 | 5815.4 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/21/2011 | 5815.48 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/20/2011 | 5815.32 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/19/2011 | 5815.31 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/18/2011 | 5815.2 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/17/2011 | 5815.31 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/16/2011 | 5815.39 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/15/2011 | 5815.42 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/14/2011 | 5815.37 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/13/2011 | 5815.64 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/12/2011 | 5815.7 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/11/2011 | 5815.81 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/10/2011 | 5815.94 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/9/2011 | 5815.94 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/8/2011 | 5815.53 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/7/2011 | 5816 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/6/2011 | 5816.05 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/5/2011 | 5816.13 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/4/2011 | 5816.1 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/3/2011 | 5816.21 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/2/2011 | 5816.33 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 8/1/2011 | 5816.4 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/31/2011 | 5817.29 | Transducer | 1013.1 | 1062.2 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-35a | 7/30/2011 | 5817 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/29/2011 | 5817.29 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/28/2011 | 5818.33 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/27/2011 | 5819.59 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/26/2011 | 5826.57 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/25/2011 | 5826.32 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/24/2011 | 5826.44 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/23/2011 | 5826.65 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/22/2011 | 5826.88 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/21/2011 | 5826.94 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/20/2011 | 5826.87 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/19/2011 | 5826.65 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/18/2011 | 5826.36 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/17/2011 | 5826.55 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/16/2011 | 5826.95 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/15/2011 | 5827.06 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/14/2011 | 5826.96 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/13/2011 | 5826.8 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/12/2011 | 5826.64 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/11/2011 | 5826.41 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/10/2011 | 5826.62 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/9/2011 | 5826.39 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/8/2011 | 5826.48 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/7/2011 | 5826.64 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/6/2011 | 5826.51 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/5/2011 | 5826.31 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/4/2011 | 5825.25 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/3/2011 | 5820.32 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/2/2011 | 5819.15 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 7/1/2011 | 5817.79 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/30/2011 | 5817.68 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/29/2011 | 5824.61 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/28/2011 | 5821.55 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/27/2011 | 5818.19 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/26/2011 | 5817.27 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/25/2011 | 5818.8 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/24/2011 | 5819.39 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/23/2011 | 5818.37 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/22/2011 | 5818.77 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/21/2011 | 5820.98 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/20/2011 | 5826.38 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/19/2011 | 5826.2 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/18/2011 | 5825.87 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/17/2011 | 5819.3 | Transducer | 1013.1 | 1062.2 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-35a | 6/16/2011 | 5821.26 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/15/2011 | 5819.99 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/14/2011 | 5823.09 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/13/2011 | 5821.54 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/12/2011 | 5820.02 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/11/2011 | 5819.13 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/10/2011 | 5819.83 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/9/2011 | 5819.98 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/8/2011 | 5820.18 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/7/2011 | 5820 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/6/2011 | 5824.25 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/5/2011 | 5822.85 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/4/2011 | 5821.65 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/3/2011 | 5819.93 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/2/2011 | 5819.48 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 6/1/2011 | 5819.08 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/31/2011 | 5818.7 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/30/2011 | 5819.99 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/29/2011 | 5818.48 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/28/2011 | 5819.61 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/27/2011 | 5826.6 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/26/2011 | 5820.5 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/25/2011 | 5823.19 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/24/2011 | 5823.11 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/23/2011 | 5818.92 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/22/2011 | 5820.56 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/21/2011 | 5827.73 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/20/2011 | 5827.5 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/19/2011 | 5827.27 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/18/2011 | 5822.45 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/17/2011 | 5826.76 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/16/2011 | 5820.73 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/15/2011 | 5819.28 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/14/2011 | 5824.13 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/13/2011 | 5821.48 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/12/2011 | 5824.46 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/11/2011 | 5824.98 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/10/2011 | 5827.15 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/9/2011 | 5820.5 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/8/2011 | 5819.62 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/7/2011 | 5826.74 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35a | 5/6/2011 | 5822.58 | Transducer | 1013.1 | 1062.2 | Regional |
| R-35b | 5/22/2013 | 5834.34 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/21/2013 | 5834.31 | Transducer | 825.4 | 848.5 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-35b | 5/20/2013 | 5834.4 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/19/2013 | 5834.41 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/18/2013 | 5834.39 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/17/2013 | 5834.4 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/16/2013 | 5834.37 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/15/2013 | 5834.34 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/14/2013 | 5834.19 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/13/2013 | 5834.13 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/12/2013 | 5834.02 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/11/2013 | 5834.04 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/10/2013 | 5834.21 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/9/2013 | 5834.31 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/8/2013 | 5834.43 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/8/2013 | 5834.32 | Manual | 825.4 | 848.5 | Regional |
| R-35b | 5/8/2013 | 5834.34 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/7/2013 | 5834.36 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/6/2013 | 5834.33 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/5/2013 | 5834.33 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/4/2013 | 5834.41 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/3/2013 | 5834.02 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/2/2013 | 5834.13 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/1/2013 | 5834.56 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/30/2013 | 5834.57 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/29/2013 | 5834.45 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/28/2013 | 5834.29 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/27/2013 | 5834.15 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/26/2013 | 5834.33 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/25/2013 | 5834.26 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/24/2013 | 5834.25 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/23/2013 | 5834.53 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/22/2013 | 5834.31 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/21/2013 | 5834.3 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/20/2013 | 5834.35 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/19/2013 | 5834.15 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/18/2013 | 5834.43 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/17/2013 | 5834.56 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/16/2013 | 5834.55 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/15/2013 | 5834.63 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/14/2013 | 5834.67 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/13/2013 | 5834.4 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/12/2013 | 5834.47 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/11/2013 | 5834.47 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/10/2013 | 5834.55 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/9/2013 | 5834.9 | Transducer | 825.4 | 848.5 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-35b | 4/8/2013 | 5834.65 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/7/2013 | 5834.54 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/6/2013 | 5834.51 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/5/2013 | 5834.33 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/4/2013 | 5834.32 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/3/2013 | 5834.46 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/2/2013 | 5834.51 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/1/2013 | 5834.41 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/31/2013 | 5834.37 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/30/2013 | 5834.29 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/29/2013 | 5834.31 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/28/2013 | 5834.35 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/27/2013 | 5834.42 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/26/2013 | 5834.25 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/25/2013 | 5834.37 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/24/2013 | 5834.39 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/23/2013 | 5834.73 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/22/2013 | 5834.65 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/21/2013 | 5834.58 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/20/2013 | 5834.24 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/19/2013 | 5834.45 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/18/2013 | 5834.61 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/17/2013 | 5834.59 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/16/2013 | 5834.5 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/15/2013 | 5834.24 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/14/2013 | 5834.18 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/13/2013 | 5834.19 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/12/2013 | 5834.36 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/11/2013 | 5834.28 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/10/2013 | 5834.51 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/9/2013 | 5834.71 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/8/2013 | 5834.51 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/7/2013 | 5834.44 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/6/2013 | 5834.26 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/5/2013 | 5834.36 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/4/2013 | 5834.58 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/3/2013 | 5834.24 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/2/2013 | 5834.09 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/1/2013 | 5834.16 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/28/2013 | 5834.18 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/27/2013 | 5834.34 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/26/2013 | 5834.46 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/25/2013 | 5834.57 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/24/2013 | 5834.68 | Transducer | 825.4 | 848.5 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-35b | 2/23/2013 | 5834.45 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/22/2013 | 5834.58 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/21/2013 | 5834.91 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/20/2013 | 5834.7 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/19/2013 | 5834.4 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/18/2013 | 5834.72 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/17/2013 | 5834.34 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/16/2013 | 5834.13 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/15/2013 | 5834.25 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/14/2013 | 5834.36 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/13/2013 | 5834.33 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/12/2013 | 5834.49 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/11/2013 | 5834.51 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/10/2013 | 5834.73 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/9/2013 | 5834.66 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/8/2013 | 5834.33 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/7/2013 | 5834.49 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/6/2013 | 5834.49 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/5/2013 | 5834.48 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/4/2013 | 5834.52 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/3/2013 | 5834.2 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/2/2013 | 5834.21 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/1/2013 | 5834.22 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/31/2013 | 5834.31 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/30/2013 | 5834.59 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/29/2013 | 5834.76 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/28/2013 | 5834.61 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/27/2013 | 5834.63 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/26/2013 | 5834.38 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/25/2013 | 5834.32 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/24/2013 | 5834.25 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/23/2013 | 5834.24 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/22/2013 | 5834.3 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/21/2013 | 5834.28 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/20/2013 | 5834.2 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/19/2013 | 5834.25 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/18/2013 | 5834.08 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/17/2013 | 5834.05 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/16/2013 | 5834.17 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/15/2013 | 5834.43 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/14/2013 | 5834.49 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/13/2013 | 5834.53 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/12/2013 | 5834.62 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/11/2013 | 5834.76 | Transducer | 825.4 | 848.5 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-35b | 1/10/2013 | 5834.33 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/9/2013 | 5834.27 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/8/2013 | 5834.53 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/7/2013 | 5834.38 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/6/2013 | 5834.16 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/5/2013 | 5834.32 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/4/2013 | 5834.21 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/3/2013 | 5834.25 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/2/2013 | 5834.27 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/1/2013 | 5834.44 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/31/2012 | 5834.59 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/30/2012 | 5834.33 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/29/2012 | 5834.25 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/28/2012 | 5834.58 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/27/2012 | 5834.7 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/26/2012 | 5834.41 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/25/2012 | 5834.81 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/24/2012 | 5834.45 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/23/2012 | 5834.36 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/22/2012 | 5834.2 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/21/2012 | 5834.02 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/20/2012 | 5834.21 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/19/2012 | 5834.74 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/18/2012 | 5834.47 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/17/2012 | 5834.41 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/16/2012 | 5834.62 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/15/2012 | 5834.51 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/14/2012 | 5834.5 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/13/2012 | 5834.38 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/12/2012 | 5834.42 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/11/2012 | 5834.5 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/10/2012 | 5834.4 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/9/2012 | 5834.64 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/8/2012 | 5834.58 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/7/2012 | 5834.62 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/6/2012 | 5834.5 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/5/2012 | 5834.23 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/4/2012 | 5834.34 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/3/2012 | 5834.53 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/2/2012 | 5834.4 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/1/2012 | 5834.44 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/30/2012 | 5834.37 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/29/2012 | 5834.35 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/28/2012 | 5834.24 | Transducer | 825.4 | 848.5 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-35b | 11/27/2012 | 5834.25 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/26/2012 | 5834.58 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/26/2012 | 5834.43 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/25/2012 | 5834.49 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/24/2012 | 5834.21 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/23/2012 | 5834.23 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/22/2012 | 5834.44 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/21/2012 | 5834.31 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/20/2012 | 5834.24 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/19/2012 | 5834.33 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/18/2012 | 5834.4 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/17/2012 | 5834.32 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/16/2012 | 5834.18 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/15/2012 | 5834.3 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/14/2012 | 5834.22 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/13/2012 | 5834.2 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/12/2012 | 5834.19 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/11/2012 | 5834.67 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/10/2012 | 5834.73 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/9/2012 | 5834.58 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/8/2012 | 5834.45 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/7/2012 | 5834.29 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/6/2012 | 5834.29 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/5/2012 | 5834.25 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/4/2012 | 5834.28 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/3/2012 | 5834.4 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/2/2012 | 5834.44 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/1/2012 | 5834.32 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/31/2012 | 5834.34 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/30/2012 | 5834.31 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/29/2012 | 5834.3 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/28/2012 | 5834.34 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/27/2012 | 5834.24 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/26/2012 | 5834.29 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/25/2012 | 5834.51 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/24/2012 | 5834.49 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/23/2012 | 5834.46 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/22/2012 | 5834.5 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/21/2012 | 5834.57 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/20/2012 | 5834.47 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/19/2012 | 5834.38 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/18/2012 | 5834.46 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/17/2012 | 5834.65 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/16/2012 | 5834.49 | Transducer | 825.4 | 848.5 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-35b | 10/15/2012 | 5834.28 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/14/2012 | 5834.32 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/13/2012 | 5834.48 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/12/2012 | 5834.38 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/11/2012 | 5834.42 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/10/2012 | 5834.4 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/9/2012 | 5834.49 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/8/2012 | 5834.47 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/7/2012 | 5834.45 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/6/2012 | 5834.49 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/5/2012 | 5834.44 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/4/2012 | 5834.43 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/3/2012 | 5834.54 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/2/2012 | 5834.38 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/1/2012 | 5834.39 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/30/2012 | 5834.4 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/29/2012 | 5834.4 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/28/2012 | 5834.42 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/27/2012 | 5834.46 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/26/2012 | 5834.54 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/25/2012 | 5834.49 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/24/2012 | 5834.4 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/23/2012 | 5834.38 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/22/2012 | 5834.41 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/21/2012 | 5834.45 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/20/2012 | 5834.43 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/19/2012 | 5834.41 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/18/2012 | 5834.41 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/17/2012 | 5834.55 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/16/2012 | 5834.44 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/15/2012 | 5834.27 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/14/2012 | 5834.18 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/13/2012 | 5834.36 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/12/2012 | 5834.52 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/11/2012 | 5834.48 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/10/2012 | 5834.37 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/9/2012 | 5834.3 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/8/2012 | 5834.31 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/7/2012 | 5834.49 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/6/2012 | 5834.46 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/5/2012 | 5834.49 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/4/2012 | 5834.44 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/3/2012 | 5834.46 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/2/2012 | 5834.43 | Transducer | 825.4 | 848.5 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-35b | 9/1/2012 | 5834.42 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/31/2012 | 5834.48 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/30/2012 | 5834.47 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/29/2012 | 5834.37 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/28/2012 | 5834.29 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/27/2012 | 5834.34 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/26/2012 | 5834.48 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/25/2012 | 5834.63 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/24/2012 | 5834.59 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/23/2012 | 5834.51 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/22/2012 | 5834.46 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/21/2012 | 5834.5 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/20/2012 | 5834.49 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/19/2012 | 5834.53 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/18/2012 | 5834.49 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/17/2012 | 5834.42 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/16/2012 | 5834.57 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/15/2012 | 5834.6 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/14/2012 | 5834.52 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/13/2012 | 5834.4 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/12/2012 | 5834.55 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/11/2012 | 5834.55 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/10/2012 | 5834.47 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/9/2012 | 5834.43 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/8/2012 | 5834.48 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/7/2012 | 5834.48 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/6/2012 | 5834.29 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/5/2012 | 5834.38 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/4/2012 | 5834.6 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/3/2012 | 5834.52 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/2/2012 | 5834.55 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/1/2012 | 5834.46 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/31/2012 | 5834.52 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/30/2012 | 5834.53 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/29/2012 | 5834.45 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/28/2012 | 5834.44 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/27/2012 | 5834.37 | Manual | 825.4 | 848.5 | Regional |
| R-35b | 7/27/2012 | 5834.43 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/26/2012 | 5834.57 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/25/2012 | 5834.56 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/24/2012 | 5834.46 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/23/2012 | 5834.43 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/22/2012 | 5834.39 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/21/2012 | 5834.35 | Transducer | 825.4 | 848.5 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-35b | 7/20/2012 | 5834.34 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/19/2012 | 5834.4 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/18/2012 | 5834.53 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/17/2012 | 5834.59 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/16/2012 | 5834.54 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/15/2012 | 5834.5 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/14/2012 | 5834.46 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/13/2012 | 5834.48 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/12/2012 | 5834.45 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/11/2012 | 5834.39 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/10/2012 | 5834.39 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/9/2012 | 5834.39 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/8/2012 | 5834.35 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/7/2012 | 5834.39 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/6/2012 | 5834.46 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/5/2012 | 5834.53 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/4/2012 | 5834.55 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/3/2012 | 5834.54 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/2/2012 | 5834.55 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/1/2012 | 5834.58 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/30/2012 | 5834.55 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/29/2012 | 5834.43 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/28/2012 | 5834.45 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/27/2012 | 5834.56 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/26/2012 | 5834.51 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/25/2012 | 5834.41 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/24/2012 | 5834.49 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/23/2012 | 5834.61 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/22/2012 | 5834.45 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/21/2012 | 5834.52 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/20/2012 | 5834.76 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/19/2012 | 5834.76 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/18/2012 | 5834.7 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/17/2012 | 5834.41 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/16/2012 | 5834.56 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/15/2012 | 5834.69 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/14/2012 | 5834.72 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/13/2012 | 5834.6 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/12/2012 | 5834.48 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/11/2012 | 5834.52 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/11/2012 | 5834.506 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/10/2012 | 5834.697 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/9/2012 | 5834.667 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/8/2012 | 5834.532 | Transducer | 825.4 | 848.5 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-35b | 6/7/2012 | 5834.643 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/6/2012 | 5834.608 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/5/2012 | 5834.526 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/4/2012 | 5834.495 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/3/2012 | 5834.573 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/2/2012 | 5834.608 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/1/2012 | 5834.541 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/31/2012 | 5834.588 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/30/2012 | 5834.568 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/29/2012 | 5834.51 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/28/2012 | 5834.542 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/27/2012 | 5834.661 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/26/2012 | 5834.706 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/25/2012 | 5834.845 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/24/2012 | 5835.008 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/23/2012 | 5834.839 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/22/2012 | 5834.53 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/21/2012 | 5834.412 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/20/2012 | 5834.58 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/19/2012 | 5834.829 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/18/2012 | 5834.848 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/17/2012 | 5834.682 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/16/2012 | 5834.513 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/15/2012 | 5834.467 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/14/2012 | 5834.473 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/13/2012 | 5834.391 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/12/2012 | 5834.455 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/11/2012 | 5834.746 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/10/2012 | 5834.647 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/9/2012 | 5834.489 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/8/2012 | 5834.516 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/7/2012 | 5834.62 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/6/2012 | 5834.686 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/5/2012 | 5834.656 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/4/2012 | 5834.63 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/3/2012 | 5834.7 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/2/2012 | 5834.773 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/1/2012 | 5834.772 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/30/2012 | 5834.664 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/29/2012 | 5834.751 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/28/2012 | 5834.781 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/27/2012 | 5834.831 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/26/2012 | 5834.648 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/25/2012 | 5834.715 | Transducer | 825.4 | 848.5 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-35b | 4/24/2012 | 5834.619 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/23/2012 | 5834.473 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/22/2012 | 5834.52 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/21/2012 | 5834.57 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/20/2012 | 5834.643 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/19/2012 | 5834.727 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/18/2012 | 5834.577 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/17/2012 | 5834.467 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/16/2012 | 5834.601 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/15/2012 | 5834.981 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/14/2012 | 5835.021 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/13/2012 | 5834.809 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/12/2012 | 5834.847 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/11/2012 | 5834.636 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/10/2012 | 5834.586 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/9/2012 | 5834.499 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/8/2012 | 5834.327 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/7/2012 | 5834.573 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/6/2012 | 5834.736 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/5/2012 | 5834.699 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/4/2012 | 5834.668 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/3/2012 | 5834.853 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/2/2012 | 5835.003 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 4/1/2012 | 5834.788 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/31/2012 | 5834.681 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/30/2012 | 5834.699 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/29/2012 | 5834.722 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/28/2012 | 5834.65 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/27/2012 | 5834.677 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/26/2012 | 5834.698 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/25/2012 | 5834.572 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/24/2012 | 5834.578 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/23/2012 | 5834.647 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/22/2012 | 5834.717 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/21/2012 | 5834.706 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/20/2012 | 5835.013 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/19/2012 | 5835.06 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/18/2012 | 5834.95 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/17/2012 | 5834.794 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/16/2012 | 5834.664 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/15/2012 | 5834.603 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/14/2012 | 5834.676 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/13/2012 | 5834.624 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/12/2012 | 5834.784 | Transducer | 825.4 | 848.5 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-35b | 3/11/2012 | 5834.856 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/10/2012 | 5834.51 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/9/2012 | 5834.302 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/8/2012 | 5834.797 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/7/2012 | 5835.032 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/6/2012 | 5834.69 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/6/2012 | 5834.82 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/5/2012 | 5834.472 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/4/2012 | 5834.479 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/3/2012 | 5834.638 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/2/2012 | 5834.925 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 3/1/2012 | 5834.794 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/29/2012 | 5834.677 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/28/2012 | 5834.84 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/27/2012 | 5834.679 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/26/2012 | 5834.816 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/25/2012 | 5834.527 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/24/2012 | 5834.686 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/23/2012 | 5834.939 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/22/2012 | 5834.643 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/21/2012 | 5834.638 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/20/2012 | 5834.978 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/19/2012 | 5834.78 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/18/2012 | 5834.766 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/17/2012 | 5834.676 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/16/2012 | 5834.669 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/15/2012 | 5835.016 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/14/2012 | 5834.943 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/13/2012 | 5835.025 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/12/2012 | 5834.682 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/11/2012 | 5834.659 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/10/2012 | 5834.655 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/9/2012 | 5834.663 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/8/2012 | 5834.544 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/7/2012 | 5834.74 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/6/2012 | 5834.647 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/5/2012 | 5834.5 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/4/2012 | 5834.613 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/3/2012 | 5834.934 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/2/2012 | 5834.752 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 2/1/2012 | 5834.656 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/31/2012 | 5834.807 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/30/2012 | 5834.615 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/29/2012 | 5834.455 | Transducer | 825.4 | 848.5 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-35b | 1/28/2012 | 5834.527 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/27/2012 | 5834.813 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/26/2012 | 5834.626 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/25/2012 | 5834.637 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/24/2012 | 5834.876 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/23/2012 | 5834.71 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/22/2012 | 5835.163 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/21/2012 | 5834.731 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/20/2012 | 5834.88 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/19/2012 | 5834.719 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/18/2012 | 5834.629 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/17/2012 | 5834.845 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/16/2012 | 5834.856 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/15/2012 | 5834.638 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/14/2012 | 5834.556 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/13/2012 | 5834.732 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/12/2012 | 5834.75 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/11/2012 | 5834.879 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/10/2012 | 5834.683 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/9/2012 | 5834.685 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/8/2012 | 5834.947 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/7/2012 | 5834.836 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/6/2012 | 5834.845 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/5/2012 | 5834.499 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/4/2012 | 5834.575 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/3/2012 | 5834.418 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/2/2012 | 5834.311 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 1/1/2012 | 5834.475 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/31/2011 | 5834.744 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/30/2011 | 5834.694 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/29/2011 | 5834.613 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/28/2011 | 5834.643 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/27/2011 | 5834.561 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/26/2011 | 5834.611 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/25/2011 | 5834.414 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/24/2011 | 5834.48 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/23/2011 | 5834.573 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/22/2011 | 5834.868 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/21/2011 | 5834.873 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/20/2011 | 5834.84 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/19/2011 | 5834.963 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/18/2011 | 5834.516 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/17/2011 | 5834.391 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/16/2011 | 5834.541 | Transducer | 825.4 | 848.5 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-35b | 12/15/2011 | 5834.665 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/14/2011 | 5834.891 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/13/2011 | 5834.776 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/12/2011 | 5834.782 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/11/2011 | 5834.627 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/10/2011 | 5834.466 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/9/2011 | 5834.665 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/8/2011 | 5834.689 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/7/2011 | 5834.56 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/6/2011 | 5834.634 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/5/2011 | 5834.801 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/4/2011 | 5834.76 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/3/2011 | 5834.997 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/2/2011 | 5834.639 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 12/1/2011 | 5834.95 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/30/2011 | 5834.6 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/29/2011 | 5834.565 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/28/2011 | 5834.43 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/27/2011 | 5834.313 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/26/2011 | 5834.758 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/25/2011 | 5834.723 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/24/2011 | 5834.538 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/23/2011 | 5834.412 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/22/2011 | 5834.568 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/21/2011 | 5834.653 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/20/2011 | 5834.752 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/19/2011 | 5834.927 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/18/2011 | 5834.724 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/17/2011 | 5834.458 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/16/2011 | 5834.752 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/15/2011 | 5834.787 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/14/2011 | 5834.876 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/13/2011 | 5834.886 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/12/2011 | 5834.84 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/11/2011 | 5834.545 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/10/2011 | 5834.33 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/9/2011 | 5834.482 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/8/2011 | 5834.866 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/7/2011 | 5834.794 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/6/2011 | 5834.868 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/5/2011 | 5835.03 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/4/2011 | 5834.689 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/3/2011 | 5834.448 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 11/2/2011 | 5834.935 | Transducer | 825.4 | 848.5 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-35b | 11/1/2011 | 5834.711 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/31/2011 | 5834.54 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/30/2011 | 5834.638 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/29/2011 | 5834.554 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/28/2011 | 5834.659 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/27/2011 | 5834.813 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/26/2011 | 5834.754 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/25/2011 | 5834.686 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/24/2011 | 5834.567 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/23/2011 | 5834.602 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/22/2011 | 5834.597 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/21/2011 | 5834.609 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/20/2011 | 5834.734 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/19/2011 | 5834.549 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/18/2011 | 5834.616 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/17/2011 | 5834.71 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/16/2011 | 5834.589 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/15/2011 | 5834.605 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/14/2011 | 5834.691 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/13/2011 | 5834.606 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/12/2011 | 5834.74 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/11/2011 | 5834.773 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/10/2011 | 5834.679 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/9/2011 | 5834.717 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/8/2011 | 5834.907 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/7/2011 | 5834.918 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/6/2011 | 5834.997 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/5/2011 | 5834.817 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/4/2011 | 5834.673 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/3/2011 | 5834.644 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/2/2011 | 5834.629 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 10/1/2011 | 5834.624 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/30/2011 | 5834.492 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/29/2011 | 5834.684 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/28/2011 | 5834.626 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/27/2011 | 5834.701 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/26/2011 | 5834.825 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/25/2011 | 5834.804 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/24/2011 | 5834.664 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/23/2011 | 5834.603 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/22/2011 | 5834.73 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/22/2011 | 5834.594 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/21/2011 | 5834.74 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/20/2011 | 5834.73 | Transducer | 825.4 | 848.5 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-35b | 9/19/2011 | 5834.64 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/18/2011 | 5834.71 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/17/2011 | 5834.78 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/16/2011 | 5834.79 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/15/2011 | 5834.76 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/14/2011 | 5834.75 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/13/2011 | 5834.64 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/12/2011 | 5834.59 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/11/2011 | 5834.61 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/10/2011 | 5834.66 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/9/2011 | 5834.62 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/8/2011 | 5834.51 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/7/2011 | 5834.65 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/6/2011 | 5834.66 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/5/2011 | 5834.57 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/4/2011 | 5834.66 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/3/2011 | 5834.78 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/2/2011 | 5834.69 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 9/1/2011 | 5834.72 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/31/2011 | 5834.8 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/30/2011 | 5834.8 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/29/2011 | 5834.78 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/28/2011 | 5834.72 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/27/2011 | 5834.62 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/26/2011 | 5834.63 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/25/2011 | 5834.65 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/24/2011 | 5834.74 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/23/2011 | 5834.72 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/22/2011 | 5834.62 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/21/2011 | 5834.72 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/20/2011 | 5834.79 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/19/2011 | 5834.77 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/18/2011 | 5834.62 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/17/2011 | 5834.66 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/16/2011 | 5834.81 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/15/2011 | 5834.77 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/14/2011 | 5834.61 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/13/2011 | 5834.74 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/12/2011 | 5834.8 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/11/2011 | 5834.82 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/10/2011 | 5834.9 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/9/2011 | 5834.86 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/8/2011 | 5834.87 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/7/2011 | 5834.84 | Transducer | 825.4 | 848.5 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-35b | 8/6/2011 | 5834.81 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/5/2011 | 5834.82 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/4/2011 | 5834.83 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/3/2011 | 5834.8 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/2/2011 | 5834.78 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 8/1/2011 | 5834.7 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/31/2011 | 5834.68 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/30/2011 | 5834.68 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/29/2011 | 5834.78 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/28/2011 | 5834.9 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/27/2011 | 5834.92 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/26/2011 | 5834.86 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/25/2011 | 5834.73 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/24/2011 | 5834.79 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/23/2011 | 5834.9 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/22/2011 | 5834.94 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/21/2011 | 5834.92 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/20/2011 | 5834.87 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/19/2011 | 5834.77 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/18/2011 | 5834.7 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/17/2011 | 5834.79 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/16/2011 | 5834.93 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/15/2011 | 5834.98 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/14/2011 | 5834.95 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/13/2011 | 5834.9 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/12/2011 | 5834.88 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/11/2011 | 5834.87 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/10/2011 | 5834.91 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/9/2011 | 5834.96 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/8/2011 | 5834.92 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/7/2011 | 5834.85 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/6/2011 | 5834.84 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/5/2011 | 5834.84 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/4/2011 | 5834.84 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/3/2011 | 5834.77 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/2/2011 | 5834.85 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 7/1/2011 | 5834.9 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/30/2011 | 5834.89 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/29/2011 | 5834.81 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/28/2011 | 5834.76 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/27/2011 | 5834.93 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/26/2011 | 5834.93 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/25/2011 | 5834.92 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/22/2011 | 5834.89 | Transducer | 825.4 | 848.5 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-35b | 6/21/2011 | 5835.01 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/20/2011 | 5835.18 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/19/2011 | 5835.07 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/18/2011 | 5835.01 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/17/2011 | 5835.16 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/16/2011 | 5835.12 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/15/2011 | 5834.94 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/14/2011 | 5834.97 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/13/2011 | 5835.02 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/12/2011 | 5835.09 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/11/2011 | 5835.01 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/10/2011 | 5835.05 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/9/2011 | 5835.1 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/8/2011 | 5835.07 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/7/2011 | 5835.09 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/6/2011 | 5834.89 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/5/2011 | 5834.75 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/4/2011 | 5834.93 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/3/2011 | 5835.03 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/2/2011 | 5834.94 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 6/1/2011 | 5834.71 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/31/2011 | 5834.81 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/30/2011 | 5835.28 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/29/2011 | 5835.28 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/28/2011 | 5835.18 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/27/2011 | 5835.13 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/26/2011 | 5834.95 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/25/2011 | 5835.06 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/24/2011 | 5835.22 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/23/2011 | 5835.1 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/22/2011 | 5835.06 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/21/2011 | 5835.08 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/20/2011 | 5835.17 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/19/2011 | 5835.37 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/18/2011 | 5835.35 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/17/2011 | 5835.26 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/16/2011 | 5835.09 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/15/2011 | 5835.09 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/14/2011 | 5834.94 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/13/2011 | 5834.91 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/12/2011 | 5835.12 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/11/2011 | 5835.4 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/10/2011 | 5835.38 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/9/2011 | 5835.37 | Transducer | 825.4 | 848.5 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-35b | 5/8/2011 | 5835.27 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/7/2011 | 5835.23 | Transducer | 825.4 | 848.5 | Regional |
| R-35b | 5/6/2011 | 5835.07 | Transducer | 825.4 | 848.5 | Regional |
| R-36 | 5/22/2013 | 5838.67 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/21/2013 | 5838.64 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/20/2013 | 5838.71 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/19/2013 | 5838.74 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/18/2013 | 5838.71 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/17/2013 | 5838.72 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/16/2013 | 5838.68 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/15/2013 | 5838.63 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/14/2013 | 5838.48 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/13/2013 | 5838.42 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/12/2013 | 5838.29 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/11/2013 | 5838.33 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/10/2013 | 5838.5 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/9/2013 | 5838.6 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/8/2013 | 5838.67 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/7/2013 | 5838.58 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/6/2013 | 5838.55 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/5/2013 | 5838.54 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/4/2013 | 5838.61 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/3/2013 | 5838.22 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/2/2013 | 5838.36 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/1/2013 | 5838.77 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/30/2013 | 5838.68 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/30/2013 | 5838.81 | Manual | 766.9 | 789.9 | Regional |
| R-36 | 4/30/2013 | 5838.79 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/29/2013 | 5838.55 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/28/2013 | 5838.38 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/27/2013 | 5838.24 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/26/2013 | 5838.42 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/25/2013 | 5838.35 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/24/2013 | 5838.33 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/23/2013 | 5838.62 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/22/2013 | 5838.39 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/21/2013 | 5838.39 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/20/2013 | 5838.43 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/19/2013 | 5838.26 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/18/2013 | 5838.53 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/17/2013 | 5838.67 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/16/2013 | 5838.67 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/15/2013 | 5838.74 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/14/2013 | 5838.77 | Transducer | 766.9 | 789.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-36 | 4/13/2013 | 5838.52 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/12/2013 | 5838.59 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/11/2013 | 5838.61 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/10/2013 | 5838.7 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/9/2013 | 5839.04 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/8/2013 | 5838.78 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/7/2013 | 5838.66 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/6/2013 | 5838.63 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/5/2013 | 5838.44 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/4/2013 | 5838.43 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/3/2013 | 5838.56 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/2/2013 | 5838.62 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/1/2013 | 5838.54 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/31/2013 | 5838.47 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/30/2013 | 5838.39 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/29/2013 | 5838.4 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/28/2013 | 5838.45 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/27/2013 | 5838.52 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/26/2013 | 5838.36 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/25/2013 | 5838.49 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/24/2013 | 5838.53 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/23/2013 | 5838.86 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/22/2013 | 5838.78 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/21/2013 | 5838.69 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/20/2013 | 5838.38 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/19/2013 | 5838.59 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/18/2013 | 5838.74 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/17/2013 | 5838.72 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/16/2013 | 5838.61 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/15/2013 | 5838.34 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/14/2013 | 5838.29 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/13/2013 | 5838.3 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/12/2013 | 5838.48 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/11/2013 | 5838.43 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/10/2013 | 5838.64 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/9/2013 | 5838.84 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/8/2013 | 5838.63 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/7/2013 | 5838.56 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/6/2013 | 5838.39 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/5/2013 | 5838.48 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/4/2013 | 5838.68 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/3/2013 | 5838.34 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/2/2013 | 5838.2 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/1/2013 | 5838.27 | Transducer | 766.9 | 789.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-36 | 2/28/2013 | 5838.32 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/27/2013 | 5838.48 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/26/2013 | 5838.62 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/25/2013 | 5838.71 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/24/2013 | 5838.83 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/23/2013 | 5838.61 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/22/2013 | 5838.76 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/21/2013 | 5839.07 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/20/2013 | 5838.85 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/19/2013 | 5838.56 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/18/2013 | 5838.86 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/17/2013 | 5838.47 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/16/2013 | 5838.27 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/15/2013 | 5838.41 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/14/2013 | 5838.53 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/13/2013 | 5838.5 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/12/2013 | 5838.68 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/11/2013 | 5838.71 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/10/2013 | 5838.91 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/9/2013 | 5838.84 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/8/2013 | 5838.51 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/7/2013 | 5838.68 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/6/2013 | 5838.67 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/5/2013 | 5838.65 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/4/2013 | 5838.68 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/3/2013 | 5838.36 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/2/2013 | 5838.39 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/1/2013 | 5838.42 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/31/2013 | 5838.53 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/30/2013 | 5838.81 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/29/2013 | 5838.97 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/28/2013 | 5838.8 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/27/2013 | 5838.8 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/26/2013 | 5838.55 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/25/2013 | 5838.49 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/24/2013 | 5838.42 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/23/2013 | 5838.41 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/22/2013 | 5838.46 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/21/2013 | 5838.44 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/20/2013 | 5838.35 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/19/2013 | 5838.41 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/18/2013 | 5838.25 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/17/2013 | 5838.23 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/16/2013 | 5838.36 | Transducer | 766.9 | 789.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-36 | 1/15/2013 | 5838.63 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/14/2013 | 5838.7 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/13/2013 | 5838.74 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/12/2013 | 5838.82 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/11/2013 | 5838.95 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/10/2013 | 5838.52 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/9/2013 | 5838.45 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/8/2013 | 5838.72 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/7/2013 | 5838.55 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/6/2013 | 5838.32 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/5/2013 | 5838.48 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/4/2013 | 5838.37 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/3/2013 | 5838.42 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/2/2013 | 5838.44 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/1/2013 | 5838.62 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/31/2012 | 5838.77 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/30/2012 | 5838.52 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/29/2012 | 5838.46 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/28/2012 | 5838.79 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/27/2012 | 5838.91 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/26/2012 | 5838.62 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/25/2012 | 5839 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/24/2012 | 5838.63 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/23/2012 | 5838.53 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/22/2012 | 5838.38 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/21/2012 | 5838.22 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/20/2012 | 5838.43 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/19/2012 | 5838.94 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/18/2012 | 5838.68 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/17/2012 | 5838.63 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/16/2012 | 5838.84 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/15/2012 | 5838.73 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/14/2012 | 5838.72 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/13/2012 | 5838.61 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/12/2012 | 5838.65 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/11/2012 | 5838.74 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/10/2012 | 5838.65 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/9/2012 | 5838.89 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/8/2012 | 5838.82 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/7/2012 | 5838.84 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/6/2012 | 5838.73 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/5/2012 | 5838.46 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/4/2012 | 5838.57 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/3/2012 | 5838.76 | Transducer | 766.9 | 789.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-36 | 12/2/2012 | 5838.63 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/1/2012 | 5838.67 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/30/2012 | 5838.6 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/29/2012 | 5838.58 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/28/2012 | 5838.47 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/27/2012 | 5838.48 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/26/2012 | 5838.66 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/26/2012 | 5838.8 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/25/2012 | 5838.7 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/24/2012 | 5838.42 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/23/2012 | 5838.46 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/22/2012 | 5838.66 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/21/2012 | 5838.54 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/20/2012 | 5838.46 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/19/2012 | 5838.56 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/18/2012 | 5838.62 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/17/2012 | 5838.54 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/16/2012 | 5838.4 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/15/2012 | 5838.52 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/14/2012 | 5838.43 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/13/2012 | 5838.42 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/12/2012 | 5838.45 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/11/2012 | 5838.92 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/10/2012 | 5838.95 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/9/2012 | 5838.8 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/8/2012 | 5838.67 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/7/2012 | 5838.5 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/6/2012 | 5838.52 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/5/2012 | 5838.47 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/4/2012 | 5838.51 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/3/2012 | 5838.62 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/2/2012 | 5838.66 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/1/2012 | 5838.54 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/31/2012 | 5838.56 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/30/2012 | 5838.53 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/29/2012 | 5838.52 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/28/2012 | 5838.57 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/27/2012 | 5838.47 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/26/2012 | 5838.54 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/25/2012 | 5838.76 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/24/2012 | 5838.73 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/23/2012 | 5838.71 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/22/2012 | 5838.76 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/21/2012 | 5838.81 | Transducer | 766.9 | 789.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-36 | 10/20/2012 | 5838.71 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/19/2012 | 5838.62 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/18/2012 | 5838.71 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/17/2012 | 5838.88 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/16/2012 | 5838.71 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/15/2012 | 5838.52 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/14/2012 | 5838.56 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/13/2012 | 5838.72 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/12/2012 | 5838.62 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/11/2012 | 5838.67 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/10/2012 | 5838.64 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/9/2012 | 5838.73 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/8/2012 | 5838.71 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/7/2012 | 5838.7 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/6/2012 | 5838.74 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/5/2012 | 5838.69 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/4/2012 | 5838.68 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/3/2012 | 5838.78 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/2/2012 | 5838.61 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/1/2012 | 5838.64 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/30/2012 | 5838.64 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/29/2012 | 5838.64 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/28/2012 | 5838.67 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/27/2012 | 5838.7 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/26/2012 | 5838.79 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/25/2012 | 5838.73 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/24/2012 | 5838.65 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/23/2012 | 5838.62 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/22/2012 | 5838.66 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/21/2012 | 5838.69 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/20/2012 | 5838.67 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/19/2012 | 5838.66 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/18/2012 | 5838.65 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/17/2012 | 5838.77 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/16/2012 | 5838.66 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/15/2012 | 5838.48 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/14/2012 | 5838.41 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/13/2012 | 5838.59 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/12/2012 | 5838.74 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/11/2012 | 5838.71 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/10/2012 | 5838.6 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/9/2012 | 5838.52 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/8/2012 | 5838.53 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/7/2012 | 5838.72 | Transducer | 766.9 | 789.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-36 | 9/6/2012 | 5838.69 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/5/2012 | 5838.73 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/4/2012 | 5838.66 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/3/2012 | 5838.69 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/2/2012 | 5838.66 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/1/2012 | 5838.65 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/31/2012 | 5838.7 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/30/2012 | 5838.68 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/29/2012 | 5838.58 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/28/2012 | 5838.51 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/27/2012 | 5838.57 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/26/2012 | 5838.71 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/25/2012 | 5838.83 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/24/2012 | 5838.8 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/23/2012 | 5838.72 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/22/2012 | 5838.68 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/21/2012 | 5838.72 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/20/2012 | 5838.71 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/19/2012 | 5838.74 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/18/2012 | 5838.7 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/17/2012 | 5838.65 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/16/2012 | 5838.79 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/15/2012 | 5838.81 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/14/2012 | 5838.72 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/13/2012 | 5838.62 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/12/2012 | 5838.76 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/11/2012 | 5838.74 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/10/2012 | 5838.67 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/9/2012 | 5838.62 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/8/2012 | 5838.66 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/7/2012 | 5838.66 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/6/2012 | 5838.48 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/5/2012 | 5838.58 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/4/2012 | 5838.78 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/3/2012 | 5838.7 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/2/2012 | 5838.73 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/1/2012 | 5838.65 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/31/2012 | 5838.71 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/30/2012 | 5838.7 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/29/2012 | 5838.63 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/28/2012 | 5838.62 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/27/2012 | 5838.68 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/26/2012 | 5838.81 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/25/2012 | 5838.81 | Transducer | 766.9 | 789.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-36 | 7/24/2012 | 5838.69 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/23/2012 | 5838.65 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/22/2012 | 5838.63 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/21/2012 | 5838.59 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/20/2012 | 5838.58 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/19/2012 | 5838.64 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/18/2012 | 5838.77 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/17/2012 | 5838.82 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/16/2012 | 5838.76 | Manual | 766.9 | 789.9 | Regional |
| R-36 | 7/16/2012 | 5838.78 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/15/2012 | 5838.73 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/14/2012 | 5838.69 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/13/2012 | 5838.69 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/12/2012 | 5838.67 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/11/2012 | 5838.61 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/10/2012 | 5838.6 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/9/2012 | 5838.6 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/8/2012 | 5838.56 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/7/2012 | 5838.61 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/6/2012 | 5838.68 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/5/2012 | 5838.75 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/4/2012 | 5838.76 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/3/2012 | 5838.75 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/2/2012 | 5838.76 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/1/2012 | 5838.79 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/30/2012 | 5838.76 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/29/2012 | 5838.62 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/28/2012 | 5838.65 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/27/2012 | 5838.76 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/26/2012 | 5838.7 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/25/2012 | 5838.61 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/24/2012 | 5838.68 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/23/2012 | 5838.79 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/22/2012 | 5838.64 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/21/2012 | 5838.71 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/20/2012 | 5838.94 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/19/2012 | 5838.93 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/18/2012 | 5838.87 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/17/2012 | 5838.58 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/16/2012 | 5838.74 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/15/2012 | 5838.86 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/14/2012 | 5838.87 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/13/2012 | 5838.76 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/12/2012 | 5838.64 | Transducer | 766.9 | 789.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-36 | 6/11/2012 | 5838.65 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/10/2012 | 5838.95 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/9/2012 | 5838.9 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/8/2012 | 5838.78 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/7/2012 | 5838.88 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/6/2012 | 5838.84 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/6/2012 | 5838.639 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/5/2012 | 5838.547 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/4/2012 | 5838.521 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/3/2012 | 5838.606 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/2/2012 | 5838.63 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/1/2012 | 5838.564 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/31/2012 | 5838.613 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/30/2012 | 5838.589 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/29/2012 | 5838.535 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/28/2012 | 5838.574 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/27/2012 | 5838.7 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/26/2012 | 5838.747 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/25/2012 | 5838.88 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/24/2012 | 5839.021 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/23/2012 | 5838.839 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/22/2012 | 5838.54 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/21/2012 | 5838.429 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/20/2012 | 5838.602 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/19/2012 | 5838.836 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/18/2012 | 5838.842 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/17/2012 | 5838.653 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/16/2012 | 5838.482 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/15/2012 | 5838.448 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/14/2012 | 5838.447 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/13/2012 | 5838.373 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/12/2012 | 5838.44 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/11/2012 | 5838.737 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/10/2012 | 5838.627 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/9/2012 | 5838.471 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/8/2012 | 5838.504 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/7/2012 | 5838.609 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/6/2012 | 5838.669 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/5/2012 | 5838.632 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/4/2012 | 5838.611 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/3/2012 | 5838.684 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/2/2012 | 5838.766 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/1/2012 | 5838.752 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/30/2012 | 5838.642 | Transducer | 766.9 | 789.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-36 | 4/29/2012 | 5838.73 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/28/2012 | 5838.755 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/27/2012 | 5838.794 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/26/2012 | 5838.596 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/25/2012 | 5838.658 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/24/2012 | 5838.563 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/23/2012 | 5838.419 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/22/2012 | 5838.461 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/21/2012 | 5838.511 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/20/2012 | 5838.588 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/19/2012 | 5838.667 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/18/2012 | 5838.519 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/17/2012 | 5838.437 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/16/2012 | 5838.583 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/15/2012 | 5838.948 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/14/2012 | 5838.979 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/13/2012 | 5838.765 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/12/2012 | 5838.792 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/11/2012 | 5838.58 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/10/2012 | 5838.524 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/9/2012 | 5838.441 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/8/2012 | 5838.269 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/7/2012 | 5838.53 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/6/2012 | 5838.698 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/5/2012 | 5838.679 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/4/2012 | 5838.646 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/3/2012 | 5838.834 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/2/2012 | 5838.977 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 4/1/2012 | 5838.752 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/31/2012 | 5838.639 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/30/2012 | 5838.661 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/29/2012 | 5838.676 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/28/2012 | 5838.602 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/27/2012 | 5838.637 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/26/2012 | 5838.661 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/25/2012 | 5838.524 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/24/2012 | 5838.533 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/23/2012 | 5838.622 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/22/2012 | 5838.699 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/21/2012 | 5838.706 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/20/2012 | 5839.016 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/19/2012 | 5839.041 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/18/2012 | 5838.93 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/17/2012 | 5838.765 | Transducer | 766.9 | 789.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-36 | 3/16/2012 | 5838.63 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/15/2012 | 5838.58 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/14/2012 | 5838.654 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/13/2012 | 5838.604 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/12/2012 | 5838.763 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/11/2012 | 5838.825 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/10/2012 | 5838.477 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/9/2012 | 5838.287 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/8/2012 | 5838.792 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/7/2012 | 5839.005 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/6/2012 | 5838.788 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/6/2012 | 5838.657 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/5/2012 | 5838.458 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/4/2012 | 5838.465 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/3/2012 | 5838.641 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/2/2012 | 5838.914 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 3/1/2012 | 5838.782 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/29/2012 | 5838.666 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/28/2012 | 5838.831 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/27/2012 | 5838.669 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/26/2012 | 5838.8 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/25/2012 | 5838.518 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/24/2012 | 5838.687 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/23/2012 | 5838.93 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/22/2012 | 5838.643 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/21/2012 | 5838.642 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/20/2012 | 5838.973 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/19/2012 | 5838.775 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/18/2012 | 5838.776 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/17/2012 | 5838.695 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/16/2012 | 5838.706 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/15/2012 | 5839.046 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/14/2012 | 5838.973 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/13/2012 | 5839.043 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/12/2012 | 5838.685 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/11/2012 | 5838.664 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/10/2012 | 5838.661 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/9/2012 | 5838.665 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/8/2012 | 5838.551 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/7/2012 | 5838.75 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/6/2012 | 5838.653 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/5/2012 | 5838.516 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/4/2012 | 5838.637 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/3/2012 | 5838.958 | Transducer | 766.9 | 789.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-36 | 2/2/2012 | 5838.762 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 2/1/2012 | 5838.663 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/31/2012 | 5838.809 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/30/2012 | 5838.61 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/29/2012 | 5838.457 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/28/2012 | 5838.54 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/27/2012 | 5838.811 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/26/2012 | 5838.649 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/25/2012 | 5838.674 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/24/2012 | 5838.92 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/23/2012 | 5838.765 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/22/2012 | 5839.205 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/21/2012 | 5838.776 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/20/2012 | 5838.93 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/19/2012 | 5838.762 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/18/2012 | 5838.677 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/17/2012 | 5838.896 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/16/2012 | 5838.895 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/15/2012 | 5838.678 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/14/2012 | 5838.612 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/13/2012 | 5838.802 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/12/2012 | 5838.822 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/11/2012 | 5838.942 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/10/2012 | 5838.755 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/9/2012 | 5838.767 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/8/2012 | 5839.019 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/7/2012 | 5838.902 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/6/2012 | 5838.895 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/5/2012 | 5838.541 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/4/2012 | 5838.624 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/3/2012 | 5838.467 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/2/2012 | 5838.381 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 1/1/2012 | 5838.541 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/31/2011 | 5838.815 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/30/2011 | 5838.77 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/29/2011 | 5838.678 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/28/2011 | 5838.709 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/27/2011 | 5838.623 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/26/2011 | 5838.664 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/25/2011 | 5838.483 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/24/2011 | 5838.556 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/23/2011 | 5838.665 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/22/2011 | 5838.976 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/21/2011 | 5838.972 | Transducer | 766.9 | 789.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-36 | 12/20/2011 | 5838.924 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/19/2011 | 5839.032 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/18/2011 | 5838.581 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/17/2011 | 5838.47 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/16/2011 | 5838.631 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/15/2011 | 5838.758 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/14/2011 | 5838.986 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/13/2011 | 5838.87 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/12/2011 | 5838.866 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/11/2011 | 5838.709 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/10/2011 | 5838.563 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/9/2011 | 5838.755 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/8/2011 | 5838.786 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/7/2011 | 5838.657 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/6/2011 | 5838.741 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/5/2011 | 5838.924 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/4/2011 | 5838.888 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/3/2011 | 5839.114 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/2/2011 | 5838.75 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 12/1/2011 | 5839.049 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/30/2011 | 5838.687 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/29/2011 | 5838.656 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/28/2011 | 5838.53 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/27/2011 | 5838.417 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/26/2011 | 5838.868 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/25/2011 | 5838.825 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/24/2011 | 5838.642 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/23/2011 | 5838.519 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/22/2011 | 5838.682 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/21/2011 | 5838.787 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/20/2011 | 5838.884 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/19/2011 | 5839.059 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/18/2011 | 5838.851 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/17/2011 | 5838.599 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/16/2011 | 5838.898 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/15/2011 | 5838.938 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/14/2011 | 5839.006 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/13/2011 | 5839.015 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/12/2011 | 5838.959 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/11/2011 | 5838.658 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/10/2011 | 5838.463 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/9/2011 | 5838.644 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/8/2011 | 5839.023 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/7/2011 | 5838.953 | Transducer | 766.9 | 789.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-36 | 11/6/2011 | 5839.034 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/5/2011 | 5839.177 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/4/2011 | 5838.84 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/3/2011 | 5838.606 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/2/2011 | 5839.084 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 11/1/2011 | 5838.858 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/31/2011 | 5838.699 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/30/2011 | 5838.806 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/29/2011 | 5838.707 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/28/2011 | 5838.827 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/27/2011 | 5838.986 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/26/2011 | 5838.919 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/25/2011 | 5838.84 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/24/2011 | 5838.73 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/23/2011 | 5838.763 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/22/2011 | 5838.763 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/21/2011 | 5838.778 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/20/2011 | 5838.899 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/19/2011 | 5838.715 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/18/2011 | 5838.78 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/17/2011 | 5838.866 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/16/2011 | 5838.758 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/15/2011 | 5838.78 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/14/2011 | 5838.857 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/13/2011 | 5838.776 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/12/2011 | 5838.918 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/11/2011 | 5838.95 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/10/2011 | 5838.869 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/9/2011 | 5838.912 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/8/2011 | 5839.096 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/7/2011 | 5839.108 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/6/2011 | 5839.159 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/5/2011 | 5838.979 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/4/2011 | 5838.843 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/3/2011 | 5838.808 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/2/2011 | 5838.785 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 10/1/2011 | 5838.782 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/30/2011 | 5838.668 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/29/2011 | 5838.865 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/28/2011 | 5838.796 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/27/2011 | 5838.887 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/26/2011 | 5839.006 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/25/2011 | 5838.968 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/24/2011 | 5838.82 | Transducer | 766.9 | 789.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-36 | 9/23/2011 | 5838.772 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/22/2011 | 5838.886 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/21/2011 | 5838.898 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/20/2011 | 5838.889 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/19/2011 | 5838.795 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/18/2011 | 5838.873 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/17/2011 | 5838.942 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/16/2011 | 5838.963 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/15/2011 | 5838.926 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/14/2011 | 5838.898 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/13/2011 | 5838.808 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/12/2011 | 5838.754 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/11/2011 | 5838.784 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/10/2011 | 5838.813 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/9/2011 | 5838.779 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/8/2011 | 5838.67 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/7/2011 | 5838.832 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/6/2011 | 5838.833 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/5/2011 | 5838.754 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/4/2011 | 5838.84 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/3/2011 | 5838.958 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/2/2011 | 5838.871 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 9/1/2011 | 5838.902 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/31/2011 | 5838.977 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/30/2011 | 5838.968 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/29/2011 | 5838.937 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/28/2011 | 5838.864 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/27/2011 | 5838.777 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/26/2011 | 5838.783 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/25/2011 | 5838.809 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/24/2011 | 5838.89 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/24/2011 | 5838.895 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/23/2011 | 5838.86 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/22/2011 | 5838.78 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/21/2011 | 5838.86 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/20/2011 | 5838.94 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/19/2011 | 5838.9 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/18/2011 | 5838.76 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/17/2011 | 5838.81 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/16/2011 | 5838.94 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/15/2011 | 5838.9 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/14/2011 | 5838.75 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/13/2011 | 5838.89 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/12/2011 | 5838.95 | Transducer | 766.9 | 789.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-36 | 8/11/2011 | 5838.96 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/10/2011 | 5839.03 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/9/2011 | 5838.99 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/8/2011 | 5839 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/7/2011 | 5838.96 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/6/2011 | 5838.92 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/5/2011 | 5838.94 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/4/2011 | 5838.93 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/3/2011 | 5838.9 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/2/2011 | 5838.87 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 8/1/2011 | 5838.79 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/31/2011 | 5838.77 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/30/2011 | 5838.78 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/29/2011 | 5838.88 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/28/2011 | 5838.98 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/27/2011 | 5839 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/26/2011 | 5838.93 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/25/2011 | 5838.81 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/24/2011 | 5838.87 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/23/2011 | 5838.97 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/22/2011 | 5839 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/21/2011 | 5838.98 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/20/2011 | 5838.92 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/19/2011 | 5838.82 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/18/2011 | 5838.76 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/17/2011 | 5838.85 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/16/2011 | 5838.99 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/15/2011 | 5839.03 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/14/2011 | 5839 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/13/2011 | 5838.95 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/12/2011 | 5838.92 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/11/2011 | 5838.94 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/10/2011 | 5838.96 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/9/2011 | 5839.01 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/8/2011 | 5838.95 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/7/2011 | 5838.89 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/6/2011 | 5838.87 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/5/2011 | 5838.87 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/4/2011 | 5838.86 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/3/2011 | 5838.81 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/2/2011 | 5838.88 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 7/1/2011 | 5838.93 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/30/2011 | 5838.92 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/29/2011 | 5838.83 | Transducer | 766.9 | 789.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-36 | 6/28/2011 | 5838.8 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/27/2011 | 5838.96 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/26/2011 | 5838.97 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/25/2011 | 5839.01 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/24/2011 | 5839 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/23/2011 | 5838.9 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/22/2011 | 5838.92 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/21/2011 | 5839.04 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/20/2011 | 5839.19 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/19/2011 | 5839.08 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/18/2011 | 5839.02 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/17/2011 | 5839.16 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/16/2011 | 5839.11 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/15/2011 | 5838.94 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/14/2011 | 5838.97 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/13/2011 | 5839.01 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/12/2011 | 5839.08 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/11/2011 | 5839.01 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/10/2011 | 5839.03 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/9/2011 | 5839.07 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/8/2011 | 5839.05 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/7/2011 | 5839.05 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/6/2011 | 5838.83 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/5/2011 | 5838.71 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/4/2011 | 5838.89 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/3/2011 | 5838.98 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/2/2011 | 5838.89 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 6/1/2011 | 5838.68 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/31/2011 | 5838.78 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/30/2011 | 5839.26 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/29/2011 | 5839.24 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/28/2011 | 5839.13 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/27/2011 | 5839.06 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/26/2011 | 5838.89 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/25/2011 | 5839 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/24/2011 | 5839.16 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/23/2011 | 5839.04 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/22/2011 | 5839.01 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/21/2011 | 5839.03 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/20/2011 | 5839.12 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/19/2011 | 5839.31 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/18/2011 | 5839.28 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/17/2011 | 5839.18 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/16/2011 | 5839.01 | Transducer | 766.9 | 789.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-36 | 5/15/2011 | 5839.01 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/14/2011 | 5838.86 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/13/2011 | 5838.86 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/12/2011 | 5839.07 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/11/2011 | 5839.33 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/10/2011 | 5839.3 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/9/2011 | 5839.3 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/8/2011 | 5839.17 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/7/2011 | 5839.11 | Transducer | 766.9 | 789.9 | Regional |
| R-36 | 5/6/2011 | 5838.94 | Transducer | 766.9 | 789.9 | Regional |
| R-42 | 5/22/2013 | 5837.7 | Manual | 931.8 | 952.9 | Regional |
| R-42 | 5/15/2013 | 5837.53 | Manual | 931.8 | 952.9 | Regional |
| R-42 | 5/15/2013 | 5837.5 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/14/2013 | 5837.35 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/13/2013 | 5837.29 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/12/2013 | 5837.2 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/11/2013 | 5837.24 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/10/2013 | 5837.42 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/9/2013 | 5837.51 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/8/2013 | 5837.58 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/7/2013 | 5837.49 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/6/2013 | 5837.46 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/5/2013 | 5837.45 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/4/2013 | 5837.53 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/3/2013 | 5837.17 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/2/2013 | 5837.3 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/1/2013 | 5837.71 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/30/2013 | 5837.7 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/29/2013 | 5837.58 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/28/2013 | 5837.42 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/27/2013 | 5837.28 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/26/2013 | 5837.47 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/25/2013 | 5837.4 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/24/2013 | 5837.37 | Manual | 931.8 | 952.9 | Regional |
| R-42 | 4/24/2013 | 5837.28 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/23/2013 | 5837.55 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/22/2013 | 5837.35 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/21/2013 | 5837.34 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/20/2013 | 5837.4 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/19/2013 | 5837.22 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/18/2013 | 5837.52 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/17/2013 | 5837.64 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/16/2013 | 5837.63 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/15/2013 | 5837.7 | Transducer | 931.8 | 952.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-42 | 4/14/2013 | 5837.73 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/13/2013 | 5837.47 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/12/2013 | 5837.54 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/11/2013 | 5837.57 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/10/2013 | 5837.63 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/9/2013 | 5837.96 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/8/2013 | 5837.68 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/7/2013 | 5837.55 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/6/2013 | 5837.51 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/5/2013 | 5837.33 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/4/2013 | 5837.32 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/3/2013 | 5837.46 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/2/2013 | 5837.5 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/1/2013 | 5837.41 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/31/2013 | 5837.36 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/30/2013 | 5837.28 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/29/2013 | 5837.31 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/28/2013 | 5837.35 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/27/2013 | 5837.44 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/26/2013 | 5837.29 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/25/2013 | 5837.42 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/24/2013 | 5837.45 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/23/2013 | 5837.76 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/22/2013 | 5837.67 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/21/2013 | 5837.57 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/20/2013 | 5837.25 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/19/2013 | 5837.46 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/18/2013 | 5837.6 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/17/2013 | 5837.57 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/16/2013 | 5837.46 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/15/2013 | 5837.2 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/14/2013 | 5837.15 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/13/2013 | 5837.1 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/13/2013 | 5837.18 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/12/2013 | 5837.36 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/11/2013 | 5837.31 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/10/2013 | 5837.51 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/9/2013 | 5837.69 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/8/2013 | 5837.47 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/7/2013 | 5837.4 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/6/2013 | 5837.24 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/5/2013 | 5837.31 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/4/2013 | 5837.52 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/3/2013 | 5837.2 | Transducer | 931.8 | 952.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-42 | 3/2/2013 | 5837.07 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/1/2013 | 5837.16 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/28/2013 | 5837.22 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/27/2013 | 5837.39 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/26/2013 | 5837.52 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/25/2013 | 5837.62 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/24/2013 | 5837.72 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/23/2013 | 5837.5 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/22/2013 | 5837.63 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/21/2013 | 5837.93 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/20/2013 | 5837.69 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/19/2013 | 5837.39 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/18/2013 | 5837.68 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/17/2013 | 5837.31 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/16/2013 | 5837.12 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/15/2013 | 5837.26 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/14/2013 | 5837.38 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/13/2013 | 5837.37 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/12/2013 | 5837.54 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/11/2013 | 5837.56 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/10/2013 | 5837.76 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/9/2013 | 5837.67 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/8/2013 | 5837.33 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/7/2013 | 5837.49 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/6/2013 | 5837.48 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/5/2013 | 5837.45 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/4/2013 | 5837.49 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/3/2013 | 5837.18 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/2/2013 | 5837.21 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/1/2013 | 5837.25 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/31/2013 | 5837.35 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/30/2013 | 5837.63 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/29/2013 | 5837.77 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/28/2013 | 5837.58 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/27/2013 | 5837.57 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/26/2013 | 5837.31 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/25/2013 | 5837.25 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/24/2013 | 5837.18 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/23/2013 | 5837.18 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/22/2013 | 5837.23 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/21/2013 | 5837.21 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/20/2013 | 5837.14 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/19/2013 | 5837.21 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/18/2013 | 5837.06 | Transducer | 931.8 | 952.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-42 | 1/17/2013 | 5837.06 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/16/2013 | 5837.21 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/15/2013 | 5837.48 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/14/2013 | 5837.54 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/13/2013 | 5837.57 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/12/2013 | 5837.63 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/11/2013 | 5837.74 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/10/2013 | 5837.31 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/9/2013 | 5837.23 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/8/2013 | 5837.5 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/7/2013 | 5837.34 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/6/2013 | 5837.12 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/5/2013 | 5837.29 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/4/2013 | 5837.2 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/3/2013 | 5837.25 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/2/2013 | 5837.28 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/1/2013 | 5837.45 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/31/2012 | 5837.61 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/30/2012 | 5837.36 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/29/2012 | 5837.31 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/28/2012 | 5837.62 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/27/2012 | 5837.73 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/26/2012 | 5837.44 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/25/2012 | 5837.8 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/24/2012 | 5837.43 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/23/2012 | 5837.34 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/22/2012 | 5837.21 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/21/2012 | 5837.07 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/20/2012 | 5837.27 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/19/2012 | 5837.79 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/18/2012 | 5837.52 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/17/2012 | 5837.47 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/16/2012 | 5837.68 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/15/2012 | 5837.55 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/14/2012 | 5837.54 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/13/2012 | 5837.42 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/12/2012 | 5837.47 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/11/2012 | 5837.57 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/10/2012 | 5837.46 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/9/2012 | 5837.68 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/8/2012 | 5837.6 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/7/2012 | 5837.61 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/6/2012 | 5837.5 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/5/2012 | 5837.24 | Transducer | 931.8 | 952.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-42 | 12/4/2012 | 5837.33 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/3/2012 | 5837.49 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/3/2012 | 5837.54 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/2/2012 | 5837.4 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/1/2012 | 5837.44 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/30/2012 | 5837.36 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/29/2012 | 5837.34 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/28/2012 | 5837.23 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/27/2012 | 5837.25 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/26/2012 | 5837.55 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/25/2012 | 5837.46 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/24/2012 | 5837.18 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/23/2012 | 5837.21 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/22/2012 | 5837.42 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/21/2012 | 5837.3 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/20/2012 | 5837.23 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/19/2012 | 5837.33 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/18/2012 | 5837.39 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/17/2012 | 5837.31 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/16/2012 | 5837.18 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/15/2012 | 5837.31 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/14/2012 | 5837.24 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/13/2012 | 5837.24 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/12/2012 | 5837.26 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/11/2012 | 5837.73 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/10/2012 | 5837.74 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/9/2012 | 5837.58 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/8/2012 | 5837.44 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/7/2012 | 5837.28 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/6/2012 | 5837.3 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/5/2012 | 5837.27 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/4/2012 | 5837.31 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/3/2012 | 5837.42 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/2/2012 | 5837.46 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/1/2012 | 5837.34 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/31/2012 | 5837.37 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/30/2012 | 5837.35 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/29/2012 | 5837.35 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/28/2012 | 5837.41 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/27/2012 | 5837.32 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/26/2012 | 5837.39 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/25/2012 | 5837.61 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/24/2012 | 5837.58 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/23/2012 | 5837.56 | Transducer | 931.8 | 952.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-42 | 10/22/2012 | 5837.6 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/21/2012 | 5837.65 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/20/2012 | 5837.56 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/19/2012 | 5837.48 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/18/2012 | 5837.56 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/17/2012 | 5837.72 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/16/2012 | 5837.56 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/15/2012 | 5837.36 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/14/2012 | 5837.41 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/13/2012 | 5837.57 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/12/2012 | 5837.47 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/11/2012 | 5837.52 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/10/2012 | 5837.5 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/9/2012 | 5837.58 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/8/2012 | 5837.56 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/7/2012 | 5837.55 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/6/2012 | 5837.59 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/5/2012 | 5837.54 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/4/2012 | 5837.52 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/3/2012 | 5837.6 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/2/2012 | 5837.47 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/1/2012 | 5837.48 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/30/2012 | 5837.49 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/29/2012 | 5837.5 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/28/2012 | 5837.52 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/27/2012 | 5837.56 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/26/2012 | 5837.65 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/25/2012 | 5837.58 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/24/2012 | 5837.49 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/23/2012 | 5837.47 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/22/2012 | 5837.5 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/21/2012 | 5837.54 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/20/2012 | 5837.52 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/19/2012 | 5837.51 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/18/2012 | 5837.51 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/17/2012 | 5837.63 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/16/2012 | 5837.5 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/15/2012 | 5837.35 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/14/2012 | 5837.28 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/13/2012 | 5837.47 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/12/2012 | 5837.6 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/11/2012 | 5837.58 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/10/2012 | 5837.49 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/10/2012 | 5837.463 | Transducer | 931.8 | 952.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-42 | 9/9/2012 | 5837.404 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/8/2012 | 5837.425 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/7/2012 | 5837.606 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/6/2012 | 5837.567 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/5/2012 | 5837.604 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/4/2012 | 5837.542 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/3/2012 | 5837.574 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/2/2012 | 5837.534 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/1/2012 | 5837.529 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/31/2012 | 5837.573 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/30/2012 | 5837.56 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/29/2012 | 5837.463 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/28/2012 | 5837.402 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/27/2012 | 5837.461 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/26/2012 | 5837.602 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/25/2012 | 5837.741 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/24/2012 | 5837.699 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/23/2012 | 5837.623 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/22/2012 | 5837.573 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/21/2012 | 5837.617 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/20/2012 | 5837.605 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/19/2012 | 5837.645 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/18/2012 | 5837.601 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/17/2012 | 5837.542 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/16/2012 | 5837.676 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/15/2012 | 5837.697 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/14/2012 | 5837.604 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/13/2012 | 5837.508 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/12/2012 | 5837.641 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/11/2012 | 5837.614 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/10/2012 | 5837.545 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/9/2012 | 5837.503 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/8/2012 | 5837.544 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/7/2012 | 5837.559 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/6/2012 | 5837.386 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/5/2012 | 5837.483 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/4/2012 | 5837.695 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/3/2012 | 5837.619 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/2/2012 | 5837.635 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/1/2012 | 5837.55 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/31/2012 | 5837.603 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/30/2012 | 5837.609 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/29/2012 | 5837.532 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/28/2012 | 5837.519 | Transducer | 931.8 | 952.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-42 | 7/27/2012 | 5837.596 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/26/2012 | 5837.725 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/25/2012 | 5837.714 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/24/2012 | 5837.601 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/23/2012 | 5837.571 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/22/2012 | 5837.547 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/21/2012 | 5837.509 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/20/2012 | 5837.502 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/19/2012 | 5837.568 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/18/2012 | 5837.686 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/17/2012 | 5837.734 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/16/2012 | 5837.685 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/15/2012 | 5837.626 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/14/2012 | 5837.597 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/13/2012 | 5837.587 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/12/2012 | 5837.568 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/11/2012 | 5837.517 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/10/2012 | 5837.523 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/9/2012 | 5837.525 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/8/2012 | 5837.507 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/7/2012 | 5837.562 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/6/2012 | 5837.634 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/5/2012 | 5837.691 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/4/2012 | 5837.722 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/3/2012 | 5837.7 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/2/2012 | 5837.704 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/1/2012 | 5837.723 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/30/2012 | 5837.702 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/29/2012 | 5837.574 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/28/2012 | 5837.601 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/27/2012 | 5837.62 | Manual | 931.8 | 952.9 | Regional |
| R-42 | 6/27/2012 | 5837.579 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/26/2012 | 5837.523 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/25/2012 | 5837.438 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/24/2012 | 5837.51 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/23/2012 | 5837.625 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/22/2012 | 5837.484 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/21/2012 | 5837.563 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/20/2012 | 5837.78 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/19/2012 | 5837.768 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/18/2012 | 5837.708 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/17/2012 | 5837.446 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/16/2012 | 5837.602 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/15/2012 | 5837.725 | Transducer | 931.8 | 952.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-42 | 6/14/2012 | 5837.741 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/13/2012 | 5837.647 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/12/2012 | 5837.537 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/11/2012 | 5837.668 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/10/2012 | 5837.866 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/9/2012 | 5837.822 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/8/2012 | 5837.7 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/7/2012 | 5837.797 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/6/2012 | 5837.77 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/5/2012 | 5837.692 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/5/2012 | 5837.692 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/4/2012 | 5837.675 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/3/2012 | 5837.763 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/2/2012 | 5837.798 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/1/2012 | 5837.738 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/31/2012 | 5837.793 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/30/2012 | 5837.78 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/29/2012 | 5837.741 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/28/2012 | 5837.788 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/27/2012 | 5837.917 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/26/2012 | 5837.959 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/25/2012 | 5838.084 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/24/2012 | 5838.226 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/23/2012 | 5838.034 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/22/2012 | 5837.729 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/21/2012 | 5837.627 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/20/2012 | 5837.803 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/19/2012 | 5838.038 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/18/2012 | 5838.032 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/17/2012 | 5837.846 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/16/2012 | 5837.675 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/15/2012 | 5837.661 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/14/2012 | 5837.683 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/13/2012 | 5837.616 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/12/2012 | 5837.688 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/11/2012 | 5837.981 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/10/2012 | 5837.88 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/9/2012 | 5837.742 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/8/2012 | 5837.781 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/7/2012 | 5837.888 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/6/2012 | 5837.953 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/5/2012 | 5837.936 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/4/2012 | 5837.905 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/3/2012 | 5837.986 | Transducer | 931.8 | 952.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-42 | 5/2/2012 | 5838.052 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/1/2012 | 5838.049 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/30/2012 | 5837.942 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/29/2012 | 5838.035 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/28/2012 | 5838.042 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/27/2012 | 5838.085 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/26/2012 | 5837.884 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/25/2012 | 5837.943 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/24/2012 | 5837.855 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/23/2012 | 5837.72 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/22/2012 | 5837.765 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/21/2012 | 5837.825 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/20/2012 | 5837.903 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/19/2012 | 5837.975 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/18/2012 | 5837.831 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/17/2012 | 5837.759 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/16/2012 | 5837.905 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/15/2012 | 5838.27 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/14/2012 | 5838.277 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/13/2012 | 5838.039 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/12/2012 | 5838.061 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/11/2012 | 5837.85 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/10/2012 | 5837.803 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/9/2012 | 5837.734 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/8/2012 | 5837.589 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/7/2012 | 5837.846 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/6/2012 | 5838.014 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/5/2012 | 5837.995 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/4/2012 | 5837.966 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/3/2012 | 5838.145 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/2/2012 | 5838.261 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 4/1/2012 | 5838.045 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/31/2012 | 5837.923 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/30/2012 | 5837.941 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/29/2012 | 5837.958 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/28/2012 | 5837.888 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/27/2012 | 5837.922 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/26/2012 | 5837.947 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/25/2012 | 5837.823 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/24/2012 | 5837.835 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/23/2012 | 5837.919 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/22/2012 | 5838.002 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/21/2012 | 5838.001 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/20/2012 | 5838.305 | Transducer | 931.8 | 952.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-42 | 3/19/2012 | 5838.305 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/18/2012 | 5838.173 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/17/2012 | 5838 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/16/2012 | 5837.856 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/15/2012 | 5837.806 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/14/2012 | 5837.879 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/13/2012 | 5837.831 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/12/2012 | 5837.972 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/11/2012 | 5838.053 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/10/2012 | 5837.708 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/9/2012 | 5837.523 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/8/2012 | 5838.01 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/7/2012 | 5838.224 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/7/2012 | 5838.207 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/6/2012 | 5837.854 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/5/2012 | 5837.661 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/4/2012 | 5837.686 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/3/2012 | 5837.847 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/2/2012 | 5838.101 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 3/1/2012 | 5837.968 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/29/2012 | 5837.839 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/28/2012 | 5837.989 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/27/2012 | 5837.832 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/26/2012 | 5837.969 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/25/2012 | 5837.698 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/24/2012 | 5837.873 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/23/2012 | 5838.116 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/22/2012 | 5837.845 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/21/2012 | 5837.846 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/20/2012 | 5838.176 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/19/2012 | 5837.986 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/18/2012 | 5837.989 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/17/2012 | 5837.919 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/16/2012 | 5837.921 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/15/2012 | 5838.257 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/14/2012 | 5838.169 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/13/2012 | 5838.225 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/12/2012 | 5837.875 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/11/2012 | 5837.846 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/10/2012 | 5837.84 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/9/2012 | 5837.84 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/8/2012 | 5837.721 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/7/2012 | 5837.919 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/6/2012 | 5837.829 | Transducer | 931.8 | 952.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-42 | 2/5/2012 | 5837.691 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/4/2012 | 5837.811 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/3/2012 | 5838.12 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/2/2012 | 5837.921 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 2/1/2012 | 5837.82 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/31/2012 | 5837.958 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/30/2012 | 5837.775 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/29/2012 | 5837.631 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/28/2012 | 5837.711 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/27/2012 | 5838.004 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/26/2012 | 5837.84 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/25/2012 | 5837.855 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/24/2012 | 5838.104 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/23/2012 | 5837.939 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/22/2012 | 5838.36 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/21/2012 | 5837.922 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/20/2012 | 5838.078 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/19/2012 | 5837.894 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/18/2012 | 5837.813 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/17/2012 | 5838.007 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/16/2012 | 5838.014 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/15/2012 | 5837.801 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/14/2012 | 5837.735 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/13/2012 | 5837.921 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/12/2012 | 5837.93 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/11/2012 | 5838.047 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/10/2012 | 5837.852 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/9/2012 | 5837.848 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/8/2012 | 5838.087 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/7/2012 | 5837.946 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/6/2012 | 5837.94 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/5/2012 | 5837.579 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/4/2012 | 5837.659 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/3/2012 | 5837.528 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/2/2012 | 5837.452 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 1/1/2012 | 5837.61 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/31/2011 | 5837.883 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/30/2011 | 5837.83 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/29/2011 | 5837.737 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/28/2011 | 5837.771 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/27/2011 | 5837.685 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/26/2011 | 5837.739 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/25/2011 | 5837.564 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/24/2011 | 5837.657 | Transducer | 931.8 | 952.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-42 | 12/23/2011 | 5837.754 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/22/2011 | 5838.036 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/21/2011 | 5838.028 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/20/2011 | 5837.962 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/19/2011 | 5838.066 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/18/2011 | 5837.619 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/17/2011 | 5837.518 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/16/2011 | 5837.675 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/15/2011 | 5837.798 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/14/2011 | 5838.011 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/13/2011 | 5837.892 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/12/2011 | 5837.875 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/11/2011 | 5837.732 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/10/2011 | 5837.584 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/9/2011 | 5837.767 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/8/2011 | 5837.809 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/7/2011 | 5837.686 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/6/2011 | 5837.764 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/5/2011 | 5837.927 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/4/2011 | 5837.881 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/3/2011 | 5838.096 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/2/2011 | 5837.715 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 12/1/2011 | 5838.009 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/30/2011 | 5837.654 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/29/2011 | 5837.622 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/28/2011 | 5837.516 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/27/2011 | 5837.413 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/26/2011 | 5837.847 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/25/2011 | 5837.793 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/24/2011 | 5837.63 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/23/2011 | 5837.514 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/22/2011 | 5837.675 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/21/2011 | 5837.772 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/20/2011 | 5837.863 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/19/2011 | 5838.036 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/18/2011 | 5837.831 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/17/2011 | 5837.576 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/16/2011 | 5837.87 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/15/2011 | 5837.905 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/14/2011 | 5837.962 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/13/2011 | 5837.967 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/12/2011 | 5837.895 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/11/2011 | 5837.604 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/10/2011 | 5837.417 | Transducer | 931.8 | 952.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-42 | 11/9/2011 | 5837.596 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/8/2011 | 5837.964 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/7/2011 | 5837.893 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/6/2011 | 5837.949 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/5/2011 | 5838.086 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/4/2011 | 5837.744 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/3/2011 | 5837.51 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/2/2011 | 5837.972 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 11/1/2011 | 5837.745 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/31/2011 | 5837.582 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/30/2011 | 5837.691 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/29/2011 | 5837.605 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/28/2011 | 5837.709 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/27/2011 | 5837.865 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/26/2011 | 5837.784 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/25/2011 | 5837.694 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/24/2011 | 5837.588 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/23/2011 | 5837.617 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/22/2011 | 5837.615 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/21/2011 | 5837.632 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/20/2011 | 5837.745 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/19/2011 | 5837.577 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/18/2011 | 5837.634 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/17/2011 | 5837.724 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/16/2011 | 5837.615 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/15/2011 | 5837.633 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/14/2011 | 5837.714 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/13/2011 | 5837.637 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/12/2011 | 5837.774 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/11/2011 | 5837.806 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/10/2011 | 5837.729 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/9/2011 | 5837.76 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/8/2011 | 5837.938 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/7/2011 | 5837.932 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/6/2011 | 5837.972 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/5/2011 | 5837.786 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/4/2011 | 5837.641 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/3/2011 | 5837.602 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/2/2011 | 5837.583 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 10/1/2011 | 5837.58 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/30/2011 | 5837.468 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/29/2011 | 5837.667 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/28/2011 | 5837.604 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/27/2011 | 5837.686 | Transducer | 931.8 | 952.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-42 | 9/26/2011 | 5837.798 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/25/2011 | 5837.748 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/24/2011 | 5837.608 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/23/2011 | 5837.562 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/22/2011 | 5837.672 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/21/2011 | 5837.677 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/20/2011 | 5837.666 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/19/2011 | 5837.575 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/18/2011 | 5837.654 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/17/2011 | 5837.718 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/16/2011 | 5837.733 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/15/2011 | 5837.688 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/14/2011 | 5837.656 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/13/2011 | 5837.561 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/12/2011 | 5837.506 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/11/2011 | 5837.531 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/10/2011 | 5837.571 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/9/2011 | 5837.537 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/8/2011 | 5837.433 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/7/2011 | 5837.596 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/6/2011 | 5837.595 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/5/2011 | 5837.526 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/4/2011 | 5837.611 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/3/2011 | 5837.721 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/2/2011 | 5837.637 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 9/1/2011 | 5837.667 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/31/2011 | 5837.729 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/30/2011 | 5837.712 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/29/2011 | 5837.679 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/28/2011 | 5837.6 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/27/2011 | 5837.52 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/26/2011 | 5837.526 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/25/2011 | 5837.552 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/24/2011 | 5837.619 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/23/2011 | 5837.606 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/22/2011 | 5837.524 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/21/2011 | 5837.61 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/20/2011 | 5837.677 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/19/2011 | 5837.65 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/19/2011 | 5837.718 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/18/2011 | 5837.51 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/17/2011 | 5837.54 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/16/2011 | 5837.69 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/15/2011 | 5837.64 | Transducer | 931.8 | 952.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-42 | 8/14/2011 | 5837.5 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/13/2011 | 5837.64 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/12/2011 | 5837.69 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/11/2011 | 5837.69 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/10/2011 | 5837.75 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/9/2011 | 5837.71 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/8/2011 | 5837.73 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/7/2011 | 5837.68 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/6/2011 | 5837.64 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/5/2011 | 5837.65 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/4/2011 | 5837.64 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/3/2011 | 5837.61 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/2/2011 | 5837.58 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 8/1/2011 | 5837.5 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/31/2011 | 5837.48 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/30/2011 | 5837.51 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/29/2011 | 5837.6 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/28/2011 | 5837.7 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/27/2011 | 5837.72 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/26/2011 | 5837.65 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/25/2011 | 5837.54 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/24/2011 | 5837.6 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/23/2011 | 5837.71 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/22/2011 | 5837.74 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/21/2011 | 5837.72 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/20/2011 | 5837.65 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/19/2011 | 5837.57 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/18/2011 | 5837.52 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/17/2011 | 5837.61 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/16/2011 | 5837.75 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/15/2011 | 5837.79 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/14/2011 | 5837.76 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/13/2011 | 5837.72 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/12/2011 | 5837.7 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/11/2011 | 5837.7 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/10/2011 | 5837.72 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/9/2011 | 5837.78 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/8/2011 | 5837.73 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/7/2011 | 5837.66 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/6/2011 | 5837.65 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/5/2011 | 5837.65 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/4/2011 | 5837.66 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/3/2011 | 5837.61 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 7/2/2011 | 5837.68 | Transducer | 931.8 | 952.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-42 | 7/1/2011 | 5837.73 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/30/2011 | 5837.73 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/29/2011 | 5837.65 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/28/2011 | 5837.62 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/27/2011 | 5837.79 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/26/2011 | 5837.81 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/25/2011 | 5837.84 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/24/2011 | 5837.85 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/23/2011 | 5837.76 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/22/2011 | 5837.78 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/21/2011 | 5837.89 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/20/2011 | 5838.05 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/19/2011 | 5837.94 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/18/2011 | 5837.87 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/17/2011 | 5838.01 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/16/2011 | 5837.96 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/15/2011 | 5837.79 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/14/2011 | 5837.84 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/13/2011 | 5837.88 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/12/2011 | 5837.93 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/11/2011 | 5837.86 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/10/2011 | 5837.89 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/9/2011 | 5837.93 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/8/2011 | 5837.9 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/7/2011 | 5837.9 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/6/2011 | 5837.72 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/5/2011 | 5837.61 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/4/2011 | 5837.79 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/3/2011 | 5837.9 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/2/2011 | 5837.84 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 6/1/2011 | 5837.65 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/31/2011 | 5837.76 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/30/2011 | 5838.25 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/29/2011 | 5838.23 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/28/2011 | 5838.14 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/27/2011 | 5838.07 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/26/2011 | 5837.93 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/25/2011 | 5838.04 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/24/2011 | 5838.22 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/23/2011 | 5838.12 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/22/2011 | 5838.09 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/21/2011 | 5838.13 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/20/2011 | 5838.24 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/19/2011 | 5838.43 | Transducer | 931.8 | 952.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-42 | 5/18/2011 | 5838.39 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/17/2011 | 5838.3 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/16/2011 | 5838.14 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/15/2011 | 5838.15 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/14/2011 | 5838.04 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/13/2011 | 5838.04 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/12/2011 | 5838.26 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/11/2011 | 5838.52 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/10/2011 | 5838.5 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/9/2011 | 5838.49 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/8/2011 | 5838.37 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/7/2011 | 5838.32 | Transducer | 931.8 | 952.9 | Regional |
| R-42 | 5/6/2011 | 5838.17 | Transducer | 931.8 | 952.9 | Regional |
| R-43 S1 | 5/22/2013 | 5837.16 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/21/2013 | 5837.13 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/20/2013 | 5837.21 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/19/2013 | 5837.24 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/18/2013 | 5837.21 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/17/2013 | 5837.22 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/16/2013 | 5837.19 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/15/2013 | 5837.15 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/14/2013 | 5836.99 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/13/2013 | 5836.94 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/12/2013 | 5836.86 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/11/2013 | 5836.9 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/10/2013 | 5837.08 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/9/2013 | 5837.17 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/8/2013 | 5837.24 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/7/2013 | 5837.23 | Manual | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/7/2013 | 5837.13 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/6/2013 | 5837.1 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/5/2013 | 5837.09 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/4/2013 | 5837.18 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/3/2013 | 5836.83 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/2/2013 | 5836.96 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/1/2013 | 5837.36 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/30/2013 | 5837.35 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/29/2013 | 5837.23 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/28/2013 | 5837.06 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/27/2013 | 5836.94 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/26/2013 | 5837.12 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/25/2013 | 5837.06 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/24/2013 | 5837.07 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/23/2013 | 5837.33 | Transducer | 903.9 | 924.6 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-43 S1 | 4/22/2013 | 5837.13 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/21/2013 | 5837.14 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/20/2013 | 5837.2 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/19/2013 | 5837.04 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/18/2013 | 5837.32 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/17/2013 | 5837.44 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/16/2013 | 5837.43 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/15/2013 | 5837.5 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/14/2013 | 5837.52 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/13/2013 | 5837.26 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/12/2013 | 5837.33 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/11/2013 | 5837.35 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/10/2013 | 5837.41 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/9/2013 | 5837.73 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/8/2013 | 5837.45 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/7/2013 | 5837.32 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/6/2013 | 5837.29 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/5/2013 | 5837.12 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/4/2013 | 5837.11 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/3/2013 | 5837.24 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/2/2013 | 5837.28 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/1/2013 | 5837.18 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/31/2013 | 5837.13 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/30/2013 | 5837.06 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/29/2013 | 5837.08 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/28/2013 | 5837.13 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/27/2013 | 5837.2 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/27/2013 | 5837.21 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/26/2013 | 5837.06 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/25/2013 | 5837.19 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/24/2013 | 5837.22 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/23/2013 | 5837.53 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/22/2013 | 5837.43 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/21/2013 | 5837.34 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/20/2013 | 5837.03 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/19/2013 | 5837.22 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/18/2013 | 5837.36 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/17/2013 | 5837.32 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/16/2013 | 5837.2 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/15/2013 | 5836.95 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/14/2013 | 5836.91 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/13/2013 | 5836.93 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/12/2013 | 5837.12 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/11/2013 | 5837.06 | Transducer | 903.9 | 924.6 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-43 S1 | 3/10/2013 | 5837.26 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/9/2013 | 5837.43 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/8/2013 | 5837.22 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/7/2013 | 5837.15 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/6/2013 | 5836.98 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/5/2013 | 5837.06 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/4/2013 | 5837.26 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/3/2013 | 5836.93 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/2/2013 | 5836.81 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/1/2013 | 5836.91 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/28/2013 | 5836.97 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/27/2013 | 5837.14 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/26/2013 | 5837.27 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/25/2013 | 5837.37 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/24/2013 | 5837.47 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/23/2013 | 5837.25 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/22/2013 | 5837.37 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/21/2013 | 5837.66 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/20/2013 | 5837.43 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/19/2013 | 5837.13 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/18/2013 | 5837.41 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/17/2013 | 5837.03 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/16/2013 | 5836.85 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/15/2013 | 5837 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/14/2013 | 5837.12 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/13/2013 | 5837.11 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/12/2013 | 5837.26 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/11/2013 | 5837.28 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/10/2013 | 5837.48 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/9/2013 | 5837.38 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/8/2013 | 5837.07 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/7/2013 | 5837.22 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/6/2013 | 5837.19 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/5/2013 | 5837.16 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/4/2013 | 5837.19 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/3/2013 | 5836.88 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/2/2013 | 5836.93 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/1/2013 | 5836.96 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/31/2013 | 5837.05 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/30/2013 | 5837.32 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/29/2013 | 5837.45 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/28/2013 | 5837.26 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/27/2013 | 5837.25 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/26/2013 | 5836.98 | Transducer | 903.9 | 924.6 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-43 S1 | 1/25/2013 | 5836.93 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/24/2013 | 5836.86 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/23/2013 | 5836.86 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/22/2013 | 5836.9 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/21/2013 | 5836.89 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/20/2013 | 5836.81 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/19/2013 | 5836.88 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/18/2013 | 5836.74 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/17/2013 | 5836.75 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/16/2013 | 5836.89 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/15/2013 | 5837.16 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/14/2013 | 5837.21 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/13/2013 | 5837.23 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/12/2013 | 5837.29 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/11/2013 | 5837.39 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/10/2013 | 5836.97 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/9/2013 | 5836.9 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/8/2013 | 5837.15 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/7/2013 | 5837 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/6/2013 | 5836.78 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/5/2013 | 5836.95 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/4/2013 | 5836.86 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/3/2013 | 5836.92 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/2/2013 | 5836.94 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/1/2013 | 5837.11 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/31/2012 | 5837.25 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/30/2012 | 5837.01 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/29/2012 | 5836.96 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/28/2012 | 5837.26 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/27/2012 | 5837.36 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/26/2012 | 5837.07 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/25/2012 | 5837.42 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/24/2012 | 5837.06 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/23/2012 | 5836.96 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/22/2012 | 5836.84 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/21/2012 | 5836.71 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/20/2012 | 5836.91 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/19/2012 | 5837.4 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/18/2012 | 5837.14 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/17/2012 | 5837.09 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/16/2012 | 5837.28 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/15/2012 | 5837.16 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/14/2012 | 5837.14 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/13/2012 | 5837.02 | Transducer | 903.9 | 924.6 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-43 S1 | 12/12/2012 | 5837.07 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/11/2012 | 5837.16 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/10/2012 | 5837.05 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/9/2012 | 5837.26 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/8/2012 | 5837.19 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/7/2012 | 5837.19 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/6/2012 | 5837.07 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/5/2012 | 5836.81 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/4/2012 | 5836.91 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/3/2012 | 5837.09 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/2/2012 | 5836.95 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/1/2012 | 5836.99 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/30/2012 | 5836.91 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/29/2012 | 5836.88 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/28/2012 | 5836.79 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/27/2012 | 5836.8 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/26/2012 | 5836.95 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/26/2012 | 5837.09 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/25/2012 | 5836.99 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/24/2012 | 5836.72 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/23/2012 | 5836.76 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/22/2012 | 5836.95 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/21/2012 | 5836.83 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/20/2012 | 5836.76 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/19/2012 | 5836.85 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/18/2012 | 5836.91 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/17/2012 | 5836.83 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/16/2012 | 5836.71 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/15/2012 | 5836.83 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/14/2012 | 5836.76 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/13/2012 | 5836.76 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/12/2012 | 5836.79 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/11/2012 | 5837.25 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/10/2012 | 5837.26 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/9/2012 | 5837.11 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/8/2012 | 5836.98 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/7/2012 | 5836.78 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/6/2012 | 5836.8 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/5/2012 | 5836.77 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/4/2012 | 5836.81 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/3/2012 | 5836.91 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/2/2012 | 5836.94 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/1/2012 | 5836.83 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/31/2012 | 5836.85 | Transducer | 903.9 | 924.6 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-43 S1 | 10/30/2012 | 5836.83 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/29/2012 | 5836.83 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/28/2012 | 5836.89 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/27/2012 | 5836.81 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/26/2012 | 5836.88 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/25/2012 | 5837.1 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/24/2012 | 5837.06 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/23/2012 | 5837.04 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/22/2012 | 5837.08 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/21/2012 | 5837.13 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/20/2012 | 5837.03 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/19/2012 | 5836.93 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/18/2012 | 5837.02 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/17/2012 | 5837.18 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/16/2012 | 5837.01 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/15/2012 | 5836.83 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/14/2012 | 5836.87 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/13/2012 | 5837.03 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/12/2012 | 5836.94 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/11/2012 | 5836.99 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/10/2012 | 5836.97 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/9/2012 | 5837.05 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/8/2012 | 5837.03 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/7/2012 | 5837.02 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/6/2012 | 5837.05 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/5/2012 | 5837 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/4/2012 | 5836.98 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/3/2012 | 5837.08 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/2/2012 | 5836.93 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/1/2012 | 5836.95 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/30/2012 | 5836.95 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/29/2012 | 5836.97 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/28/2012 | 5836.98 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/27/2012 | 5837.01 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/26/2012 | 5837.1 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/25/2012 | 5837.03 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/24/2012 | 5836.94 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/23/2012 | 5836.92 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/22/2012 | 5836.95 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/21/2012 | 5836.99 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/20/2012 | 5836.97 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/19/2012 | 5836.96 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/18/2012 | 5836.95 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/17/2012 | 5837.07 | Transducer | 903.9 | 924.6 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-43 S1 | 9/16/2012 | 5836.95 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/15/2012 | 5836.8 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/14/2012 | 5836.74 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/13/2012 | 5836.78 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/13/2012 | 5836.911 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/12/2012 | 5837.042 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/11/2012 | 5837.028 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/10/2012 | 5836.921 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/9/2012 | 5836.866 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/8/2012 | 5836.882 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/7/2012 | 5837.063 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/6/2012 | 5837.025 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/5/2012 | 5837.059 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/4/2012 | 5836.994 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/3/2012 | 5837.021 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/2/2012 | 5836.989 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/1/2012 | 5836.995 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/31/2012 | 5837.044 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/30/2012 | 5837.035 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/29/2012 | 5836.941 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/28/2012 | 5836.885 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/27/2012 | 5836.944 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/26/2012 | 5837.081 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/25/2012 | 5837.209 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/24/2012 | 5837.163 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/23/2012 | 5837.087 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/22/2012 | 5837.049 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/21/2012 | 5837.085 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/20/2012 | 5837.076 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/19/2012 | 5837.118 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/18/2012 | 5837.083 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/17/2012 | 5837.036 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/16/2012 | 5837.184 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/15/2012 | 5837.212 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/14/2012 | 5837.121 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/13/2012 | 5836.968 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/12/2012 | 5837.102 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/11/2012 | 5837.081 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/10/2012 | 5837.015 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/9/2012 | 5836.974 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/8/2012 | 5837.016 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/7/2012 | 5837.017 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/6/2012 | 5836.848 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/5/2012 | 5836.95 | Transducer | 903.9 | 924.6 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-43 S1 | 8/4/2012 | 5837.152 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/3/2012 | 5837.069 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/2/2012 | 5837.094 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/1/2012 | 5837.017 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/31/2012 | 5837.073 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/30/2012 | 5837.075 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/29/2012 | 5837.007 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/28/2012 | 5837.005 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/27/2012 | 5837.074 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/26/2012 | 5837.199 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/25/2012 | 5837.189 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/24/2012 | 5837.075 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/23/2012 | 5837.04 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/22/2012 | 5837.02 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/21/2012 | 5836.989 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/20/2012 | 5836.984 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/19/2012 | 5837.055 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/18/2012 | 5837.169 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/17/2012 | 5837.216 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/16/2012 | 5837.163 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/15/2012 | 5837.111 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/14/2012 | 5837.08 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/13/2012 | 5837.076 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/12/2012 | 5837.057 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/11/2012 | 5837.005 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/11/2012 | 5837.01 | Manual | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/10/2012 | 5837.006 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/9/2012 | 5837.019 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/8/2012 | 5837 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/7/2012 | 5837.059 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/6/2012 | 5837.13 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/5/2012 | 5837.189 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/4/2012 | 5837.209 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/3/2012 | 5837.192 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/2/2012 | 5837.199 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/1/2012 | 5837.216 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/30/2012 | 5837.194 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/29/2012 | 5837.081 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/28/2012 | 5837.115 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/27/2012 | 5837.236 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/26/2012 | 5837.18 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/25/2012 | 5837.1 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/24/2012 | 5837.174 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/23/2012 | 5837.285 | Transducer | 903.9 | 924.6 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-43 S1 | 6/22/2012 | 5837.154 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/21/2012 | 5837.236 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/20/2012 | 5837.456 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/19/2012 | 5837.438 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/18/2012 | 5837.374 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/17/2012 | 5837.114 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/16/2012 | 5837.261 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/15/2012 | 5837.389 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/14/2012 | 5837.406 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/13/2012 | 5837.308 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/12/2012 | 5837.207 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/11/2012 | 5837.338 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/10/2012 | 5837.529 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/9/2012 | 5837.492 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/8/2012 | 5837.375 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/7/2012 | 5837.481 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/6/2012 | 5837.463 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/6/2012 | 5837.453 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/5/2012 | 5837.381 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/4/2012 | 5837.367 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/3/2012 | 5837.459 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/2/2012 | 5837.499 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/1/2012 | 5837.457 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/31/2012 | 5837.515 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/30/2012 | 5837.511 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/29/2012 | 5837.483 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/28/2012 | 5837.529 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/27/2012 | 5837.665 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/26/2012 | 5837.711 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/25/2012 | 5837.84 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/24/2012 | 5838.002 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/23/2012 | 5837.814 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/22/2012 | 5837.47 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/21/2012 | 5837.374 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/20/2012 | 5837.544 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/19/2012 | 5837.775 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/18/2012 | 5837.765 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/17/2012 | 5837.584 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/16/2012 | 5837.419 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/15/2012 | 5837.406 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/14/2012 | 5837.43 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/13/2012 | 5837.364 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/12/2012 | 5837.438 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/11/2012 | 5837.717 | Transducer | 903.9 | 924.6 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-43 S1 | 5/10/2012 | 5837.613 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/9/2012 | 5837.482 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/8/2012 | 5837.51 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/7/2012 | 5837.625 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/6/2012 | 5837.689 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/5/2012 | 5837.683 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/4/2012 | 5837.667 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/3/2012 | 5837.748 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/2/2012 | 5837.813 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/1/2012 | 5837.806 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/30/2012 | 5837.708 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/29/2012 | 5837.792 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/28/2012 | 5837.808 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/27/2012 | 5837.851 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/26/2012 | 5837.661 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/25/2012 | 5837.719 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/24/2012 | 5837.634 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/23/2012 | 5837.501 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/22/2012 | 5837.555 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/21/2012 | 5837.611 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/20/2012 | 5837.696 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/19/2012 | 5837.767 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/18/2012 | 5837.635 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/17/2012 | 5837.562 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/16/2012 | 5837.711 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/15/2012 | 5838.06 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/14/2012 | 5838.061 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/13/2012 | 5837.834 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/12/2012 | 5837.853 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/11/2012 | 5837.639 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/10/2012 | 5837.597 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/9/2012 | 5837.531 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/8/2012 | 5837.392 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/7/2012 | 5837.655 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/6/2012 | 5837.813 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/5/2012 | 5837.793 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/4/2012 | 5837.769 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/3/2012 | 5837.941 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/2/2012 | 5838.054 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 4/1/2012 | 5837.836 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/31/2012 | 5837.722 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/30/2012 | 5837.751 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/29/2012 | 5837.759 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/28/2012 | 5837.693 | Transducer | 903.9 | 924.6 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-43 S1 | 3/27/2012 | 5837.73 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/26/2012 | 5837.757 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/25/2012 | 5837.643 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/24/2012 | 5837.653 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/23/2012 | 5837.748 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/22/2012 | 5837.834 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/21/2012 | 5837.834 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/20/2012 | 5838.118 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/19/2012 | 5838.131 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/18/2012 | 5837.992 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/17/2012 | 5837.835 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/16/2012 | 5837.704 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/15/2012 | 5837.666 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/14/2012 | 5837.756 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/13/2012 | 5837.718 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/12/2012 | 5837.84 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/11/2012 | 5837.925 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/10/2012 | 5837.599 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/9/2012 | 5837.369 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/8/2012 | 5837.85 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/7/2012 | 5838.036 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/6/2012 | 5837.693 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/6/2012 | 5837.814 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/5/2012 | 5837.519 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/4/2012 | 5837.542 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/3/2012 | 5837.717 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/2/2012 | 5837.962 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 3/1/2012 | 5837.833 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/29/2012 | 5837.71 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/28/2012 | 5837.851 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/27/2012 | 5837.696 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/26/2012 | 5837.823 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/25/2012 | 5837.557 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/24/2012 | 5837.728 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/23/2012 | 5837.952 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/22/2012 | 5837.677 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/21/2012 | 5837.675 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/20/2012 | 5837.992 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/19/2012 | 5837.79 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/18/2012 | 5837.79 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/17/2012 | 5837.723 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/16/2012 | 5837.729 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/15/2012 | 5838.05 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/14/2012 | 5837.953 | Transducer | 903.9 | 924.6 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-43 S1 | 2/13/2012 | 5837.999 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/12/2012 | 5837.652 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/11/2012 | 5837.627 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/10/2012 | 5837.617 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/9/2012 | 5837.622 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/8/2012 | 5837.517 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/7/2012 | 5837.706 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/6/2012 | 5837.617 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/5/2012 | 5837.487 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/4/2012 | 5837.607 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/3/2012 | 5837.905 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/2/2012 | 5837.701 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 2/1/2012 | 5837.611 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/31/2012 | 5837.738 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/30/2012 | 5837.552 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/29/2012 | 5837.423 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/28/2012 | 5837.507 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/27/2012 | 5837.786 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/26/2012 | 5837.626 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/25/2012 | 5837.643 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/24/2012 | 5837.882 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/23/2012 | 5837.72 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/22/2012 | 5838.126 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/21/2012 | 5837.702 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/20/2012 | 5837.841 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/19/2012 | 5837.672 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/18/2012 | 5837.585 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/17/2012 | 5837.78 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/16/2012 | 5837.775 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/15/2012 | 5837.56 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/14/2012 | 5837.498 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/13/2012 | 5837.674 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/12/2012 | 5837.678 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/11/2012 | 5837.783 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/10/2012 | 5837.587 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/9/2012 | 5837.588 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/8/2012 | 5837.801 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/7/2012 | 5837.667 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/6/2012 | 5837.653 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/5/2012 | 5837.305 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/4/2012 | 5837.384 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/3/2012 | 5837.256 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/2/2012 | 5837.184 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 1/1/2012 | 5837.347 | Transducer | 903.9 | 924.6 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-43 S1 | 12/31/2011 | 5837.611 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/30/2011 | 5837.558 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/29/2011 | 5837.458 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/28/2011 | 5837.498 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/27/2011 | 5837.411 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/26/2011 | 5837.458 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/25/2011 | 5837.3 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/24/2011 | 5837.385 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/23/2011 | 5837.493 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/22/2011 | 5837.772 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/21/2011 | 5837.754 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/20/2011 | 5837.69 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/19/2011 | 5837.779 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/18/2011 | 5837.346 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/17/2011 | 5837.251 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/16/2011 | 5837.414 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/15/2011 | 5837.533 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/14/2011 | 5837.74 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/13/2011 | 5837.614 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/12/2011 | 5837.597 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/11/2011 | 5837.446 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/10/2011 | 5837.304 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/9/2011 | 5837.498 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/8/2011 | 5837.529 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/7/2011 | 5837.414 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/6/2011 | 5837.489 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/5/2011 | 5837.652 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/4/2011 | 5837.604 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/3/2011 | 5837.796 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/2/2011 | 5837.437 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 12/1/2011 | 5837.705 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/30/2011 | 5837.363 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/29/2011 | 5837.337 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/28/2011 | 5837.229 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/27/2011 | 5837.133 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/26/2011 | 5837.561 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/25/2011 | 5837.509 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/24/2011 | 5837.35 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/23/2011 | 5837.248 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/22/2011 | 5837.416 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/21/2011 | 5837.522 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/20/2011 | 5837.605 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/19/2011 | 5837.776 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/18/2011 | 5837.592 | Transducer | 903.9 | 924.6 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-43 S1 | 11/17/2011 | 5837.355 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/16/2011 | 5837.634 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/15/2011 | 5837.639 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/14/2011 | 5837.692 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/13/2011 | 5837.692 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/12/2011 | 5837.616 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/11/2011 | 5837.339 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/10/2011 | 5837.165 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/9/2011 | 5837.34 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/8/2011 | 5837.695 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/7/2011 | 5837.624 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/6/2011 | 5837.683 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/5/2011 | 5837.797 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/4/2011 | 5837.469 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/3/2011 | 5837.243 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/2/2011 | 5837.693 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 11/1/2011 | 5837.464 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/31/2011 | 5837.308 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/30/2011 | 5837.421 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/29/2011 | 5837.333 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/28/2011 | 5837.445 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/27/2011 | 5837.593 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/26/2011 | 5837.509 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/25/2011 | 5837.417 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/24/2011 | 5837.321 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/23/2011 | 5837.359 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/22/2011 | 5837.359 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/21/2011 | 5837.371 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/20/2011 | 5837.485 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/19/2011 | 5837.322 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/18/2011 | 5837.38 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/17/2011 | 5837.472 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/16/2011 | 5837.372 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/15/2011 | 5837.403 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/14/2011 | 5837.491 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/13/2011 | 5837.424 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/12/2011 | 5837.575 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/11/2011 | 5837.56 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/10/2011 | 5837.484 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/9/2011 | 5837.52 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/8/2011 | 5837.69 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/7/2011 | 5837.689 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/6/2011 | 5837.718 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/5/2011 | 5837.529 | Transducer | 903.9 | 924.6 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-43 S1 | 10/4/2011 | 5837.39 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/3/2011 | 5837.354 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/2/2011 | 5837.339 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 10/1/2011 | 5837.339 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/30/2011 | 5837.233 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/29/2011 | 5837.423 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/28/2011 | 5837.362 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/27/2011 | 5837.451 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/26/2011 | 5837.561 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/25/2011 | 5837.512 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/24/2011 | 5837.376 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/23/2011 | 5837.34 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/22/2011 | 5837.453 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/21/2011 | 5837.461 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/20/2011 | 5837.448 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/19/2011 | 5837.365 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/18/2011 | 5837.438 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/17/2011 | 5837.497 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/16/2011 | 5837.502 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/15/2011 | 5837.459 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/14/2011 | 5837.425 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/13/2011 | 5837.327 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/12/2011 | 5837.275 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/11/2011 | 5837.302 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/10/2011 | 5837.344 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/9/2011 | 5837.314 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/8/2011 | 5837.213 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/7/2011 | 5837.372 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/6/2011 | 5837.371 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/5/2011 | 5837.303 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/4/2011 | 5837.388 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/3/2011 | 5837.502 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/2/2011 | 5837.415 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 9/1/2011 | 5837.443 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/31/2011 | 5837.512 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/30/2011 | 5837.498 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/29/2011 | 5837.453 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/28/2011 | 5837.387 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/27/2011 | 5837.313 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/26/2011 | 5837.325 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/25/2011 | 5837.357 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/24/2011 | 5837.427 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/23/2011 | 5837.409 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/22/2011 | 5837.34 | Transducer | 903.9 | 924.6 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-43 S1 | 8/22/2011 | 5837.345 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/21/2011 | 5837.43 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/20/2011 | 5837.51 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/19/2011 | 5837.47 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/18/2011 | 5837.35 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/17/2011 | 5837.39 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/16/2011 | 5837.49 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/15/2011 | 5837.44 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/14/2011 | 5837.31 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/13/2011 | 5837.45 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/12/2011 | 5837.51 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/11/2011 | 5837.51 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/10/2011 | 5837.57 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/9/2011 | 5837.53 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/8/2011 | 5837.54 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/7/2011 | 5837.49 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/6/2011 | 5837.46 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/5/2011 | 5837.46 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/4/2011 | 5837.45 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/3/2011 | 5837.42 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/2/2011 | 5837.39 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 8/1/2011 | 5837.31 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/31/2011 | 5837.29 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/30/2011 | 5837.31 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/29/2011 | 5837.42 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/28/2011 | 5837.52 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/27/2011 | 5837.53 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/26/2011 | 5837.45 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/25/2011 | 5837.34 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/24/2011 | 5837.39 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/23/2011 | 5837.49 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/22/2011 | 5837.52 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/21/2011 | 5837.5 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/20/2011 | 5837.44 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/19/2011 | 5837.36 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/18/2011 | 5837.3 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/17/2011 | 5837.4 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/16/2011 | 5837.55 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/15/2011 | 5837.58 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/14/2011 | 5837.55 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/13/2011 | 5837.51 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/12/2011 | 5837.48 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/11/2011 | 5837.49 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/10/2011 | 5837.52 | Transducer | 903.9 | 924.6 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-43 S1 | 7/9/2011 | 5837.57 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/8/2011 | 5837.52 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/7/2011 | 5837.46 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/6/2011 | 5837.45 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/5/2011 | 5837.45 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/4/2011 | 5837.46 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/3/2011 | 5837.42 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/2/2011 | 5837.48 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 7/1/2011 | 5837.53 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/30/2011 | 5837.53 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/29/2011 | 5837.44 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/28/2011 | 5837.42 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/27/2011 | 5837.6 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/26/2011 | 5837.61 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/25/2011 | 5837.66 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/24/2011 | 5837.66 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/23/2011 | 5837.58 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/22/2011 | 5837.6 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/21/2011 | 5837.72 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/20/2011 | 5837.87 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/19/2011 | 5837.75 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/18/2011 | 5837.7 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/17/2011 | 5837.83 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/16/2011 | 5837.78 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/15/2011 | 5837.61 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/14/2011 | 5837.66 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/13/2011 | 5837.71 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/12/2011 | 5837.76 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/11/2011 | 5837.7 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/10/2011 | 5837.72 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/9/2011 | 5837.76 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/8/2011 | 5837.74 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/7/2011 | 5837.74 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/6/2011 | 5837.55 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/5/2011 | 5837.45 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/4/2011 | 5837.62 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/3/2011 | 5837.73 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/2/2011 | 5837.65 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 6/1/2011 | 5837.47 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/31/2011 | 5837.59 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/30/2011 | 5838.06 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/29/2011 | 5838.03 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/28/2011 | 5837.93 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/27/2011 | 5837.87 | Transducer | 903.9 | 924.6 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-43 S1 | 5/26/2011 | 5837.72 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/25/2011 | 5837.85 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/24/2011 | 5838.01 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/23/2011 | 5837.92 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/22/2011 | 5837.91 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/21/2011 | 5837.95 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/20/2011 | 5838.08 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/19/2011 | 5838.26 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/18/2011 | 5838.17 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/17/2011 | 5838.07 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/16/2011 | 5837.92 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/15/2011 | 5837.94 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/14/2011 | 5837.83 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/13/2011 | 5837.85 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/12/2011 | 5838.07 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/11/2011 | 5838.32 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/10/2011 | 5838.29 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/9/2011 | 5838.28 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/8/2011 | 5838.16 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/7/2011 | 5838.1 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S1 | 5/6/2011 | 5837.96 | Transducer | 903.9 | 924.6 | Regional |
| R-43 S2 | 5/22/2013 | 5836.1 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/21/2013 | 5836.08 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/20/2013 | 5836.15 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/19/2013 | 5836.17 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/18/2013 | 5836.15 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/17/2013 | 5836.16 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/16/2013 | 5836.12 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/15/2013 | 5836.06 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/14/2013 | 5835.94 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/13/2013 | 5835.9 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/12/2013 | 5835.82 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/11/2013 | 5835.87 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/10/2013 | 5836.06 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/9/2013 | 5836.15 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/8/2013 | 5836.21 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/7/2013 | 5836.15 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/7/2013 | 5836.22 | Manual | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/6/2013 | 5836.11 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/5/2013 | 5836.12 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/4/2013 | 5836.2 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/3/2013 | 5835.87 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/2/2013 | 5836.02 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/1/2013 | 5836.4 | Transducer | 969.1 | 979.1 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-43 S2 | 4/30/2013 | 5836.39 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/29/2013 | 5836.27 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/28/2013 | 5836.1 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/27/2013 | 5836 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/26/2013 | 5836.17 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/25/2013 | 5836.12 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/24/2013 | 5836.12 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/23/2013 | 5836.37 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/22/2013 | 5836.18 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/21/2013 | 5836.2 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/20/2013 | 5836.25 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/19/2013 | 5836.12 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/18/2013 | 5836.39 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/17/2013 | 5836.51 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/16/2013 | 5836.49 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/15/2013 | 5836.55 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/14/2013 | 5836.57 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/13/2013 | 5836.32 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/12/2013 | 5836.39 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/11/2013 | 5836.39 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/10/2013 | 5836.47 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/9/2013 | 5836.77 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/8/2013 | 5836.48 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/7/2013 | 5836.38 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/6/2013 | 5836.35 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/5/2013 | 5836.17 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/4/2013 | 5836.17 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/3/2013 | 5836.3 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/2/2013 | 5836.34 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/1/2013 | 5836.24 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/31/2013 | 5836.19 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/30/2013 | 5836.11 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/29/2013 | 5836.14 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/28/2013 | 5836.19 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/27/2013 | 5836.26 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/27/2013 | 5836.25 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/26/2013 | 5836.13 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/25/2013 | 5836.25 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/24/2013 | 5836.3 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/23/2013 | 5836.6 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/22/2013 | 5836.49 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/21/2013 | 5836.4 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/20/2013 | 5836.1 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/19/2013 | 5836.29 | Transducer | 969.1 | 979.1 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-43 S2 | 3/18/2013 | 5836.41 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/17/2013 | 5836.37 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/16/2013 | 5836.26 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/15/2013 | 5836.01 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/14/2013 | 5835.97 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/13/2013 | 5836 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/12/2013 | 5836.18 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/11/2013 | 5836.12 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/10/2013 | 5836.32 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/9/2013 | 5836.48 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/8/2013 | 5836.27 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/7/2013 | 5836.21 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/6/2013 | 5836.07 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/5/2013 | 5836.11 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/4/2013 | 5836.32 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/3/2013 | 5836.01 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/2/2013 | 5835.88 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/1/2013 | 5835.96 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/28/2013 | 5836.03 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/27/2013 | 5836.19 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/26/2013 | 5836.33 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/25/2013 | 5836.41 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/24/2013 | 5836.51 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/23/2013 | 5836.29 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/22/2013 | 5836.43 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/21/2013 | 5836.7 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/20/2013 | 5836.5 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/19/2013 | 5836.19 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/18/2013 | 5836.44 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/17/2013 | 5836.09 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/16/2013 | 5835.9 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/15/2013 | 5836.05 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/14/2013 | 5836.17 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/13/2013 | 5836.15 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/12/2013 | 5836.31 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/11/2013 | 5836.3 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/10/2013 | 5836.49 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/9/2013 | 5836.41 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/8/2013 | 5836.09 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/7/2013 | 5836.24 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/6/2013 | 5836.22 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/5/2013 | 5836.2 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/4/2013 | 5836.22 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/3/2013 | 5835.92 | Transducer | 969.1 | 979.1 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-43 S2 | 2/2/2013 | 5835.96 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/1/2013 | 5836.01 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/31/2013 | 5836.11 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/30/2013 | 5836.35 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/29/2013 | 5836.46 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/28/2013 | 5836.29 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/27/2013 | 5836.26 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/26/2013 | 5836.02 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/25/2013 | 5835.96 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/24/2013 | 5835.9 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/23/2013 | 5835.89 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/22/2013 | 5835.94 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/21/2013 | 5835.93 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/20/2013 | 5835.85 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/19/2013 | 5835.92 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/18/2013 | 5835.79 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/17/2013 | 5835.79 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/16/2013 | 5835.93 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/15/2013 | 5836.19 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/14/2013 | 5836.24 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/13/2013 | 5836.25 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/12/2013 | 5836.32 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/11/2013 | 5836.42 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/10/2013 | 5836.02 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/9/2013 | 5835.94 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/8/2013 | 5836.17 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/7/2013 | 5836.04 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/6/2013 | 5835.83 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/5/2013 | 5836 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/4/2013 | 5835.89 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/3/2013 | 5835.96 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/2/2013 | 5835.98 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/1/2013 | 5836.15 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/31/2012 | 5836.28 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/30/2012 | 5836.04 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/29/2012 | 5835.98 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/28/2012 | 5836.28 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/27/2012 | 5836.38 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/26/2012 | 5836.1 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/25/2012 | 5836.43 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/24/2012 | 5836.09 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/23/2012 | 5836 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/22/2012 | 5835.89 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/21/2012 | 5835.75 | Transducer | 969.1 | 979.1 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-43 S2 | 12/20/2012 | 5835.94 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/19/2012 | 5836.43 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/18/2012 | 5836.18 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/17/2012 | 5836.11 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/16/2012 | 5836.29 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/15/2012 | 5836.18 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/14/2012 | 5836.16 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/13/2012 | 5836.05 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/12/2012 | 5836.08 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/11/2012 | 5836.18 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/10/2012 | 5836.09 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/9/2012 | 5836.28 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/8/2012 | 5836.2 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/7/2012 | 5836.2 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/6/2012 | 5836.08 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/5/2012 | 5835.83 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/4/2012 | 5835.92 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/3/2012 | 5836.1 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/2/2012 | 5835.96 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/1/2012 | 5835.99 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/30/2012 | 5835.93 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/29/2012 | 5835.9 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/28/2012 | 5835.79 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/27/2012 | 5835.82 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/26/2012 | 5835.95 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/26/2012 | 5836.08 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/25/2012 | 5835.98 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/24/2012 | 5835.72 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/23/2012 | 5835.77 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/22/2012 | 5835.95 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/21/2012 | 5835.82 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/20/2012 | 5835.75 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/19/2012 | 5835.83 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/18/2012 | 5835.88 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/17/2012 | 5835.8 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/16/2012 | 5835.68 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/15/2012 | 5835.79 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/14/2012 | 5835.72 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/13/2012 | 5835.71 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/12/2012 | 5835.75 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/11/2012 | 5836.18 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/10/2012 | 5836.17 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/9/2012 | 5836.02 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/8/2012 | 5835.89 | Transducer | 969.1 | 979.1 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-43 S2 | 11/7/2012 | 5835.73 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/6/2012 | 5835.73 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/5/2012 | 5835.71 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/4/2012 | 5835.74 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/3/2012 | 5835.83 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/2/2012 | 5835.86 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/1/2012 | 5835.76 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/31/2012 | 5835.77 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/30/2012 | 5835.76 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/29/2012 | 5835.76 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/28/2012 | 5835.81 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/27/2012 | 5835.72 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/26/2012 | 5835.83 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/25/2012 | 5836.03 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/24/2012 | 5835.98 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/23/2012 | 5835.95 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/22/2012 | 5836 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/21/2012 | 5836.04 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/20/2012 | 5835.94 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/19/2012 | 5835.84 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/18/2012 | 5835.93 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/17/2012 | 5836.07 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/16/2012 | 5835.9 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/15/2012 | 5835.72 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/14/2012 | 5835.76 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/13/2012 | 5835.93 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/12/2012 | 5835.85 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/11/2012 | 5835.88 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/10/2012 | 5835.88 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/9/2012 | 5835.96 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/8/2012 | 5835.93 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/7/2012 | 5835.93 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/6/2012 | 5835.95 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/5/2012 | 5835.89 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/4/2012 | 5835.88 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/3/2012 | 5835.97 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/2/2012 | 5835.82 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/1/2012 | 5835.85 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/30/2012 | 5835.84 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/29/2012 | 5835.85 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/28/2012 | 5835.87 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/27/2012 | 5835.91 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/26/2012 | 5835.99 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/25/2012 | 5835.91 | Transducer | 969.1 | 979.1 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-43 S2 | 9/24/2012 | 5835.83 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/23/2012 | 5835.81 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/22/2012 | 5835.85 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/21/2012 | 5835.88 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/20/2012 | 5835.85 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/19/2012 | 5835.84 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/18/2012 | 5835.84 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/17/2012 | 5835.95 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/16/2012 | 5835.83 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/15/2012 | 5835.69 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/14/2012 | 5835.64 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/13/2012 | 5835.66 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/13/2012 | 5835.8 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/12/2012 | 5835.934 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/11/2012 | 5835.916 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/10/2012 | 5835.807 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/9/2012 | 5835.752 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/8/2012 | 5835.764 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/7/2012 | 5835.949 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/6/2012 | 5835.907 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/5/2012 | 5835.939 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/4/2012 | 5835.868 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/3/2012 | 5835.896 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/2/2012 | 5835.866 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/1/2012 | 5835.871 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/31/2012 | 5835.926 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/30/2012 | 5835.919 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/29/2012 | 5835.843 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/28/2012 | 5835.798 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/27/2012 | 5835.837 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/26/2012 | 5835.981 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/25/2012 | 5836.098 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/24/2012 | 5836.047 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/23/2012 | 5835.97 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/22/2012 | 5835.935 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/21/2012 | 5835.963 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/20/2012 | 5835.952 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/19/2012 | 5835.985 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/18/2012 | 5835.943 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/17/2012 | 5835.898 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/16/2012 | 5836.032 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/15/2012 | 5836.046 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/14/2012 | 5835.959 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/13/2012 | 5835.853 | Transducer | 969.1 | 979.1 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-43 S2 | 8/12/2012 | 5835.99 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/11/2012 | 5835.972 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/10/2012 | 5835.903 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/9/2012 | 5835.872 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/8/2012 | 5835.908 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/7/2012 | 5835.886 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/6/2012 | 5835.724 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/5/2012 | 5835.824 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/4/2012 | 5836.015 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/3/2012 | 5835.926 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/2/2012 | 5835.952 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/1/2012 | 5835.882 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/31/2012 | 5835.946 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/30/2012 | 5835.948 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/29/2012 | 5835.884 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/28/2012 | 5835.894 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/27/2012 | 5835.955 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/26/2012 | 5836.079 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/25/2012 | 5836.066 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/24/2012 | 5835.953 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/23/2012 | 5835.916 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/22/2012 | 5835.896 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/21/2012 | 5835.869 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/20/2012 | 5835.868 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/19/2012 | 5835.947 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/18/2012 | 5836.06 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/17/2012 | 5836.094 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/16/2012 | 5836.053 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/15/2012 | 5836.01 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/14/2012 | 5835.98 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/13/2012 | 5835.976 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/12/2012 | 5835.949 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/11/2012 | 5835.9 | Manual | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/11/2012 | 5835.897 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/10/2012 | 5835.895 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/9/2012 | 5835.905 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/8/2012 | 5835.88 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/7/2012 | 5835.947 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/6/2012 | 5836.01 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/5/2012 | 5836.067 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/4/2012 | 5836.089 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/3/2012 | 5836.067 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/2/2012 | 5836.067 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/1/2012 | 5836.09 | Transducer | 969.1 | 979.1 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-43 S2 | 6/30/2012 | 5836.067 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/29/2012 | 5835.973 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/28/2012 | 5836.012 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/27/2012 | 5836.135 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/26/2012 | 5836.079 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/25/2012 | 5835.999 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/24/2012 | 5836.076 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/23/2012 | 5836.171 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/22/2012 | 5836.052 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/21/2012 | 5836.147 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/20/2012 | 5836.366 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/19/2012 | 5836.347 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/18/2012 | 5836.274 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/17/2012 | 5836.028 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/16/2012 | 5836.172 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/15/2012 | 5836.306 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/14/2012 | 5836.319 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/13/2012 | 5836.227 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/12/2012 | 5836.13 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/11/2012 | 5836.26 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/10/2012 | 5836.438 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/9/2012 | 5836.407 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/8/2012 | 5836.298 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/7/2012 | 5836.4 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/6/2012 | 5836.377 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/6/2012 | 5836.363 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/5/2012 | 5836.303 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/4/2012 | 5836.292 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/3/2012 | 5836.389 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/2/2012 | 5836.426 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/1/2012 | 5836.381 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/31/2012 | 5836.454 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/30/2012 | 5836.443 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/29/2012 | 5836.417 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/28/2012 | 5836.447 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/27/2012 | 5836.585 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/26/2012 | 5836.622 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/25/2012 | 5836.752 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/24/2012 | 5836.891 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/23/2012 | 5836.712 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/22/2012 | 5836.429 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/21/2012 | 5836.341 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/20/2012 | 5836.5 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/19/2012 | 5836.742 | Transducer | 969.1 | 979.1 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-43 S2 | 5/18/2012 | 5836.72 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/17/2012 | 5836.544 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/16/2012 | 5836.393 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/15/2012 | 5836.375 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/14/2012 | 5836.385 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/13/2012 | 5836.332 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/12/2012 | 5836.395 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/11/2012 | 5836.671 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/10/2012 | 5836.565 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/9/2012 | 5836.429 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/8/2012 | 5836.445 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/7/2012 | 5836.565 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/6/2012 | 5836.631 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/5/2012 | 5836.628 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/4/2012 | 5836.637 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/3/2012 | 5836.722 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/2/2012 | 5836.79 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/1/2012 | 5836.77 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/30/2012 | 5836.678 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/29/2012 | 5836.762 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/28/2012 | 5836.793 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/27/2012 | 5836.827 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/26/2012 | 5836.657 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/25/2012 | 5836.717 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/24/2012 | 5836.631 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/23/2012 | 5836.505 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/22/2012 | 5836.561 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/21/2012 | 5836.604 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/20/2012 | 5836.716 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/19/2012 | 5836.781 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/18/2012 | 5836.651 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/17/2012 | 5836.573 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/16/2012 | 5836.734 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/15/2012 | 5837.069 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/14/2012 | 5837.055 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/13/2012 | 5836.847 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/12/2012 | 5836.855 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/11/2012 | 5836.654 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/10/2012 | 5836.608 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/9/2012 | 5836.535 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/8/2012 | 5836.406 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/7/2012 | 5836.67 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/6/2012 | 5836.821 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/5/2012 | 5836.802 | Transducer | 969.1 | 979.1 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-43 S2 | 4/4/2012 | 5836.77 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/3/2012 | 5836.955 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/2/2012 | 5837.052 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 4/1/2012 | 5836.838 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/31/2012 | 5836.733 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/30/2012 | 5836.771 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/29/2012 | 5836.778 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/28/2012 | 5836.705 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/27/2012 | 5836.745 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/26/2012 | 5836.753 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/25/2012 | 5836.647 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/24/2012 | 5836.665 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/23/2012 | 5836.772 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/22/2012 | 5836.845 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/21/2012 | 5836.852 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/20/2012 | 5837.127 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/19/2012 | 5837.128 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/18/2012 | 5836.994 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/17/2012 | 5836.834 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/16/2012 | 5836.709 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/15/2012 | 5836.664 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/14/2012 | 5836.733 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/13/2012 | 5836.692 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/12/2012 | 5836.819 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/11/2012 | 5836.87 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/10/2012 | 5836.551 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/9/2012 | 5836.393 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/8/2012 | 5836.871 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/7/2012 | 5837.039 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/6/2012 | 5836.809 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/6/2012 | 5836.683 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/5/2012 | 5836.518 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/4/2012 | 5836.547 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/3/2012 | 5836.741 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/2/2012 | 5836.966 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 3/1/2012 | 5836.837 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/29/2012 | 5836.723 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/28/2012 | 5836.847 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/27/2012 | 5836.692 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/26/2012 | 5836.805 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/25/2012 | 5836.544 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/24/2012 | 5836.736 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/23/2012 | 5836.928 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/22/2012 | 5836.672 | Transducer | 969.1 | 979.1 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-43 S2 | 2/21/2012 | 5836.671 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/20/2012 | 5836.98 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/19/2012 | 5836.775 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/18/2012 | 5836.784 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/17/2012 | 5836.728 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/16/2012 | 5836.74 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/15/2012 | 5837.044 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/14/2012 | 5836.952 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/13/2012 | 5836.976 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/12/2012 | 5836.644 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/11/2012 | 5836.621 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/10/2012 | 5836.624 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/9/2012 | 5836.615 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/8/2012 | 5836.515 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/7/2012 | 5836.699 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/6/2012 | 5836.601 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/5/2012 | 5836.484 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/4/2012 | 5836.608 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/3/2012 | 5836.904 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/2/2012 | 5836.693 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 2/1/2012 | 5836.624 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/31/2012 | 5836.74 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/30/2012 | 5836.544 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/29/2012 | 5836.422 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/28/2012 | 5836.51 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/27/2012 | 5836.777 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/26/2012 | 5836.623 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/25/2012 | 5836.64 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/24/2012 | 5836.86 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/23/2012 | 5836.716 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/22/2012 | 5837.105 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/21/2012 | 5836.701 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/20/2012 | 5836.836 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/19/2012 | 5836.683 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/18/2012 | 5836.586 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/17/2012 | 5836.792 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/16/2012 | 5836.767 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/15/2012 | 5836.56 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/14/2012 | 5836.502 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/13/2012 | 5836.668 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/12/2012 | 5836.684 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/11/2012 | 5836.76 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/10/2012 | 5836.568 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/9/2012 | 5836.562 | Transducer | 969.1 | 979.1 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-43 S2 | 1/8/2012 | 5836.773 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/7/2012 | 5836.632 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/6/2012 | 5836.628 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/5/2012 | 5836.287 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/4/2012 | 5836.386 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/3/2012 | 5836.237 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/2/2012 | 5836.177 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 1/1/2012 | 5836.348 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/31/2011 | 5836.596 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/30/2011 | 5836.54 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/29/2011 | 5836.439 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/28/2011 | 5836.478 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/27/2011 | 5836.397 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/26/2011 | 5836.431 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/25/2011 | 5836.289 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/24/2011 | 5836.374 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/23/2011 | 5836.489 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/22/2011 | 5836.764 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/21/2011 | 5836.734 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/20/2011 | 5836.685 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/19/2011 | 5836.75 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/18/2011 | 5836.333 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/17/2011 | 5836.242 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/16/2011 | 5836.411 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/15/2011 | 5836.526 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/14/2011 | 5836.724 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/13/2011 | 5836.598 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/12/2011 | 5836.575 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/11/2011 | 5836.414 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/10/2011 | 5836.276 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/9/2011 | 5836.488 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/8/2011 | 5836.508 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/7/2011 | 5836.404 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/6/2011 | 5836.477 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/5/2011 | 5836.639 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/4/2011 | 5836.586 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/3/2011 | 5836.76 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/2/2011 | 5836.428 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 12/1/2011 | 5836.685 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/30/2011 | 5836.33 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/29/2011 | 5836.305 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/28/2011 | 5836.196 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/27/2011 | 5836.104 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/26/2011 | 5836.525 | Transducer | 969.1 | 979.1 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-43 S2 | 11/25/2011 | 5836.471 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/24/2011 | 5836.303 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/23/2011 | 5836.226 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/22/2011 | 5836.391 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/21/2011 | 5836.473 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/20/2011 | 5836.563 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/19/2011 | 5836.711 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/18/2011 | 5836.526 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/17/2011 | 5836.296 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/16/2011 | 5836.572 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/15/2011 | 5836.598 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/14/2011 | 5836.649 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/13/2011 | 5836.647 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/12/2011 | 5836.571 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/11/2011 | 5836.298 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/10/2011 | 5836.14 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/9/2011 | 5836.312 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/8/2011 | 5836.656 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/7/2011 | 5836.58 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/6/2011 | 5836.643 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/5/2011 | 5836.738 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/4/2011 | 5836.424 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/3/2011 | 5836.207 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/2/2011 | 5836.64 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 11/1/2011 | 5836.406 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/31/2011 | 5836.254 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/30/2011 | 5836.365 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/29/2011 | 5836.275 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/28/2011 | 5836.388 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/27/2011 | 5836.533 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/26/2011 | 5836.452 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/25/2011 | 5836.346 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/24/2011 | 5836.253 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/23/2011 | 5836.311 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/22/2011 | 5836.304 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/21/2011 | 5836.305 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/20/2011 | 5836.41 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/19/2011 | 5836.254 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/18/2011 | 5836.303 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/17/2011 | 5836.388 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/16/2011 | 5836.291 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/15/2011 | 5836.314 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/14/2011 | 5836.396 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/13/2011 | 5836.327 | Transducer | 969.1 | 979.1 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-43 S2 | 10/12/2011 | 5836.475 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/11/2011 | 5836.471 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/10/2011 | 5836.407 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/9/2011 | 5836.448 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/8/2011 | 5836.613 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/7/2011 | 5836.621 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/6/2011 | 5836.62 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/5/2011 | 5836.444 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/4/2011 | 5836.302 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/3/2011 | 5836.261 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/2/2011 | 5836.25 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 10/1/2011 | 5836.255 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/30/2011 | 5836.152 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/29/2011 | 5836.335 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/28/2011 | 5836.256 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/27/2011 | 5836.356 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/26/2011 | 5836.463 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/25/2011 | 5836.422 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/24/2011 | 5836.285 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/23/2011 | 5836.259 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/22/2011 | 5836.371 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/21/2011 | 5836.372 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/20/2011 | 5836.355 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/19/2011 | 5836.271 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/18/2011 | 5836.344 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/17/2011 | 5836.396 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/16/2011 | 5836.399 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/15/2011 | 5836.357 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/14/2011 | 5836.322 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/13/2011 | 5836.223 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/12/2011 | 5836.178 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/11/2011 | 5836.209 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/10/2011 | 5836.248 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/9/2011 | 5836.223 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/8/2011 | 5836.126 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/7/2011 | 5836.275 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/6/2011 | 5836.263 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/5/2011 | 5836.199 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/4/2011 | 5836.282 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/3/2011 | 5836.391 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/2/2011 | 5836.307 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 9/1/2011 | 5836.335 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/31/2011 | 5836.402 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/30/2011 | 5836.394 | Transducer | 969.1 | 979.1 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-43 S2 | 8/29/2011 | 5836.335 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/28/2011 | 5836.284 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/27/2011 | 5836.207 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/26/2011 | 5836.227 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/25/2011 | 5836.266 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/24/2011 | 5836.331 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/23/2011 | 5836.286 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/22/2011 | 5836.22 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/22/2011 | 5836.215 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/21/2011 | 5836.29 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/20/2011 | 5836.36 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/19/2011 | 5836.32 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/18/2011 | 5836.19 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/17/2011 | 5836.24 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/16/2011 | 5836.38 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/15/2011 | 5836.33 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/14/2011 | 5836.21 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/13/2011 | 5836.34 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/12/2011 | 5836.4 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/11/2011 | 5836.4 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/10/2011 | 5836.46 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/9/2011 | 5836.42 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/8/2011 | 5836.43 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/7/2011 | 5836.38 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/6/2011 | 5836.35 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/5/2011 | 5836.36 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/4/2011 | 5836.34 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/3/2011 | 5836.32 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/2/2011 | 5836.28 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 8/1/2011 | 5836.2 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/31/2011 | 5836.17 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/30/2011 | 5836.2 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/29/2011 | 5836.3 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/28/2011 | 5836.4 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/27/2011 | 5836.41 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/26/2011 | 5836.32 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/25/2011 | 5836.19 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/24/2011 | 5836.24 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/23/2011 | 5836.34 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/22/2011 | 5836.37 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/21/2011 | 5836.34 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/20/2011 | 5836.29 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/19/2011 | 5836.19 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/18/2011 | 5836.14 | Transducer | 969.1 | 979.1 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-43 S2 | 7/17/2011 | 5836.24 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/16/2011 | 5836.39 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/15/2011 | 5836.43 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/14/2011 | 5836.4 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/13/2011 | 5836.35 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/12/2011 | 5836.32 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/11/2011 | 5836.33 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/10/2011 | 5836.37 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/9/2011 | 5836.41 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/8/2011 | 5836.36 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/7/2011 | 5836.32 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/6/2011 | 5836.31 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/5/2011 | 5836.31 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/4/2011 | 5836.31 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/3/2011 | 5836.27 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/2/2011 | 5836.34 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 7/1/2011 | 5836.38 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/30/2011 | 5836.38 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/29/2011 | 5836.27 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/28/2011 | 5836.26 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/27/2011 | 5836.44 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/26/2011 | 5836.45 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/25/2011 | 5836.51 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/24/2011 | 5836.52 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/23/2011 | 5836.44 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/22/2011 | 5836.47 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/21/2011 | 5836.59 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/20/2011 | 5836.73 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/19/2011 | 5836.62 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/18/2011 | 5836.57 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/17/2011 | 5836.7 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/16/2011 | 5836.65 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/15/2011 | 5836.48 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/14/2011 | 5836.54 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/13/2011 | 5836.58 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/12/2011 | 5836.63 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/11/2011 | 5836.57 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/10/2011 | 5836.61 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/9/2011 | 5836.65 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/8/2011 | 5836.63 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/7/2011 | 5836.63 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/6/2011 | 5836.44 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/5/2011 | 5836.35 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/4/2011 | 5836.52 | Transducer | 969.1 | 979.1 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-43 S2 | 6/3/2011 | 5836.63 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/2/2011 | 5836.55 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 6/1/2011 | 5836.38 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/31/2011 | 5836.51 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/30/2011 | 5836.96 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/29/2011 | 5836.93 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/28/2011 | 5836.83 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/27/2011 | 5836.77 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/26/2011 | 5836.62 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/25/2011 | 5836.75 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/24/2011 | 5836.89 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/23/2011 | 5836.79 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/22/2011 | 5836.78 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/21/2011 | 5836.82 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/20/2011 | 5836.92 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/19/2011 | 5837.1 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/18/2011 | 5837.04 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/17/2011 | 5836.95 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/16/2011 | 5836.81 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/15/2011 | 5836.84 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/14/2011 | 5836.72 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/13/2011 | 5836.76 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/12/2011 | 5836.98 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/11/2011 | 5837.23 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/10/2011 | 5837.2 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/9/2011 | 5837.18 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/8/2011 | 5837.06 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/7/2011 | 5837.01 | Transducer | 969.1 | 979.1 | Regional |
| R-43 S2 | 5/6/2011 | 5836.87 | Transducer | 969.1 | 979.1 | Regional |
| R-44 S1 | 5/22/2013 | 5834.43 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/21/2013 | 5834.4 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/20/2013 | 5834.48 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/19/2013 | 5834.5 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/18/2013 | 5834.48 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/17/2013 | 5834.47 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/16/2013 | 5834.44 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/15/2013 | 5834.42 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/14/2013 | 5834.29 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/13/2013 | 5834.23 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/12/2013 | 5834.13 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/11/2013 | 5834.16 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/10/2013 | 5834.33 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/9/2013 | 5834.43 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/8/2013 | 5834.5 | Transducer | 895 | 905 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-44 S1 | 5/7/2013 | 5834.42 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/6/2013 | 5834.39 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/5/2013 | 5834.4 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/4/2013 | 5834.48 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/3/2013 | 5834.11 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/2/2013 | 5834.23 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/1/2013 | 5834.64 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/30/2013 | 5834.66 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/29/2013 | 5834.54 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/28/2013 | 5834.39 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/27/2013 | 5834.25 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/26/2013 | 5834.43 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/25/2013 | 5834.34 | Manual | 895 | 905 | Regional |
| R-44 S1 | 4/25/2013 | 5834.41 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/24/2013 | 5834.41 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/23/2013 | 5834.68 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/22/2013 | 5834.48 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/21/2013 | 5834.47 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/20/2013 | 5834.52 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/19/2013 | 5834.33 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/18/2013 | 5834.6 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/17/2013 | 5834.74 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/16/2013 | 5834.72 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/15/2013 | 5834.79 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/14/2013 | 5834.83 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/13/2013 | 5834.57 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/12/2013 | 5834.63 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/11/2013 | 5834.64 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/10/2013 | 5834.71 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/9/2013 | 5835.05 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/8/2013 | 5834.79 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/7/2013 | 5834.67 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/6/2013 | 5834.64 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/5/2013 | 5834.47 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/4/2013 | 5834.44 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/3/2013 | 5834.58 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/2/2013 | 5834.64 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/1/2013 | 5834.55 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/31/2013 | 5834.51 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/30/2013 | 5834.42 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/29/2013 | 5834.44 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/28/2013 | 5834.49 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/27/2013 | 5834.56 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/26/2013 | 5834.4 | Transducer | 895 | 905 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-44 S1 | 3/25/2013 | 5834.52 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/24/2013 | 5834.55 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/23/2013 | 5834.87 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/22/2013 | 5834.78 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/21/2013 | 5834.71 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/20/2013 | 5834.38 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/19/2013 | 5834.57 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/18/2013 | 5834.73 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/17/2013 | 5834.71 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/16/2013 | 5834.61 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/15/2013 | 5834.36 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/14/2013 | 5834.31 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/13/2013 | 5834.31 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/12/2013 | 5834.5 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/11/2013 | 5834.43 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/10/2013 | 5834.63 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/9/2013 | 5834.82 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/8/2013 | 5834.62 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/7/2013 | 5834.55 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/6/2013 | 5834.39 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/5/2013 | 5834.46 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/4/2013 | 5834.68 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/3/2013 | 5834.37 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/2/2013 | 5834.23 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/1/2013 | 5834.3 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/28/2013 | 5834.34 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/27/2013 | 5834.5 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/26/2013 | 5834.62 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/25/2013 | 5834.71 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/24/2013 | 5834.82 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/23/2013 | 5834.6 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/22/2013 | 5834.73 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/21/2013 | 5835.04 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/20/2013 | 5834.82 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/19/2013 | 5834.53 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/18/2013 | 5834.83 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/17/2013 | 5834.47 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/16/2013 | 5834.26 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/15/2013 | 5834.39 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/14/2013 | 5834.51 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/13/2013 | 5834.48 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/12/2013 | 5834.64 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/11/2013 | 5834.66 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/10/2013 | 5834.86 | Transducer | 895 | 905 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-44 S1 | 2/9/2013 | 5834.79 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/8/2013 | 5834.45 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/7/2013 | 5834.61 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/6/2013 | 5834.61 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/5/2013 | 5834.59 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/4/2013 | 5834.63 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/3/2013 | 5834.33 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/2/2013 | 5834.34 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/1/2013 | 5834.36 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/31/2013 | 5834.45 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/30/2013 | 5834.72 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/29/2013 | 5834.87 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/28/2013 | 5834.71 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/27/2013 | 5834.71 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/26/2013 | 5834.47 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/25/2013 | 5834.41 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/24/2013 | 5834.35 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/23/2013 | 5834.34 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/22/2013 | 5834.4 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/21/2013 | 5834.38 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/20/2013 | 5834.31 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/19/2013 | 5834.38 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/18/2013 | 5834.22 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/17/2013 | 5834.2 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/16/2013 | 5834.33 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/15/2013 | 5834.59 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/14/2013 | 5834.64 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/13/2013 | 5834.68 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/12/2013 | 5834.75 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/11/2013 | 5834.88 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/10/2013 | 5834.46 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/9/2013 | 5834.38 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/8/2013 | 5834.65 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/7/2013 | 5834.51 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/6/2013 | 5834.28 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/5/2013 | 5834.45 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/4/2013 | 5834.35 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/3/2013 | 5834.39 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/2/2013 | 5834.41 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/1/2013 | 5834.57 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/31/2012 | 5834.73 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/30/2012 | 5834.48 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/29/2012 | 5834.41 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/28/2012 | 5834.72 | Transducer | 895 | 905 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-44 S1 | 12/27/2012 | 5834.84 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/26/2012 | 5834.55 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/25/2012 | 5834.93 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/24/2012 | 5834.58 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/23/2012 | 5834.48 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/22/2012 | 5834.34 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/21/2012 | 5834.18 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/20/2012 | 5834.36 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/19/2012 | 5834.88 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/18/2012 | 5834.62 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/17/2012 | 5834.56 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/16/2012 | 5834.76 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/15/2012 | 5834.64 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/14/2012 | 5834.63 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/13/2012 | 5834.51 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/12/2012 | 5834.55 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/11/2012 | 5834.63 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/10/2012 | 5834.52 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/9/2012 | 5834.75 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/8/2012 | 5834.69 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/7/2012 | 5834.71 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/6/2012 | 5834.61 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/5/2012 | 5834.34 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/4/2012 | 5834.43 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/3/2012 | 5834.58 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/3/2012 | 5834.64 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/2/2012 | 5834.5 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/1/2012 | 5834.54 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/30/2012 | 5834.47 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/29/2012 | 5834.45 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/28/2012 | 5834.34 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/27/2012 | 5834.34 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/26/2012 | 5834.65 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/25/2012 | 5834.57 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/24/2012 | 5834.29 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/23/2012 | 5834.31 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/22/2012 | 5834.51 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/21/2012 | 5834.4 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/20/2012 | 5834.32 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/19/2012 | 5834.42 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/18/2012 | 5834.49 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/17/2012 | 5834.4 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/16/2012 | 5834.26 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/15/2012 | 5834.39 | Transducer | 895 | 905 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-44 S1 | 11/14/2012 | 5834.31 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/13/2012 | 5834.29 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/12/2012 | 5834.3 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/11/2012 | 5834.76 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/10/2012 | 5834.79 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/9/2012 | 5834.64 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/8/2012 | 5834.51 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/7/2012 | 5834.33 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/6/2012 | 5834.35 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/5/2012 | 5834.31 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/4/2012 | 5834.36 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/3/2012 | 5834.46 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/2/2012 | 5834.51 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/1/2012 | 5834.38 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/31/2012 | 5834.4 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/30/2012 | 5834.38 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/29/2012 | 5834.37 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/28/2012 | 5834.43 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/27/2012 | 5834.33 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/26/2012 | 5834.38 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/25/2012 | 5834.6 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/24/2012 | 5834.57 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/23/2012 | 5834.55 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/22/2012 | 5834.6 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/21/2012 | 5834.65 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/20/2012 | 5834.56 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/19/2012 | 5834.47 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/18/2012 | 5834.55 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/17/2012 | 5834.73 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/16/2012 | 5834.56 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/15/2012 | 5834.37 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/14/2012 | 5834.4 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/13/2012 | 5834.56 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/12/2012 | 5834.47 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/11/2012 | 5834.51 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/10/2012 | 5834.49 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/9/2012 | 5834.58 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/8/2012 | 5834.55 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/7/2012 | 5834.54 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/6/2012 | 5834.58 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/5/2012 | 5834.53 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/4/2012 | 5834.52 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/3/2012 | 5834.62 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/2/2012 | 5834.47 | Transducer | 895 | 905 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-44 S1 | 10/1/2012 | 5834.48 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/30/2012 | 5834.48 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/29/2012 | 5834.49 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/28/2012 | 5834.51 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/27/2012 | 5834.54 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/26/2012 | 5834.64 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/25/2012 | 5834.57 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/24/2012 | 5834.49 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/23/2012 | 5834.47 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/22/2012 | 5834.5 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/21/2012 | 5834.54 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/20/2012 | 5834.52 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/19/2012 | 5834.51 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/18/2012 | 5834.51 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/17/2012 | 5834.64 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/16/2012 | 5834.52 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/15/2012 | 5834.36 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/14/2012 | 5834.28 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/13/2012 | 5834.45 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/12/2012 | 5834.61 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/11/2012 | 5834.58 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/10/2012 | 5834.48 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/9/2012 | 5834.4 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/8/2012 | 5834.42 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/7/2012 | 5834.6 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/6/2012 | 5834.57 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/5/2012 | 5834.61 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/4/2012 | 5834.56 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/3/2012 | 5834.57 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/2/2012 | 5834.54 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/1/2012 | 5834.54 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/31/2012 | 5834.58 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/30/2012 | 5834.57 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/29/2012 | 5834.48 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/28/2012 | 5834.4 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/27/2012 | 5834.46 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/26/2012 | 5834.59 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/25/2012 | 5834.73 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/24/2012 | 5834.69 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/23/2012 | 5834.61 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/22/2012 | 5834.57 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/21/2012 | 5834.61 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/20/2012 | 5834.6 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/19/2012 | 5834.63 | Transducer | 895 | 905 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-44 S1 | 8/18/2012 | 5834.6 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/17/2012 | 5834.54 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/16/2012 | 5834.67 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/15/2012 | 5834.69 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/14/2012 | 5834.61 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/13/2012 | 5834.5 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/12/2012 | 5834.64 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/11/2012 | 5834.62 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/10/2012 | 5834.55 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/9/2012 | 5834.5 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/8/2012 | 5834.54 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/7/2012 | 5834.55 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/6/2012 | 5834.36 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/5/2012 | 5834.46 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/4/2012 | 5834.68 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/3/2012 | 5834.59 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/2/2012 | 5834.62 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/1/2012 | 5834.54 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/31/2012 | 5834.6 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/30/2012 | 5834.6 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/29/2012 | 5834.52 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/28/2012 | 5834.51 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/27/2012 | 5834.58 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/26/2012 | 5834.72 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/25/2012 | 5834.72 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/24/2012 | 5834.6 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/23/2012 | 5834.57 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/22/2012 | 5834.55 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/21/2012 | 5834.51 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/20/2012 | 5834.5 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/19/2012 | 5834.56 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/18/2012 | 5834.68 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/17/2012 | 5834.74 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/16/2012 | 5834.69 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/15/2012 | 5834.65 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/14/2012 | 5834.61 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/13/2012 | 5834.61 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/12/2012 | 5834.59 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/11/2012 | 5834.54 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/10/2012 | 5834.54 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/9/2012 | 5834.54 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/8/2012 | 5834.52 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/7/2012 | 5834.56 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/6/2012 | 5834.63 | Transducer | 895 | 905 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-44 S1 | 7/5/2012 | 5834.69 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/4/2012 | 5834.72 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/3/2012 | 5834.71 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/2/2012 | 5834.72 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/1/2012 | 5834.75 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/30/2012 | 5834.73 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/29/2012 | 5834.6 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/28/2012 | 5834.63 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/27/2012 | 5834.75 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/26/2012 | 5834.69 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/25/2012 | 5834.6 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/24/2012 | 5834.68 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/23/2012 | 5834.79 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/22/2012 | 5834.64 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/21/2012 | 5834.72 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/20/2012 | 5834.84 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/20/2012 | 5834.82 | Manual | 895 | 905 | Regional |
| R-44 S1 | 6/20/2012 | 5834.829 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/19/2012 | 5834.825 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/18/2012 | 5834.765 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/17/2012 | 5834.493 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/16/2012 | 5834.643 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/15/2012 | 5834.774 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/14/2012 | 5834.792 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/13/2012 | 5834.696 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/12/2012 | 5834.573 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/11/2012 | 5834.702 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/10/2012 | 5834.9 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/9/2012 | 5834.864 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/8/2012 | 5834.739 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/7/2012 | 5834.847 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/6/2012 | 5834.818 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/5/2012 | 5834.738 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/4/2012 | 5834.721 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/3/2012 | 5834.814 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/2/2012 | 5834.846 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/1/2012 | 5834.792 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/31/2012 | 5834.842 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/30/2012 | 5834.824 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/29/2012 | 5834.773 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/28/2012 | 5834.809 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/27/2012 | 5834.944 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/26/2012 | 5834.979 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/25/2012 | 5835.114 | Transducer | 895 | 905 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-44 S1 | 5/24/2012 | 5835.266 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/23/2012 | 5835.085 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/22/2012 | 5834.786 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/21/2012 | 5834.677 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/20/2012 | 5834.847 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/19/2012 | 5835.09 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/18/2012 | 5835.101 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/17/2012 | 5834.925 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/16/2012 | 5834.761 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/15/2012 | 5834.737 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/14/2012 | 5834.752 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/13/2012 | 5834.677 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/12/2012 | 5834.745 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/11/2012 | 5835.035 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/10/2012 | 5834.938 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/9/2012 | 5834.794 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/8/2012 | 5834.825 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/7/2012 | 5834.942 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/6/2012 | 5835.01 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/5/2012 | 5834.993 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/4/2012 | 5834.963 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/3/2012 | 5835.042 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/2/2012 | 5835.113 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/1/2012 | 5835.105 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/30/2012 | 5835.011 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/29/2012 | 5835.107 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/28/2012 | 5835.133 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/27/2012 | 5835.181 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/26/2012 | 5834.996 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/25/2012 | 5835.059 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/24/2012 | 5834.977 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/23/2012 | 5834.842 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/22/2012 | 5834.888 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/21/2012 | 5834.94 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/20/2012 | 5835.016 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/19/2012 | 5835.092 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/18/2012 | 5834.948 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/17/2012 | 5834.854 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/16/2012 | 5834.995 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/15/2012 | 5835.36 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/14/2012 | 5835.385 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/13/2012 | 5835.16 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/12/2012 | 5835.195 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/11/2012 | 5834.992 | Transducer | 895 | 905 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-44 S1 | 4/10/2012 | 5834.949 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/9/2012 | 5834.871 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/8/2012 | 5834.707 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/7/2012 | 5834.958 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/6/2012 | 5835.118 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/5/2012 | 5835.091 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/4/2012 | 5835.056 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/3/2012 | 5835.236 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/2/2012 | 5835.37 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 4/1/2012 | 5835.167 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/31/2012 | 5835.051 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/30/2012 | 5835.07 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/29/2012 | 5835.093 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/28/2012 | 5835.022 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/27/2012 | 5835.056 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/26/2012 | 5835.085 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/25/2012 | 5834.958 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/24/2012 | 5834.965 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/23/2012 | 5835.041 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/22/2012 | 5835.113 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/21/2012 | 5835.104 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/20/2012 | 5835.412 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/19/2012 | 5835.434 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/18/2012 | 5835.325 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/17/2012 | 5835.162 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/16/2012 | 5835.018 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/15/2012 | 5834.967 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/14/2012 | 5835.04 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/13/2012 | 5834.988 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/12/2012 | 5835.141 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/11/2012 | 5835.223 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/10/2012 | 5834.876 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/9/2012 | 5834.673 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/8/2012 | 5835.168 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/7/2012 | 5835.405 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/7/2012 | 5835.384 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/6/2012 | 5835.042 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/5/2012 | 5834.843 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/4/2012 | 5834.843 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/3/2012 | 5835.003 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/2/2012 | 5835.258 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 3/1/2012 | 5835.126 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/29/2012 | 5834.994 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/28/2012 | 5835.146 | Transducer | 895 | 905 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-44 S1 | 2/27/2012 | 5834.979 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/26/2012 | 5835.099 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/25/2012 | 5834.819 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/24/2012 | 5834.982 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/23/2012 | 5835.233 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/22/2012 | 5834.952 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/21/2012 | 5834.949 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/20/2012 | 5835.281 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/19/2012 | 5835.096 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/18/2012 | 5835.095 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/17/2012 | 5835.018 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/16/2012 | 5835.023 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/15/2012 | 5835.361 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/14/2012 | 5835.289 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/13/2012 | 5835.36 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/12/2012 | 5835.016 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/11/2012 | 5834.997 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/10/2012 | 5834.991 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/9/2012 | 5835.006 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/8/2012 | 5834.883 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/7/2012 | 5835.083 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/6/2012 | 5834.996 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/5/2012 | 5834.854 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/4/2012 | 5834.969 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/3/2012 | 5835.282 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/2/2012 | 5835.092 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 2/1/2012 | 5834.998 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/31/2012 | 5835.142 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/30/2012 | 5834.96 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/29/2012 | 5834.812 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/28/2012 | 5834.882 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/27/2012 | 5835.158 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/26/2012 | 5834.994 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/25/2012 | 5835.001 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/24/2012 | 5835.247 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/23/2012 | 5835.084 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/22/2012 | 5835.519 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/21/2012 | 5835.094 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/20/2012 | 5835.25 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/19/2012 | 5835.074 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/18/2012 | 5834.985 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/17/2012 | 5835.188 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/16/2012 | 5835.206 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/15/2012 | 5834.99 | Transducer | 895 | 905 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-44 S1 | 1/14/2012 | 5834.924 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/13/2012 | 5835.099 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/12/2012 | 5835.108 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/11/2012 | 5835.229 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/10/2012 | 5835.039 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/9/2012 | 5835.038 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/8/2012 | 5835.29 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/7/2012 | 5835.17 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/6/2012 | 5835.177 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/5/2012 | 5834.83 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/4/2012 | 5834.911 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/3/2012 | 5834.773 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/2/2012 | 5834.686 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 1/1/2012 | 5834.84 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/31/2011 | 5835.115 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/30/2011 | 5835.068 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/29/2011 | 5834.983 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/28/2011 | 5835.026 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/27/2011 | 5834.94 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/26/2011 | 5834.988 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/25/2011 | 5834.805 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/24/2011 | 5834.874 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/23/2011 | 5834.961 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/22/2011 | 5835.252 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/21/2011 | 5835.253 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/20/2011 | 5835.195 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/19/2011 | 5835.321 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/18/2011 | 5834.87 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/17/2011 | 5834.755 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/16/2011 | 5834.905 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/15/2011 | 5835.025 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/14/2011 | 5835.238 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/13/2011 | 5835.13 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/12/2011 | 5835.125 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/11/2011 | 5834.976 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/10/2011 | 5834.825 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/9/2011 | 5835.008 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/8/2011 | 5835.041 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/7/2011 | 5834.908 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/6/2011 | 5834.98 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/5/2011 | 5835.142 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/4/2011 | 5835.105 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/3/2011 | 5835.326 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 12/2/2011 | 5834.958 | Transducer | 895 | 905 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-44 S1 | 12/1/2011 | 5835.245 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/30/2011 | 5834.897 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/29/2011 | 5834.866 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/28/2011 | 5834.75 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/27/2011 | 5834.632 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/26/2011 | 5835.068 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/25/2011 | 5835.024 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/24/2011 | 5834.855 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/23/2011 | 5834.728 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/22/2011 | 5834.883 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/21/2011 | 5834.971 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/20/2011 | 5835.069 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/19/2011 | 5835.244 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/18/2011 | 5835.037 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/17/2011 | 5834.775 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/16/2011 | 5835.068 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/15/2011 | 5835.103 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/14/2011 | 5835.164 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/13/2011 | 5835.177 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/12/2011 | 5835.122 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/11/2011 | 5834.831 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/10/2011 | 5834.623 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/9/2011 | 5834.783 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/8/2011 | 5835.15 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/7/2011 | 5835.08 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/6/2011 | 5835.149 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/5/2011 | 5835.288 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/4/2011 | 5834.955 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/3/2011 | 5834.717 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/2/2011 | 5835.182 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 11/1/2011 | 5834.961 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/31/2011 | 5834.802 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/30/2011 | 5834.904 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/29/2011 | 5834.806 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/28/2011 | 5834.91 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/27/2011 | 5835.058 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/26/2011 | 5834.986 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/25/2011 | 5834.91 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/24/2011 | 5834.799 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/23/2011 | 5834.826 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/22/2011 | 5834.82 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/21/2011 | 5834.834 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/20/2011 | 5834.95 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/19/2011 | 5834.775 | Transducer | 895 | 905 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-44 S1 | 10/18/2011 | 5834.831 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/17/2011 | 5834.921 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/16/2011 | 5834.804 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/15/2011 | 5834.824 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/14/2011 | 5834.892 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/13/2011 | 5834.811 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/12/2011 | 5834.943 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/11/2011 | 5834.974 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/10/2011 | 5834.885 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/9/2011 | 5834.91 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/8/2011 | 5835.083 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/7/2011 | 5835.083 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/6/2011 | 5835.139 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/5/2011 | 5834.963 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/4/2011 | 5834.826 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/3/2011 | 5834.788 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/2/2011 | 5834.773 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 10/1/2011 | 5834.763 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/30/2011 | 5834.639 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/29/2011 | 5834.834 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/28/2011 | 5834.762 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/27/2011 | 5834.844 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/26/2011 | 5834.963 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/25/2011 | 5834.924 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/24/2011 | 5834.784 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/23/2011 | 5834.731 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/22/2011 | 5834.838 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/21/2011 | 5834.843 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/20/2011 | 5834.826 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/19/2011 | 5834.735 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/18/2011 | 5834.798 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/17/2011 | 5834.862 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/16/2011 | 5834.875 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/15/2011 | 5834.838 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/14/2011 | 5834.811 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/13/2011 | 5834.716 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/12/2011 | 5834.657 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/11/2011 | 5834.686 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/10/2011 | 5834.725 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/9/2011 | 5834.687 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/8/2011 | 5834.573 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/7/2011 | 5834.729 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/6/2011 | 5834.729 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/5/2011 | 5834.654 | Transducer | 895 | 905 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-44 S1 | 9/4/2011 | 5834.73 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/3/2011 | 5834.846 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/2/2011 | 5834.757 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 9/1/2011 | 5834.783 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/31/2011 | 5834.854 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/30/2011 | 5834.84 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/29/2011 | 5834.808 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/28/2011 | 5834.734 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/27/2011 | 5834.652 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/26/2011 | 5834.654 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/25/2011 | 5834.678 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/24/2011 | 5834.744 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/23/2011 | 5834.726 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/22/2011 | 5834.636 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/21/2011 | 5834.716 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/20/2011 | 5834.782 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/19/2011 | 5834.75 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/19/2011 | 5834.813 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/18/2011 | 5834.61 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/17/2011 | 5834.64 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/16/2011 | 5834.79 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/15/2011 | 5834.74 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/14/2011 | 5834.59 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/13/2011 | 5834.72 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/12/2011 | 5834.77 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/11/2011 | 5834.77 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/10/2011 | 5834.84 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/9/2011 | 5834.79 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/8/2011 | 5834.81 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/7/2011 | 5834.76 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/6/2011 | 5834.73 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/5/2011 | 5834.73 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/4/2011 | 5834.72 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/3/2011 | 5834.68 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/2/2011 | 5834.65 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 8/1/2011 | 5834.56 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/31/2011 | 5834.53 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/30/2011 | 5834.53 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/29/2011 | 5834.61 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/28/2011 | 5834.71 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/27/2011 | 5834.72 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/26/2011 | 5834.65 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/25/2011 | 5834.53 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/24/2011 | 5834.58 | Transducer | 895 | 905 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-44 S1 | 7/23/2011 | 5834.68 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/22/2011 | 5834.72 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/21/2011 | 5834.7 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/20/2011 | 5834.64 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/19/2011 | 5834.55 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/18/2011 | 5834.5 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/17/2011 | 5834.59 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/16/2011 | 5834.73 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/15/2011 | 5834.77 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/14/2011 | 5834.74 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/13/2011 | 5834.7 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/12/2011 | 5834.68 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/11/2011 | 5834.69 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/10/2011 | 5834.71 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/9/2011 | 5834.77 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/8/2011 | 5834.73 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/7/2011 | 5834.66 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/6/2011 | 5834.65 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/5/2011 | 5834.66 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/4/2011 | 5834.67 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/3/2011 | 5834.6 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/2/2011 | 5834.68 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 7/1/2011 | 5834.74 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/30/2011 | 5834.73 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/29/2011 | 5834.65 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/28/2011 | 5834.62 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/27/2011 | 5834.78 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/26/2011 | 5834.8 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/25/2011 | 5834.85 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/24/2011 | 5834.84 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/23/2011 | 5834.76 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/22/2011 | 5834.77 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/21/2011 | 5834.89 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/20/2011 | 5835.05 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/19/2011 | 5834.95 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/18/2011 | 5834.88 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/17/2011 | 5835.03 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/16/2011 | 5834.99 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/15/2011 | 5834.81 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/14/2011 | 5834.87 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/13/2011 | 5834.9 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/12/2011 | 5834.97 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/11/2011 | 5834.9 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/10/2011 | 5834.94 | Transducer | 895 | 905 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-44 S1 | 6/9/2011 | 5834.99 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/8/2011 | 5834.96 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/7/2011 | 5834.98 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/6/2011 | 5834.8 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/5/2011 | 5834.68 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/4/2011 | 5834.86 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/3/2011 | 5834.97 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/2/2011 | 5834.89 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 6/1/2011 | 5834.69 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/31/2011 | 5834.79 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/30/2011 | 5835.27 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/29/2011 | 5835.27 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/28/2011 | 5835.18 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/27/2011 | 5835.12 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/26/2011 | 5834.96 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/25/2011 | 5835.07 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/24/2011 | 5835.24 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/23/2011 | 5835.15 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/22/2011 | 5835.12 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/21/2011 | 5835.15 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/20/2011 | 5835.25 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/19/2011 | 5835.45 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/18/2011 | 5835.43 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/17/2011 | 5835.34 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/16/2011 | 5835.19 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/15/2011 | 5835.19 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/14/2011 | 5835.07 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/13/2011 | 5835.13 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/12/2011 | 5835.34 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/11/2011 | 5835.61 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/10/2011 | 5835.6 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/9/2011 | 5835.6 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/8/2011 | 5835.5 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/7/2011 | 5835.46 | Transducer | 895 | 905 | Regional |
| R-44 S1 | 5/6/2011 | 5835.32 | Transducer | 895 | 905 | Regional |
| R-44 S2 | 5/22/2013 | 5834.21 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/21/2013 | 5834.18 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/20/2013 | 5834.25 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/19/2013 | 5834.26 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/18/2013 | 5834.25 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/17/2013 | 5834.26 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/16/2013 | 5834.22 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/15/2013 | 5834.19 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/14/2013 | 5834.06 | Transducer | 985.3 | 995.2 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-44 S2 | 5/13/2013 | 5834.02 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/12/2013 | 5833.94 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/11/2013 | 5833.98 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/10/2013 | 5834.15 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/9/2013 | 5834.23 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/8/2013 | 5834.3 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/7/2013 | 5834.22 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/6/2013 | 5834.19 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/5/2013 | 5834.21 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/4/2013 | 5834.28 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/3/2013 | 5833.93 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/2/2013 | 5834.07 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/1/2013 | 5834.46 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/30/2013 | 5834.47 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/29/2013 | 5834.36 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/28/2013 | 5834.2 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/27/2013 | 5834.08 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/26/2013 | 5834.26 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/25/2013 | 5834.21 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/25/2013 | 5834.17 | Manual | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/24/2013 | 5834.21 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/23/2013 | 5834.46 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/22/2013 | 5834.28 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/21/2013 | 5834.3 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/20/2013 | 5834.33 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/19/2013 | 5834.18 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/18/2013 | 5834.44 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/17/2013 | 5834.56 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/16/2013 | 5834.55 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/15/2013 | 5834.6 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/14/2013 | 5834.63 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/13/2013 | 5834.38 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/12/2013 | 5834.44 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/11/2013 | 5834.45 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/10/2013 | 5834.52 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/9/2013 | 5834.83 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/8/2013 | 5834.57 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/7/2013 | 5834.47 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/6/2013 | 5834.44 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/5/2013 | 5834.27 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/4/2013 | 5834.26 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/3/2013 | 5834.39 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/2/2013 | 5834.44 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/1/2013 | 5834.35 | Transducer | 985.3 | 995.2 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-44 S2 | 3/31/2013 | 5834.31 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/30/2013 | 5834.23 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/29/2013 | 5834.24 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/28/2013 | 5834.29 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/27/2013 | 5834.35 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/26/2013 | 5834.21 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/25/2013 | 5834.34 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/24/2013 | 5834.38 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/23/2013 | 5834.66 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/22/2013 | 5834.59 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/21/2013 | 5834.5 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/20/2013 | 5834.21 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/19/2013 | 5834.39 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/18/2013 | 5834.54 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/17/2013 | 5834.51 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/16/2013 | 5834.4 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/15/2013 | 5834.16 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/14/2013 | 5834.11 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/13/2013 | 5834.12 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/12/2013 | 5834.29 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/11/2013 | 5834.24 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/10/2013 | 5834.44 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/9/2013 | 5834.61 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/8/2013 | 5834.41 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/7/2013 | 5834.35 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/6/2013 | 5834.19 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/5/2013 | 5834.28 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/4/2013 | 5834.47 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/3/2013 | 5834.16 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/2/2013 | 5834.03 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/1/2013 | 5834.11 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/28/2013 | 5834.15 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/27/2013 | 5834.31 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/26/2013 | 5834.41 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/25/2013 | 5834.52 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/24/2013 | 5834.6 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/23/2013 | 5834.4 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/22/2013 | 5834.54 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/21/2013 | 5834.82 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/20/2013 | 5834.61 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/19/2013 | 5834.34 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/18/2013 | 5834.61 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/17/2013 | 5834.26 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/16/2013 | 5834.07 | Transducer | 985.3 | 995.2 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-44 S2 | 2/15/2013 | 5834.21 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/14/2013 | 5834.31 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/13/2013 | 5834.28 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/12/2013 | 5834.43 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/11/2013 | 5834.45 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/10/2013 | 5834.65 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/9/2013 | 5834.55 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/8/2013 | 5834.24 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/7/2013 | 5834.4 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/6/2013 | 5834.4 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/5/2013 | 5834.37 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/4/2013 | 5834.4 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/3/2013 | 5834.11 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/2/2013 | 5834.14 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/1/2013 | 5834.16 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/31/2013 | 5834.25 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/30/2013 | 5834.52 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/29/2013 | 5834.64 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/28/2013 | 5834.47 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/27/2013 | 5834.47 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/26/2013 | 5834.23 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/25/2013 | 5834.19 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/24/2013 | 5834.12 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/23/2013 | 5834.13 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/22/2013 | 5834.17 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/21/2013 | 5834.16 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/20/2013 | 5834.09 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/19/2013 | 5834.15 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/18/2013 | 5834.01 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/17/2013 | 5834.01 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/16/2013 | 5834.13 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/15/2013 | 5834.37 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/14/2013 | 5834.43 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/13/2013 | 5834.47 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/12/2013 | 5834.52 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/11/2013 | 5834.62 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/10/2013 | 5834.23 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/9/2013 | 5834.18 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/8/2013 | 5834.42 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/7/2013 | 5834.28 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/6/2013 | 5834.08 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/5/2013 | 5834.24 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/4/2013 | 5834.14 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/3/2013 | 5834.18 | Transducer | 985.3 | 995.2 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-44 S2 | 1/2/2013 | 5834.2 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/1/2013 | 5834.36 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/31/2012 | 5834.49 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/30/2012 | 5834.26 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/29/2012 | 5834.2 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/28/2012 | 5834.5 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/27/2012 | 5834.6 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/26/2012 | 5834.33 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/25/2012 | 5834.67 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/24/2012 | 5834.34 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/23/2012 | 5834.26 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/22/2012 | 5834.13 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/21/2012 | 5833.98 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/20/2012 | 5834.18 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/19/2012 | 5834.64 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/18/2012 | 5834.39 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/17/2012 | 5834.34 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/16/2012 | 5834.53 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/15/2012 | 5834.42 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/14/2012 | 5834.39 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/13/2012 | 5834.28 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/12/2012 | 5834.32 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/11/2012 | 5834.4 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/10/2012 | 5834.31 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/9/2012 | 5834.52 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/8/2012 | 5834.47 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/7/2012 | 5834.48 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/6/2012 | 5834.37 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/5/2012 | 5834.11 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/4/2012 | 5834.22 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/3/2012 | 5834.36 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/3/2012 | 5834.4 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/2/2012 | 5834.27 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/1/2012 | 5834.3 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/30/2012 | 5834.23 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/29/2012 | 5834.21 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/28/2012 | 5834.11 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/27/2012 | 5834.12 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/26/2012 | 5834.42 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/25/2012 | 5834.33 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/24/2012 | 5834.06 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/23/2012 | 5834.1 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/22/2012 | 5834.28 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/21/2012 | 5834.17 | Transducer | 985.3 | 995.2 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-44 S2 | 11/20/2012 | 5834.1 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/19/2012 | 5834.19 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/18/2012 | 5834.25 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/17/2012 | 5834.16 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/16/2012 | 5834.03 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/15/2012 | 5834.13 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/14/2012 | 5834.06 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/13/2012 | 5834.05 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/12/2012 | 5834.09 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/11/2012 | 5834.52 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/10/2012 | 5834.52 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/9/2012 | 5834.38 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/8/2012 | 5834.25 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/7/2012 | 5834.09 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/6/2012 | 5834.09 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/5/2012 | 5834.06 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/4/2012 | 5834.09 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/3/2012 | 5834.19 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/2/2012 | 5834.22 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/1/2012 | 5834.12 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/31/2012 | 5834.14 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/30/2012 | 5834.1 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/29/2012 | 5834.1 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/28/2012 | 5834.15 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/27/2012 | 5834.06 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/26/2012 | 5834.13 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/25/2012 | 5834.34 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/24/2012 | 5834.3 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/23/2012 | 5834.28 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/22/2012 | 5834.32 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/21/2012 | 5834.36 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/20/2012 | 5834.28 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/19/2012 | 5834.19 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/18/2012 | 5834.26 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/17/2012 | 5834.43 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/16/2012 | 5834.26 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/15/2012 | 5834.08 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/14/2012 | 5834.12 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/13/2012 | 5834.28 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/12/2012 | 5834.19 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/11/2012 | 5834.23 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/10/2012 | 5834.22 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/9/2012 | 5834.29 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/8/2012 | 5834.26 | Transducer | 985.3 | 995.2 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-44 S2 | 10/7/2012 | 5834.25 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/6/2012 | 5834.29 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/5/2012 | 5834.24 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/4/2012 | 5834.22 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/3/2012 | 5834.32 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/2/2012 | 5834.17 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/1/2012 | 5834.19 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/30/2012 | 5834.19 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/29/2012 | 5834.21 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/28/2012 | 5834.22 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/27/2012 | 5834.25 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/26/2012 | 5834.34 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/25/2012 | 5834.28 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/24/2012 | 5834.19 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/23/2012 | 5834.17 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/22/2012 | 5834.21 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/21/2012 | 5834.24 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/20/2012 | 5834.22 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/19/2012 | 5834.21 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/18/2012 | 5834.2 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/17/2012 | 5834.32 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/16/2012 | 5834.21 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/15/2012 | 5834.06 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/14/2012 | 5834 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/13/2012 | 5834.17 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/12/2012 | 5834.3 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/11/2012 | 5834.28 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/10/2012 | 5834.18 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/9/2012 | 5834.11 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/8/2012 | 5834.13 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/7/2012 | 5834.3 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/6/2012 | 5834.27 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/5/2012 | 5834.29 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/4/2012 | 5834.23 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/3/2012 | 5834.26 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/2/2012 | 5834.23 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/1/2012 | 5834.24 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/31/2012 | 5834.29 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/30/2012 | 5834.28 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/29/2012 | 5834.21 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/28/2012 | 5834.15 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/27/2012 | 5834.2 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/26/2012 | 5834.32 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/25/2012 | 5834.45 | Transducer | 985.3 | 995.2 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-44 S2 | 8/24/2012 | 5834.4 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/23/2012 | 5834.32 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/22/2012 | 5834.27 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/21/2012 | 5834.31 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/20/2012 | 5834.3 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/19/2012 | 5834.34 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/18/2012 | 5834.31 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/17/2012 | 5834.26 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/16/2012 | 5834.41 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/15/2012 | 5834.43 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/14/2012 | 5834.34 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/13/2012 | 5834.24 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/12/2012 | 5834.37 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/11/2012 | 5834.35 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/10/2012 | 5834.28 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/9/2012 | 5834.23 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/8/2012 | 5834.25 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/7/2012 | 5834.24 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/6/2012 | 5834.06 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/5/2012 | 5834.15 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/4/2012 | 5834.35 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/3/2012 | 5834.26 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/2/2012 | 5834.29 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/1/2012 | 5834.23 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/31/2012 | 5834.29 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/30/2012 | 5834.28 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/29/2012 | 5834.23 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/28/2012 | 5834.23 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/27/2012 | 5834.29 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/26/2012 | 5834.4 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/25/2012 | 5834.4 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/24/2012 | 5834.29 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/23/2012 | 5834.25 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/22/2012 | 5834.23 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/21/2012 | 5834.2 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/20/2012 | 5834.2 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/19/2012 | 5834.26 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/18/2012 | 5834.37 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/17/2012 | 5834.43 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/16/2012 | 5834.38 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/15/2012 | 5834.34 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/14/2012 | 5834.31 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/13/2012 | 5834.3 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/12/2012 | 5834.29 | Transducer | 985.3 | 995.2 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-44 S2 | 7/11/2012 | 5834.23 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/10/2012 | 5834.24 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/9/2012 | 5834.23 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/8/2012 | 5834.21 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/7/2012 | 5834.26 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/6/2012 | 5834.33 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/5/2012 | 5834.38 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/4/2012 | 5834.4 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/3/2012 | 5834.38 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/2/2012 | 5834.39 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/1/2012 | 5834.42 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/30/2012 | 5834.41 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/29/2012 | 5834.29 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/28/2012 | 5834.34 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/27/2012 | 5834.46 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/26/2012 | 5834.39 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/25/2012 | 5834.31 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/24/2012 | 5834.38 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/23/2012 | 5834.47 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/22/2012 | 5834.34 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/21/2012 | 5834.43 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/20/2012 | 5834.54 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/20/2012 | 5834.54 | Manual | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/20/2012 | 5834.613 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/19/2012 | 5834.607 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/18/2012 | 5834.541 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/17/2012 | 5834.292 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/16/2012 | 5834.443 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/15/2012 | 5834.563 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/14/2012 | 5834.58 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/13/2012 | 5834.493 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/12/2012 | 5834.384 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/11/2012 | 5834.507 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/10/2012 | 5834.704 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/9/2012 | 5834.658 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/8/2012 | 5834.554 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/7/2012 | 5834.646 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/6/2012 | 5834.625 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/5/2012 | 5834.54 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/4/2012 | 5834.531 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/3/2012 | 5834.629 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/2/2012 | 5834.66 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/1/2012 | 5834.605 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/31/2012 | 5834.671 | Transducer | 985.3 | 995.2 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-44 S2 | 5/30/2012 | 5834.657 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/29/2012 | 5834.623 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/28/2012 | 5834.653 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/27/2012 | 5834.775 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/26/2012 | 5834.813 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/25/2012 | 5834.949 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/24/2012 | 5835.092 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/23/2012 | 5834.905 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/22/2012 | 5834.63 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/21/2012 | 5834.527 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/20/2012 | 5834.698 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/19/2012 | 5834.927 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/18/2012 | 5834.932 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/17/2012 | 5834.752 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/16/2012 | 5834.596 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/15/2012 | 5834.586 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/14/2012 | 5834.603 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/13/2012 | 5834.543 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/12/2012 | 5834.611 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/11/2012 | 5834.877 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/10/2012 | 5834.76 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/9/2012 | 5834.63 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/8/2012 | 5834.644 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/7/2012 | 5834.761 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/6/2012 | 5834.832 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/5/2012 | 5834.826 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/4/2012 | 5834.813 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/3/2012 | 5834.887 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/2/2012 | 5834.955 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/1/2012 | 5834.932 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/30/2012 | 5834.855 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/29/2012 | 5834.945 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/28/2012 | 5834.982 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/27/2012 | 5835.026 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/26/2012 | 5834.85 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/25/2012 | 5834.911 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/24/2012 | 5834.826 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/23/2012 | 5834.707 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/22/2012 | 5834.758 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/21/2012 | 5834.811 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/20/2012 | 5834.891 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/19/2012 | 5834.953 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/18/2012 | 5834.815 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/17/2012 | 5834.733 | Transducer | 985.3 | 995.2 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-44 S2 | 4/16/2012 | 5834.894 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/15/2012 | 5835.233 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/14/2012 | 5835.25 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/13/2012 | 5835.043 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/12/2012 | 5835.06 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/11/2012 | 5834.854 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/10/2012 | 5834.806 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/9/2012 | 5834.727 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/8/2012 | 5834.6 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/7/2012 | 5834.841 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/6/2012 | 5834.985 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/5/2012 | 5834.954 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/4/2012 | 5834.932 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/3/2012 | 5835.109 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/2/2012 | 5835.223 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 4/1/2012 | 5835.027 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/31/2012 | 5834.931 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/30/2012 | 5834.954 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/29/2012 | 5834.954 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/28/2012 | 5834.881 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/27/2012 | 5834.917 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/26/2012 | 5834.937 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/25/2012 | 5834.831 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/24/2012 | 5834.832 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/23/2012 | 5834.918 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/22/2012 | 5834.985 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/21/2012 | 5834.993 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/20/2012 | 5835.28 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/19/2012 | 5835.294 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/18/2012 | 5835.193 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/17/2012 | 5835.033 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/16/2012 | 5834.897 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/15/2012 | 5834.86 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/14/2012 | 5834.917 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/13/2012 | 5834.879 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/12/2012 | 5835.019 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/11/2012 | 5835.079 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/10/2012 | 5834.742 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/9/2012 | 5834.569 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/8/2012 | 5835.051 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/7/2012 | 5835.258 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/7/2012 | 5835.238 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/6/2012 | 5834.891 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/5/2012 | 5834.715 | Transducer | 985.3 | 995.2 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-44 S2 | 3/4/2012 | 5834.735 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/3/2012 | 5834.893 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/2/2012 | 5835.132 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 3/1/2012 | 5834.991 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/29/2012 | 5834.871 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/28/2012 | 5834.988 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/27/2012 | 5834.831 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/26/2012 | 5834.941 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/25/2012 | 5834.632 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/24/2012 | 5834.809 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/23/2012 | 5835.014 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/22/2012 | 5834.753 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/21/2012 | 5834.756 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/20/2012 | 5835.078 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/19/2012 | 5834.892 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/18/2012 | 5834.899 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/17/2012 | 5834.837 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/16/2012 | 5834.855 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/15/2012 | 5835.197 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/14/2012 | 5835.125 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/13/2012 | 5835.18 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/12/2012 | 5834.849 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/11/2012 | 5834.825 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/10/2012 | 5834.834 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/9/2012 | 5834.828 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/8/2012 | 5834.718 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/7/2012 | 5834.903 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/6/2012 | 5834.813 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/5/2012 | 5834.7 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/4/2012 | 5834.813 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/3/2012 | 5835.117 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/2/2012 | 5834.923 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 2/1/2012 | 5834.85 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/31/2012 | 5834.97 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/30/2012 | 5834.784 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/29/2012 | 5834.656 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/28/2012 | 5834.729 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/27/2012 | 5834.977 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/26/2012 | 5834.819 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/25/2012 | 5834.836 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/24/2012 | 5835.053 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/23/2012 | 5834.921 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/22/2012 | 5835.32 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/21/2012 | 5834.926 | Transducer | 985.3 | 995.2 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-44 S2 | 1/20/2012 | 5835.071 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/19/2012 | 5834.91 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/18/2012 | 5834.828 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/17/2012 | 5835.036 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/16/2012 | 5835.027 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/15/2012 | 5834.819 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/14/2012 | 5834.764 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/13/2012 | 5834.935 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/12/2012 | 5834.944 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/11/2012 | 5835.04 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/10/2012 | 5834.848 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/9/2012 | 5834.868 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/8/2012 | 5835.096 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/7/2012 | 5834.985 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/6/2012 | 5834.973 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/5/2012 | 5834.646 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/4/2012 | 5834.73 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/3/2012 | 5834.588 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/2/2012 | 5834.521 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 1/1/2012 | 5834.695 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/31/2011 | 5834.929 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/30/2011 | 5834.887 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/29/2011 | 5834.802 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/28/2011 | 5834.844 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/27/2011 | 5834.764 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/26/2011 | 5834.795 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/25/2011 | 5834.642 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/24/2011 | 5834.708 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/23/2011 | 5834.812 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/22/2011 | 5835.092 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/21/2011 | 5835.085 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/20/2011 | 5835.039 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/19/2011 | 5835.128 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/18/2011 | 5834.704 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/17/2011 | 5834.61 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/16/2011 | 5834.752 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/15/2011 | 5834.871 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/14/2011 | 5835.07 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/13/2011 | 5834.949 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/12/2011 | 5834.939 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/11/2011 | 5834.792 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/10/2011 | 5834.652 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/9/2011 | 5834.841 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/8/2011 | 5834.858 | Transducer | 985.3 | 995.2 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-44 S2 | 12/7/2011 | 5834.752 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/6/2011 | 5834.819 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/5/2011 | 5834.983 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/4/2011 | 5834.942 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/3/2011 | 5835.133 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/2/2011 | 5834.798 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 12/1/2011 | 5835.068 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/30/2011 | 5834.723 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/29/2011 | 5834.696 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/28/2011 | 5834.583 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/27/2011 | 5834.478 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/26/2011 | 5834.896 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/25/2011 | 5834.843 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/24/2011 | 5834.68 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/23/2011 | 5834.583 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/22/2011 | 5834.732 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/21/2011 | 5834.825 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/20/2011 | 5834.922 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/19/2011 | 5835.071 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/18/2011 | 5834.872 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/17/2011 | 5834.631 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/16/2011 | 5834.905 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/15/2011 | 5834.937 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/14/2011 | 5834.998 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/13/2011 | 5834.997 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/12/2011 | 5834.932 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/11/2011 | 5834.656 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/10/2011 | 5834.477 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/9/2011 | 5834.64 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/8/2011 | 5834.988 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/7/2011 | 5834.918 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/6/2011 | 5835 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/5/2011 | 5835.106 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/4/2011 | 5834.786 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/3/2011 | 5834.566 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/2/2011 | 5834.999 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 11/1/2011 | 5834.785 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/31/2011 | 5834.631 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/30/2011 | 5834.736 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/29/2011 | 5834.637 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/28/2011 | 5834.743 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/27/2011 | 5834.887 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/26/2011 | 5834.811 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/25/2011 | 5834.728 | Transducer | 985.3 | 995.2 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-44 S2 | 10/24/2011 | 5834.633 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/23/2011 | 5834.674 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/22/2011 | 5834.661 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/21/2011 | 5834.668 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/20/2011 | 5834.771 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/19/2011 | 5834.608 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/18/2011 | 5834.663 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/17/2011 | 5834.733 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/16/2011 | 5834.631 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/15/2011 | 5834.65 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/14/2011 | 5834.721 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/13/2011 | 5834.638 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/12/2011 | 5834.783 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/11/2011 | 5834.791 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/10/2011 | 5834.716 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/9/2011 | 5834.752 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/8/2011 | 5834.92 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/7/2011 | 5834.922 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/6/2011 | 5834.951 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/5/2011 | 5834.781 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/4/2011 | 5834.647 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/3/2011 | 5834.61 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/2/2011 | 5834.594 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 10/1/2011 | 5834.585 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/30/2011 | 5834.466 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/29/2011 | 5834.649 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/28/2011 | 5834.583 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/27/2011 | 5834.669 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/26/2011 | 5834.779 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/25/2011 | 5834.747 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/24/2011 | 5834.614 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/23/2011 | 5834.574 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/22/2011 | 5834.682 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/21/2011 | 5834.681 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/20/2011 | 5834.664 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/19/2011 | 5834.575 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/18/2011 | 5834.638 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/17/2011 | 5834.689 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/16/2011 | 5834.695 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/15/2011 | 5834.659 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/14/2011 | 5834.623 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/13/2011 | 5834.531 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/12/2011 | 5834.489 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/11/2011 | 5834.509 | Transducer | 985.3 | 995.2 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-44 S2 | 9/10/2011 | 5834.549 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/9/2011 | 5834.511 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/8/2011 | 5834.416 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/7/2011 | 5834.554 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/6/2011 | 5834.541 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/5/2011 | 5834.472 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/4/2011 | 5834.552 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/3/2011 | 5834.66 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/2/2011 | 5834.576 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 9/1/2011 | 5834.596 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/31/2011 | 5834.669 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/30/2011 | 5834.658 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/29/2011 | 5834.618 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/28/2011 | 5834.555 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/27/2011 | 5834.479 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/26/2011 | 5834.492 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/25/2011 | 5834.519 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/24/2011 | 5834.583 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/23/2011 | 5834.549 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/22/2011 | 5834.475 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/21/2011 | 5834.538 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/20/2011 | 5834.607 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/19/2011 | 5834.57 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/19/2011 | 5834.622 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/18/2011 | 5834.43 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/17/2011 | 5834.48 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/16/2011 | 5834.6 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/15/2011 | 5834.56 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/14/2011 | 5834.43 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/13/2011 | 5834.56 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/12/2011 | 5834.6 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/11/2011 | 5834.62 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/10/2011 | 5834.67 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/9/2011 | 5834.63 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/8/2011 | 5834.64 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/7/2011 | 5834.6 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/6/2011 | 5834.56 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/5/2011 | 5834.56 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/4/2011 | 5834.55 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/3/2011 | 5834.53 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/2/2011 | 5834.48 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 8/1/2011 | 5834.4 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/31/2011 | 5834.37 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/30/2011 | 5834.37 | Transducer | 985.3 | 995.2 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-44 S2 | 7/29/2011 | 5834.46 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/28/2011 | 5834.54 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/27/2011 | 5834.55 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/26/2011 | 5834.46 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/25/2011 | 5834.32 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/24/2011 | 5834.36 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/23/2011 | 5834.45 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/22/2011 | 5834.48 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/21/2011 | 5834.45 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/20/2011 | 5834.39 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/19/2011 | 5834.29 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/18/2011 | 5834.24 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/17/2011 | 5834.34 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/16/2011 | 5834.48 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/15/2011 | 5834.51 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/14/2011 | 5834.48 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/13/2011 | 5834.44 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/12/2011 | 5834.42 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/11/2011 | 5834.43 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/10/2011 | 5834.46 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/9/2011 | 5834.52 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/8/2011 | 5834.48 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/7/2011 | 5834.42 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/6/2011 | 5834.42 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/5/2011 | 5834.42 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/4/2011 | 5834.42 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/3/2011 | 5834.37 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/2/2011 | 5834.43 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 7/1/2011 | 5834.47 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/30/2011 | 5834.47 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/29/2011 | 5834.38 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/28/2011 | 5834.36 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/27/2011 | 5834.52 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/26/2011 | 5834.55 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/25/2011 | 5834.59 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/24/2011 | 5834.59 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/23/2011 | 5834.51 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/22/2011 | 5834.53 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/21/2011 | 5834.65 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/20/2011 | 5834.82 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/19/2011 | 5834.7 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/18/2011 | 5834.65 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/17/2011 | 5834.78 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/16/2011 | 5834.73 | Transducer | 985.3 | 995.2 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-44 S2 | 6/15/2011 | 5834.57 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/14/2011 | 5834.62 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/13/2011 | 5834.66 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/12/2011 | 5834.72 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/11/2011 | 5834.67 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/10/2011 | 5834.7 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/9/2011 | 5834.75 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/8/2011 | 5834.74 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/7/2011 | 5834.74 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/6/2011 | 5834.55 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/5/2011 | 5834.45 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/4/2011 | 5834.62 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/3/2011 | 5834.73 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/2/2011 | 5834.65 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 6/1/2011 | 5834.46 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/31/2011 | 5834.59 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/30/2011 | 5835.03 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/29/2011 | 5835.02 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/28/2011 | 5834.94 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/27/2011 | 5834.88 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/26/2011 | 5834.73 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/25/2011 | 5834.85 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/24/2011 | 5835 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/23/2011 | 5834.91 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/22/2011 | 5834.89 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/21/2011 | 5834.93 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/20/2011 | 5835.03 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/19/2011 | 5835.21 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/18/2011 | 5835.17 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/17/2011 | 5835.1 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/16/2011 | 5834.94 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/15/2011 | 5834.97 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/14/2011 | 5834.85 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/13/2011 | 5834.92 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/12/2011 | 5835.13 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/11/2011 | 5835.38 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/10/2011 | 5835.38 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/9/2011 | 5835.36 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/8/2011 | 5835.26 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/7/2011 | 5835.22 | Transducer | 985.3 | 995.2 | Regional |
| R-44 S2 | 5/6/2011 | 5835.08 | Transducer | 985.3 | 995.2 | Regional |
| R-45 S1 | 5/22/2013 | 5834.09 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/21/2013 | 5834.05 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/20/2013 | 5834.14 | Transducer | 880 | 890 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-45 S1 | 5/19/2013 | 5834.15 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/18/2013 | 5834.14 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/17/2013 | 5834.15 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/16/2013 | 5834.12 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/15/2013 | 5834.1 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/14/2013 | 5833.97 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/13/2013 | 5833.91 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/12/2013 | 5833.81 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/11/2013 | 5833.84 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/10/2013 | 5834 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/9/2013 | 5834.11 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/8/2013 | 5834.18 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/7/2013 | 5834.19 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/7/2013 | 5834.11 | Manual | 880 | 890 | Regional |
| R-45 S1 | 5/6/2013 | 5834.16 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/5/2013 | 5834.15 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/4/2013 | 5834.25 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/3/2013 | 5833.87 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/2/2013 | 5833.98 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/1/2013 | 5834.4 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/30/2013 | 5834.41 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/29/2013 | 5834.31 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/28/2013 | 5834.15 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/27/2013 | 5834.01 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/26/2013 | 5834.18 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/25/2013 | 5834.11 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/24/2013 | 5834.11 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/23/2013 | 5834.39 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/22/2013 | 5834.19 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/21/2013 | 5834.18 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/20/2013 | 5834.23 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/19/2013 | 5834.03 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/18/2013 | 5834.3 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/17/2013 | 5834.43 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/16/2013 | 5834.42 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/15/2013 | 5834.49 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/14/2013 | 5834.52 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/13/2013 | 5834.27 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/12/2013 | 5834.32 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/11/2013 | 5834.34 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/10/2013 | 5834.4 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/9/2013 | 5834.75 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/8/2013 | 5834.49 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/7/2013 | 5834.39 | Transducer | 880 | 890 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-45 S1 | 4/6/2013 | 5834.36 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/5/2013 | 5834.17 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/4/2013 | 5834.15 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/3/2013 | 5834.29 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/2/2013 | 5834.35 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/1/2013 | 5834.27 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/31/2013 | 5834.22 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/30/2013 | 5834.14 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/29/2013 | 5834.15 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/28/2013 | 5834.19 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/27/2013 | 5834.27 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/26/2013 | 5834.09 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/25/2013 | 5834.22 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/24/2013 | 5834.24 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/23/2013 | 5834.56 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/22/2013 | 5834.49 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/21/2013 | 5834.41 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/20/2013 | 5834.08 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/19/2013 | 5834.28 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/18/2013 | 5834.43 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/17/2013 | 5834.42 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/16/2013 | 5834.33 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/15/2013 | 5834.07 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/14/2013 | 5834.02 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/13/2013 | 5834.02 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/12/2013 | 5834.2 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/11/2013 | 5834.14 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/10/2013 | 5834.34 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/9/2013 | 5834.53 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/8/2013 | 5834.33 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/7/2013 | 5834.27 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/6/2013 | 5834.1 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/5/2013 | 5834.17 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/4/2013 | 5834.4 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/3/2013 | 5834.08 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/2/2013 | 5833.94 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/1/2013 | 5834 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/28/2013 | 5834.03 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/27/2013 | 5834.19 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/26/2013 | 5834.32 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/25/2013 | 5834.41 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/24/2013 | 5834.51 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/23/2013 | 5834.29 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/22/2013 | 5834.41 | Transducer | 880 | 890 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-45 S1 | 2/21/2013 | 5834.74 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/20/2013 | 5834.52 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/19/2013 | 5834.23 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/18/2013 | 5834.54 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/17/2013 | 5834.17 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/16/2013 | 5833.96 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/15/2013 | 5834.08 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/14/2013 | 5834.2 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/13/2013 | 5834.17 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/12/2013 | 5834.33 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/11/2013 | 5834.35 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/10/2013 | 5834.55 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/9/2013 | 5834.48 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/8/2013 | 5834.14 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/7/2013 | 5834.3 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/6/2013 | 5834.31 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/5/2013 | 5834.29 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/4/2013 | 5834.33 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/3/2013 | 5834.01 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/2/2013 | 5834.03 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/1/2013 | 5834.05 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/31/2013 | 5834.13 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/30/2013 | 5834.4 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/29/2013 | 5834.56 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/28/2013 | 5834.4 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/27/2013 | 5834.41 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/26/2013 | 5834.17 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/25/2013 | 5834.11 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/24/2013 | 5834.05 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/23/2013 | 5834.04 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/22/2013 | 5834.1 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/21/2013 | 5834.08 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/20/2013 | 5834.01 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/19/2013 | 5834.08 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/18/2013 | 5833.92 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/17/2013 | 5833.89 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/16/2013 | 5834.01 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/15/2013 | 5834.27 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/14/2013 | 5834.33 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/13/2013 | 5834.36 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/12/2013 | 5834.44 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/11/2013 | 5834.57 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/10/2013 | 5834.15 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/9/2013 | 5834.07 | Transducer | 880 | 890 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-45 S1 | 1/8/2013 | 5834.34 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/7/2013 | 5834.2 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/6/2013 | 5833.97 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/5/2013 | 5834.14 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/4/2013 | 5834.04 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/3/2013 | 5834.08 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/2/2013 | 5834.08 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/1/2013 | 5834.25 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/31/2012 | 5834.41 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/30/2012 | 5834.16 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/29/2012 | 5834.08 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/28/2012 | 5834.39 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/27/2012 | 5834.52 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/26/2012 | 5834.23 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/25/2012 | 5834.61 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/24/2012 | 5834.27 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/23/2012 | 5834.17 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/22/2012 | 5834.03 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/21/2012 | 5833.85 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/20/2012 | 5834.03 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/19/2012 | 5834.55 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/18/2012 | 5834.29 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/17/2012 | 5834.22 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/16/2012 | 5834.43 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/15/2012 | 5834.32 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/14/2012 | 5834.31 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/13/2012 | 5834.18 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/12/2012 | 5834.22 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/11/2012 | 5834.3 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/10/2012 | 5834.19 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/9/2012 | 5834.42 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/8/2012 | 5834.36 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/7/2012 | 5834.39 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/6/2012 | 5834.29 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/5/2012 | 5834.01 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/4/2012 | 5834.11 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/3/2012 | 5834.43 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/3/2012 | 5834.26 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/2/2012 | 5834.3 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/1/2012 | 5834.35 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/30/2012 | 5834.27 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/29/2012 | 5834.25 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/28/2012 | 5834.14 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/27/2012 | 5834.14 | Transducer | 880 | 890 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-45 S1 | 11/26/2012 | 5834.45 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/25/2012 | 5834.37 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/24/2012 | 5834.08 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/23/2012 | 5834.11 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/22/2012 | 5834.32 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/21/2012 | 5834.19 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/20/2012 | 5834.12 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/19/2012 | 5834.21 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/18/2012 | 5834.28 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/17/2012 | 5834.2 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/16/2012 | 5834.06 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/15/2012 | 5834.18 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/14/2012 | 5834.1 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/13/2012 | 5834.08 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/12/2012 | 5834.08 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/11/2012 | 5834.55 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/10/2012 | 5834.58 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/9/2012 | 5834.43 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/8/2012 | 5834.3 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/7/2012 | 5834.13 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/6/2012 | 5834.15 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/5/2012 | 5834.11 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/4/2012 | 5834.14 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/3/2012 | 5834.25 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/2/2012 | 5834.3 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/1/2012 | 5834.18 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/31/2012 | 5834.2 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/30/2012 | 5834.18 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/29/2012 | 5834.16 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/28/2012 | 5834.22 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/27/2012 | 5834.12 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/26/2012 | 5834.16 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/25/2012 | 5834.38 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/24/2012 | 5834.36 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/23/2012 | 5834.34 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/22/2012 | 5834.38 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/21/2012 | 5834.44 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/20/2012 | 5834.34 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/19/2012 | 5834.25 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/18/2012 | 5834.33 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/17/2012 | 5834.52 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/16/2012 | 5834.35 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/15/2012 | 5834.15 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/14/2012 | 5834.18 | Transducer | 880 | 890 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-45 S1 | 10/13/2012 | 5834.35 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/12/2012 | 5834.25 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/11/2012 | 5834.29 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/10/2012 | 5834.27 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/9/2012 | 5834.36 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/8/2012 | 5834.33 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/7/2012 | 5834.32 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/6/2012 | 5834.37 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/5/2012 | 5834.31 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/4/2012 | 5834.3 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/3/2012 | 5834.41 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/2/2012 | 5834.25 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/1/2012 | 5834.26 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/30/2012 | 5834.27 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/29/2012 | 5834.28 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/28/2012 | 5834.29 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/27/2012 | 5834.32 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/26/2012 | 5834.43 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/25/2012 | 5834.36 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/24/2012 | 5834.27 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/23/2012 | 5834.25 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/22/2012 | 5834.28 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/21/2012 | 5834.33 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/20/2012 | 5834.3 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/19/2012 | 5834.29 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/18/2012 | 5834.29 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/17/2012 | 5834.43 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/16/2012 | 5834.31 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/15/2012 | 5834.14 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/14/2012 | 5834.06 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/13/2012 | 5834.24 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/12/2012 | 5834.39 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/11/2012 | 5834.37 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/10/2012 | 5834.26 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/9/2012 | 5834.18 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/8/2012 | 5834.19 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/7/2012 | 5834.38 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/6/2012 | 5834.35 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/5/2012 | 5834.39 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/4/2012 | 5834.32 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/3/2012 | 5834.35 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/2/2012 | 5834.32 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/1/2012 | 5834.31 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/31/2012 | 5834.37 | Transducer | 880 | 890 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-45 S1 | 8/30/2012 | 5834.35 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/29/2012 | 5834.26 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/28/2012 | 5834.18 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/27/2012 | 5834.23 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/26/2012 | 5834.37 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/25/2012 | 5834.5 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/24/2012 | 5834.47 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/23/2012 | 5834.39 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/22/2012 | 5834.34 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/21/2012 | 5834.39 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/20/2012 | 5834.37 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/19/2012 | 5834.41 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/18/2012 | 5834.38 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/17/2012 | 5834.31 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/16/2012 | 5834.45 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/15/2012 | 5834.47 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/14/2012 | 5834.38 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/13/2012 | 5834.28 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/12/2012 | 5834.42 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/11/2012 | 5834.4 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/10/2012 | 5834.33 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/9/2012 | 5834.28 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/8/2012 | 5834.32 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/7/2012 | 5834.33 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/6/2012 | 5834.14 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/5/2012 | 5834.24 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/4/2012 | 5834.45 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/3/2012 | 5834.37 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/2/2012 | 5834.4 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/1/2012 | 5834.33 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/31/2012 | 5834.38 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/30/2012 | 5834.38 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/29/2012 | 5834.3 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/28/2012 | 5834.29 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/27/2012 | 5834.36 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/26/2012 | 5834.49 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/25/2012 | 5834.49 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/24/2012 | 5834.38 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/23/2012 | 5834.35 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/22/2012 | 5834.33 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/21/2012 | 5834.29 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/20/2012 | 5834.28 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/19/2012 | 5834.34 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/18/2012 | 5834.46 | Transducer | 880 | 890 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-45 S1 | 7/17/2012 | 5834.52 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/16/2012 | 5834.47 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/15/2012 | 5834.42 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/14/2012 | 5834.38 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/13/2012 | 5834.38 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/12/2012 | 5834.38 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/11/2012 | 5834.32 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/10/2012 | 5834.32 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/9/2012 | 5834.32 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/8/2012 | 5834.29 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/7/2012 | 5834.33 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/6/2012 | 5834.4 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/5/2012 | 5834.46 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/4/2012 | 5834.5 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/3/2012 | 5834.47 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/2/2012 | 5834.49 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/1/2012 | 5834.51 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/30/2012 | 5834.51 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/29/2012 | 5834.37 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/28/2012 | 5834.39 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/27/2012 | 5834.51 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/26/2012 | 5834.46 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/25/2012 | 5834.37 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/24/2012 | 5834.44 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/23/2012 | 5834.56 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/22/2012 | 5834.4 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/21/2012 | 5834.48 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/20/2012 | 5834.7 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/19/2012 | 5834.7 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/18/2012 | 5834.402 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/18/2012 | 5834.7 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/18/2012 | 5834.7 | Manual | 880 | 890 | Regional |
| R-45 S1 | 6/17/2012 | 5834.129 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/16/2012 | 5834.275 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/15/2012 | 5834.406 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/14/2012 | 5834.425 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/13/2012 | 5834.324 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/12/2012 | 5834.196 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/11/2012 | 5834.323 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/10/2012 | 5834.523 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/9/2012 | 5834.487 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/8/2012 | 5834.355 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/7/2012 | 5834.465 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/6/2012 | 5834.437 | Transducer | 880 | 890 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-45 S1 | 6/5/2012 | 5834.354 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/4/2012 | 5834.339 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/3/2012 | 5834.42 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/2/2012 | 5834.457 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/1/2012 | 5834.397 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/31/2012 | 5834.452 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/30/2012 | 5834.433 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/29/2012 | 5834.377 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/28/2012 | 5834.411 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/27/2012 | 5834.536 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/26/2012 | 5834.581 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/25/2012 | 5834.713 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/24/2012 | 5834.871 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/23/2012 | 5834.698 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/22/2012 | 5834.4 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/21/2012 | 5834.289 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/20/2012 | 5834.463 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/19/2012 | 5834.703 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/18/2012 | 5834.718 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/17/2012 | 5834.546 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/16/2012 | 5834.379 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/15/2012 | 5834.354 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/14/2012 | 5834.369 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/13/2012 | 5834.288 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/12/2012 | 5834.356 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/11/2012 | 5834.645 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/10/2012 | 5834.551 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/9/2012 | 5834.411 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/8/2012 | 5834.435 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/7/2012 | 5834.547 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/6/2012 | 5834.614 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/5/2012 | 5834.597 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/4/2012 | 5834.567 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/3/2012 | 5834.647 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/2/2012 | 5834.715 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/1/2012 | 5834.712 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/30/2012 | 5834.612 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/29/2012 | 5834.711 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/28/2012 | 5834.737 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/27/2012 | 5834.789 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/26/2012 | 5834.602 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/25/2012 | 5834.674 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/24/2012 | 5834.591 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/23/2012 | 5834.453 | Transducer | 880 | 890 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-45 S1 | 4/22/2012 | 5834.503 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/21/2012 | 5834.545 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/20/2012 | 5834.622 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/19/2012 | 5834.7 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/18/2012 | 5834.554 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/17/2012 | 5834.457 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/16/2012 | 5834.592 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/15/2012 | 5834.955 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/14/2012 | 5834.993 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/13/2012 | 5834.77 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/12/2012 | 5834.808 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/11/2012 | 5834.604 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/10/2012 | 5834.567 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/9/2012 | 5834.485 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/8/2012 | 5834.318 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/7/2012 | 5834.562 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/6/2012 | 5834.721 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/5/2012 | 5834.692 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/4/2012 | 5834.655 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/3/2012 | 5834.834 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/2/2012 | 5834.979 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 4/1/2012 | 5834.775 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/31/2012 | 5834.659 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/30/2012 | 5834.685 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/29/2012 | 5834.702 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/28/2012 | 5834.63 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/27/2012 | 5834.664 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/26/2012 | 5834.695 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/25/2012 | 5834.568 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/24/2012 | 5834.568 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/23/2012 | 5834.644 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/22/2012 | 5834.71 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/21/2012 | 5834.702 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/20/2012 | 5835.012 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/19/2012 | 5835.039 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/18/2012 | 5834.932 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/17/2012 | 5834.772 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/16/2012 | 5834.638 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/15/2012 | 5834.582 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/14/2012 | 5834.651 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/13/2012 | 5834.603 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/12/2012 | 5834.753 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/11/2012 | 5834.839 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/10/2012 | 5834.491 | Transducer | 880 | 890 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-45 S1 | 3/9/2012 | 5834.28 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/8/2012 | 5834.775 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/7/2012 | 5835 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/7/2012 | 5835.005 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/6/2012 | 5834.655 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/5/2012 | 5834.454 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/4/2012 | 5834.451 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/3/2012 | 5834.604 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/2/2012 | 5834.868 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 3/1/2012 | 5834.735 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/29/2012 | 5834.604 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/28/2012 | 5834.754 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/27/2012 | 5834.586 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/26/2012 | 5834.711 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/25/2012 | 5834.421 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/24/2012 | 5834.584 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/23/2012 | 5834.833 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/22/2012 | 5834.557 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/21/2012 | 5834.55 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/20/2012 | 5834.887 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/19/2012 | 5834.704 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/18/2012 | 5834.706 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/17/2012 | 5834.632 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/16/2012 | 5834.638 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/15/2012 | 5834.982 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/14/2012 | 5834.915 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/13/2012 | 5834.997 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/12/2012 | 5834.653 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/11/2012 | 5834.631 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/10/2012 | 5834.63 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/9/2012 | 5834.639 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/8/2012 | 5834.517 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/7/2012 | 5834.715 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/6/2012 | 5834.63 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/5/2012 | 5834.483 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/4/2012 | 5834.594 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/3/2012 | 5834.916 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/2/2012 | 5834.724 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 2/1/2012 | 5834.629 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/31/2012 | 5834.776 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/30/2012 | 5834.595 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/29/2012 | 5834.442 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/28/2012 | 5834.508 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/27/2012 | 5834.787 | Transducer | 880 | 890 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-45 S1 | 1/26/2012 | 5834.617 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/25/2012 | 5834.623 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/24/2012 | 5834.875 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/23/2012 | 5834.706 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/22/2012 | 5835.141 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/21/2012 | 5834.717 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/20/2012 | 5834.874 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/19/2012 | 5834.701 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/18/2012 | 5834.607 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/17/2012 | 5834.817 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/16/2012 | 5834.831 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/15/2012 | 5834.616 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/14/2012 | 5834.546 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/13/2012 | 5834.72 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/12/2012 | 5834.73 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/11/2012 | 5834.851 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/10/2012 | 5834.661 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/9/2012 | 5834.66 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/8/2012 | 5834.909 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/7/2012 | 5834.798 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/6/2012 | 5834.812 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/5/2012 | 5834.464 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/4/2012 | 5834.545 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/3/2012 | 5834.405 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/2/2012 | 5834.31 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 1/1/2012 | 5834.458 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/31/2011 | 5834.733 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/30/2011 | 5834.689 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/29/2011 | 5834.603 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/28/2011 | 5834.645 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/27/2011 | 5834.559 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/26/2011 | 5834.605 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/25/2011 | 5834.418 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/24/2011 | 5834.479 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/23/2011 | 5834.564 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/22/2011 | 5834.853 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/21/2011 | 5834.855 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/20/2011 | 5834.808 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/19/2011 | 5834.938 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/18/2011 | 5834.484 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/17/2011 | 5834.369 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/16/2011 | 5834.512 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/15/2011 | 5834.629 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/14/2011 | 5834.845 | Transducer | 880 | 890 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-45 S1 | 12/13/2011 | 5834.738 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/12/2011 | 5834.738 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/11/2011 | 5834.59 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/10/2011 | 5834.434 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/9/2011 | 5834.615 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/8/2011 | 5834.649 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/7/2011 | 5834.514 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/6/2011 | 5834.581 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/5/2011 | 5834.748 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/4/2011 | 5834.706 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/3/2011 | 5834.931 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/2/2011 | 5834.567 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 12/1/2011 | 5834.878 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/30/2011 | 5834.534 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/29/2011 | 5834.498 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/28/2011 | 5834.385 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/27/2011 | 5834.261 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/26/2011 | 5834.697 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/25/2011 | 5834.653 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/24/2011 | 5834.485 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/23/2011 | 5834.352 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/22/2011 | 5834.502 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/21/2011 | 5834.594 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/20/2011 | 5834.688 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/19/2011 | 5834.866 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/18/2011 | 5834.662 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/17/2011 | 5834.394 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/16/2011 | 5834.682 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/15/2011 | 5834.72 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/14/2011 | 5834.788 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/13/2011 | 5834.805 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/12/2011 | 5834.754 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/11/2011 | 5834.463 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/10/2011 | 5834.251 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/9/2011 | 5834.402 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/8/2011 | 5834.771 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/7/2011 | 5834.699 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/6/2011 | 5834.769 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/5/2011 | 5834.919 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/4/2011 | 5834.585 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/3/2011 | 5834.342 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/2/2011 | 5834.806 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 11/1/2011 | 5834.589 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/31/2011 | 5834.428 | Transducer | 880 | 890 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-45 S1 | 10/30/2011 | 5834.53 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/29/2011 | 5834.43 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/28/2011 | 5834.534 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/27/2011 | 5834.686 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/26/2011 | 5834.621 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/25/2011 | 5834.54 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/24/2011 | 5834.431 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/23/2011 | 5834.462 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/22/2011 | 5834.45 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/21/2011 | 5834.465 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/20/2011 | 5834.586 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/19/2011 | 5834.411 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/18/2011 | 5834.46 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/17/2011 | 5834.554 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/16/2011 | 5834.44 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/15/2011 | 5834.457 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/14/2011 | 5834.53 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/13/2011 | 5834.441 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/12/2011 | 5834.574 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/11/2011 | 5834.605 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/10/2011 | 5834.517 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/9/2011 | 5834.542 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/8/2011 | 5834.713 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/7/2011 | 5834.719 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/6/2011 | 5834.778 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/5/2011 | 5834.606 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/4/2011 | 5834.468 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/3/2011 | 5834.435 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/2/2011 | 5834.417 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 10/1/2011 | 5834.408 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/30/2011 | 5834.285 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/29/2011 | 5834.479 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/28/2011 | 5834.408 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/27/2011 | 5834.487 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/26/2011 | 5834.607 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/25/2011 | 5834.575 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/24/2011 | 5834.436 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/23/2011 | 5834.38 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/22/2011 | 5834.488 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/21/2011 | 5834.496 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/20/2011 | 5834.479 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/19/2011 | 5834.383 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/18/2011 | 5834.448 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/17/2011 | 5834.513 | Transducer | 880 | 890 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-45 S1 | 9/16/2011 | 5834.526 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/15/2011 | 5834.489 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/14/2011 | 5834.465 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/13/2011 | 5834.373 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/12/2011 | 5834.313 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/11/2011 | 5834.341 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/10/2011 | 5834.378 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/9/2011 | 5834.341 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/8/2011 | 5834.227 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/7/2011 | 5834.379 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/6/2011 | 5834.38 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/5/2011 | 5834.305 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/4/2011 | 5834.383 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/3/2011 | 5834.498 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/2/2011 | 5834.412 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 9/1/2011 | 5834.436 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/31/2011 | 5834.51 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/30/2011 | 5834.496 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/29/2011 | 5834.469 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/28/2011 | 5834.399 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/27/2011 | 5834.317 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/26/2011 | 5834.319 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/25/2011 | 5834.34 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/24/2011 | 5834.407 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/23/2011 | 5834.39 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/22/2011 | 5834.299 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/21/2011 | 5834.378 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/20/2011 | 5834.449 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/19/2011 | 5834.42 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/19/2011 | 5834.493 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/18/2011 | 5834.27 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/17/2011 | 5834.31 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/16/2011 | 5834.45 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/15/2011 | 5834.41 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/14/2011 | 5834.26 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/13/2011 | 5834.39 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/12/2011 | 5834.44 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/11/2011 | 5834.45 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/10/2011 | 5834.51 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/9/2011 | 5834.48 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/8/2011 | 5834.48 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/7/2011 | 5834.44 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/6/2011 | 5834.41 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/5/2011 | 5834.41 | Transducer | 880 | 890 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-45 S1 | 8/4/2011 | 5834.4 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/3/2011 | 5834.37 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/2/2011 | 5834.34 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 8/1/2011 | 5834.26 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/31/2011 | 5834.23 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/30/2011 | 5834.23 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/29/2011 | 5834.32 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/28/2011 | 5834.42 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/27/2011 | 5834.44 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/26/2011 | 5834.36 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/25/2011 | 5834.24 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/24/2011 | 5834.3 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/23/2011 | 5834.41 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/22/2011 | 5834.44 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/21/2011 | 5834.42 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/20/2011 | 5834.37 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/19/2011 | 5834.27 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/18/2011 | 5834.22 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/17/2011 | 5834.31 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/16/2011 | 5834.45 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/15/2011 | 5834.49 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/14/2011 | 5834.46 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/13/2011 | 5834.42 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/12/2011 | 5834.4 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/11/2011 | 5834.41 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/10/2011 | 5834.44 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/9/2011 | 5834.5 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/8/2011 | 5834.46 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/7/2011 | 5834.39 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/6/2011 | 5834.38 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/5/2011 | 5834.38 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/4/2011 | 5834.39 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/3/2011 | 5834.33 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/2/2011 | 5834.4 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 7/1/2011 | 5834.46 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/30/2011 | 5834.45 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/29/2011 | 5834.37 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/28/2011 | 5834.34 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/27/2011 | 5834.5 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/26/2011 | 5834.51 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/25/2011 | 5834.56 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/24/2011 | 5834.56 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/23/2011 | 5834.48 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/22/2011 | 5834.49 | Transducer | 880 | 890 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-45 S1 | 6/21/2011 | 5834.6 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/20/2011 | 5834.76 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/19/2011 | 5834.66 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/18/2011 | 5834.6 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/17/2011 | 5834.74 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/16/2011 | 5834.71 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/15/2011 | 5834.53 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/14/2011 | 5834.58 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/13/2011 | 5834.62 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/12/2011 | 5834.69 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/11/2011 | 5834.63 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/10/2011 | 5834.66 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/9/2011 | 5834.7 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/8/2011 | 5834.69 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/7/2011 | 5834.7 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/6/2011 | 5834.52 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/5/2011 | 5834.39 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/4/2011 | 5834.57 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/3/2011 | 5834.67 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/2/2011 | 5834.6 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 6/1/2011 | 5834.39 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/31/2011 | 5834.49 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/30/2011 | 5834.97 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/29/2011 | 5834.97 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/28/2011 | 5834.87 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/27/2011 | 5834.81 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/26/2011 | 5834.65 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/25/2011 | 5834.77 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/24/2011 | 5834.93 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/23/2011 | 5834.83 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/22/2011 | 5834.81 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/21/2011 | 5834.83 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/20/2011 | 5834.94 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/19/2011 | 5835.13 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/18/2011 | 5835.11 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/17/2011 | 5835.03 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/16/2011 | 5834.87 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/15/2011 | 5834.89 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/14/2011 | 5834.76 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/13/2011 | 5834.75 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/12/2011 | 5834.96 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/11/2011 | 5835.23 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/10/2011 | 5835.21 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/9/2011 | 5835.23 | Transducer | 880 | 890 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-45 S1 | 5/8/2011 | 5835.12 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/7/2011 | 5835.09 | Transducer | 880 | 890 | Regional |
| R-45 S1 | 5/6/2011 | 5834.94 | Transducer | 880 | 890 | Regional |
| R-45 S2 | 5/22/2013 | 5834 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/21/2013 | 5833.97 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/20/2013 | 5834.05 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/19/2013 | 5834.06 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/18/2013 | 5834.05 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/17/2013 | 5834.06 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/16/2013 | 5834.02 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/15/2013 | 5833.99 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/14/2013 | 5833.87 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/13/2013 | 5833.82 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/12/2013 | 5833.73 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/11/2013 | 5833.77 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/10/2013 | 5833.94 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/9/2013 | 5834.01 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/8/2013 | 5834.08 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/7/2013 | 5834.02 | Manual | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/7/2013 | 5834.03 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/6/2013 | 5833.99 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/5/2013 | 5834 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/4/2013 | 5834.08 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 12/3/2012 | 5834.05 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 12/2/2012 | 5834.05 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 12/1/2012 | 5834.02 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/30/2012 | 5833.99 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/29/2012 | 5833.94 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/28/2012 | 5833.87 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/27/2012 | 5833.9 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/26/2012 | 5834.2 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/25/2012 | 5834.03 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/24/2012 | 5833.81 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/23/2012 | 5833.99 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/22/2012 | 5834 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/21/2012 | 5833.98 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/20/2012 | 5833.98 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/19/2012 | 5833.98 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/18/2012 | 5833.93 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/17/2012 | 5833.93 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/16/2012 | 5833.93 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/15/2012 | 5833.94 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/14/2012 | 5833.94 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/13/2012 | 5833.94 | Transducer | 974.9 | 994.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-45 S2 | 11/12/2012 | 5833.98 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/11/2012 | 5834.33 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/10/2012 | 5834.22 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/9/2012 | 5834.1 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/8/2012 | 5833.99 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/7/2012 | 5833.88 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/6/2012 | 5834.06 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/5/2012 | 5834.07 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/4/2012 | 5834.06 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/3/2012 | 5834.07 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/2/2012 | 5834.07 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/1/2012 | 5834.07 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/31/2012 | 5834.07 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/30/2012 | 5834.08 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/29/2012 | 5834.08 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/28/2012 | 5834.08 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/27/2012 | 5834.08 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/26/2012 | 5834.09 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/25/2012 | 5834.09 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/24/2012 | 5834.09 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/23/2012 | 5834.09 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/22/2012 | 5834.09 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/21/2012 | 5834.09 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/20/2012 | 5834.09 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/19/2012 | 5834.08 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/18/2012 | 5834.09 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/17/2012 | 5834.09 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/16/2012 | 5834.08 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/15/2012 | 5834.08 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/14/2012 | 5834.09 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/13/2012 | 5834.09 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/12/2012 | 5834.1 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/11/2012 | 5834.09 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/10/2012 | 5834.1 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/9/2012 | 5834.1 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/8/2012 | 5834.1 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/7/2012 | 5834.1 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/6/2012 | 5834.1 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/5/2012 | 5834.1 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/4/2012 | 5834.1 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/3/2012 | 5834.1 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/2/2012 | 5834.1 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/1/2012 | 5834.1 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/30/2012 | 5834.1 | Transducer | 974.9 | 994.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-45 S2 | 9/29/2012 | 5834.11 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/28/2012 | 5834.1 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/27/2012 | 5834.11 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/26/2012 | 5834.11 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/25/2012 | 5834.11 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/24/2012 | 5834.11 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/23/2012 | 5834.11 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/22/2012 | 5834.12 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/21/2012 | 5834.12 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/20/2012 | 5834.12 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/19/2012 | 5834.12 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/18/2012 | 5834.13 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/17/2012 | 5834.12 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/16/2012 | 5834.13 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/15/2012 | 5834.13 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/14/2012 | 5834.13 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/13/2012 | 5834.14 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/12/2012 | 5834.14 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/11/2012 | 5834.14 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/10/2012 | 5834.14 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/9/2012 | 5834.14 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/8/2012 | 5834.15 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/7/2012 | 5834.15 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/6/2012 | 5834.15 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/5/2012 | 5834.15 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/4/2012 | 5834.15 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/3/2012 | 5834.16 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/2/2012 | 5834.16 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/1/2012 | 5834.16 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/31/2012 | 5834.16 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/30/2012 | 5834.16 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/29/2012 | 5834.17 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/28/2012 | 5834.17 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/27/2012 | 5834.17 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/26/2012 | 5834.17 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/25/2012 | 5834.17 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/24/2012 | 5834.17 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/23/2012 | 5834.17 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/22/2012 | 5834.18 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/21/2012 | 5834.18 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/20/2012 | 5834.18 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/19/2012 | 5834.18 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/18/2012 | 5834.18 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/17/2012 | 5834.18 | Transducer | 974.9 | 994.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-45 S2 | 8/16/2012 | 5834.19 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/15/2012 | 5834.18 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/14/2012 | 5834.18 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/13/2012 | 5834.19 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/12/2012 | 5834.19 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/11/2012 | 5834.19 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/10/2012 | 5834.19 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/9/2012 | 5834.19 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/8/2012 | 5834.2 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/7/2012 | 5834.2 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/6/2012 | 5834.2 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/5/2012 | 5834.21 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/4/2012 | 5834.21 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/3/2012 | 5834.21 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/2/2012 | 5834.21 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/1/2012 | 5834.22 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/31/2012 | 5834.22 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/30/2012 | 5834.22 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/29/2012 | 5834.22 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/28/2012 | 5834.23 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/27/2012 | 5834.23 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/26/2012 | 5834.23 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/25/2012 | 5834.23 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/24/2012 | 5834.24 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/23/2012 | 5834.24 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/22/2012 | 5834.24 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/21/2012 | 5834.24 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/20/2012 | 5834.25 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/19/2012 | 5834.25 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/18/2012 | 5834.26 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/17/2012 | 5834.26 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/16/2012 | 5834.26 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/15/2012 | 5834.26 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/14/2012 | 5834.27 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/13/2012 | 5834.27 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/12/2012 | 5834.27 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/11/2012 | 5834.27 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/10/2012 | 5834.28 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/9/2012 | 5834.29 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/8/2012 | 5834.29 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/7/2012 | 5834.3 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/6/2012 | 5834.31 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/5/2012 | 5834.31 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/4/2012 | 5834.31 | Transducer | 974.9 | 994.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-45 S2 | 7/3/2012 | 5834.32 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/2/2012 | 5834.32 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/1/2012 | 5834.32 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/30/2012 | 5834.32 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/29/2012 | 5834.33 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/28/2012 | 5834.34 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/27/2012 | 5834.34 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/26/2012 | 5834.34 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/25/2012 | 5834.35 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/24/2012 | 5834.36 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/23/2012 | 5834.37 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/22/2012 | 5834.38 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/21/2012 | 5834.4 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/20/2012 | 5834.43 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/19/2012 | 5834.43 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/18/2012 | 5834.43 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/18/2012 | 5834.43 | Manual | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/18/2012 | 5834.316 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/17/2012 | 5834.189 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/16/2012 | 5834.347 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/15/2012 | 5834.372 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/14/2012 | 5834.386 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/13/2012 | 5834.267 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/12/2012 | 5834.219 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/11/2012 | 5834.307 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/10/2012 | 5834.501 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/9/2012 | 5834.429 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/8/2012 | 5834.355 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/7/2012 | 5834.47 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/6/2012 | 5834.432 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/5/2012 | 5834.321 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/4/2012 | 5834.286 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/3/2012 | 5834.493 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/2/2012 | 5834.476 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/1/2012 | 5834.443 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/31/2012 | 5834.475 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/30/2012 | 5834.397 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/29/2012 | 5834.414 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/28/2012 | 5834.463 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/27/2012 | 5834.544 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/26/2012 | 5834.566 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/25/2012 | 5834.694 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/24/2012 | 5834.848 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/23/2012 | 5834.663 | Transducer | 974.9 | 994.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-45 S2 | 5/22/2012 | 5834.387 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/21/2012 | 5834.283 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/20/2012 | 5834.459 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/19/2012 | 5834.686 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/18/2012 | 5834.684 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/17/2012 | 5834.535 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/16/2012 | 5834.419 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/15/2012 | 5834.407 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/14/2012 | 5834.371 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/13/2012 | 5834.317 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/12/2012 | 5834.356 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/11/2012 | 5834.619 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/10/2012 | 5834.552 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/9/2012 | 5834.392 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/8/2012 | 5834.417 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/7/2012 | 5834.518 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/6/2012 | 5834.587 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/5/2012 | 5834.567 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/4/2012 | 5834.546 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/3/2012 | 5834.645 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/2/2012 | 5834.718 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/1/2012 | 5834.681 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 4/30/2012 | 5834.6 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 4/29/2012 | 5834.696 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 4/28/2012 | 5834.73 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 4/27/2012 | 5834.77 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 4/26/2012 | 5834.593 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 4/25/2012 | 5834.659 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 4/24/2012 | 5834.568 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 4/23/2012 | 5834.443 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 4/22/2012 | 5834.494 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 4/21/2012 | 5834.549 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 4/20/2012 | 5834.636 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 4/19/2012 | 5834.701 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 4/18/2012 | 5834.556 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 4/17/2012 | 5834.457 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 4/16/2012 | 5834.607 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 4/15/2012 | 5834.957 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 4/14/2012 | 5834.975 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 4/13/2012 | 5834.77 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 4/12/2012 | 5834.791 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 4/11/2012 | 5834.609 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 4/10/2012 | 5834.524 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 4/9/2012 | 5834.458 | Transducer | 974.9 | 994.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-45 S2 | 4/8/2012 | 5834.349 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 4/7/2012 | 5834.572 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 4/6/2012 | 5834.725 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 4/5/2012 | 5834.704 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 4/4/2012 | 5834.649 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 4/3/2012 | 5834.858 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 4/2/2012 | 5834.968 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 4/1/2012 | 5834.765 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 3/31/2012 | 5834.673 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 3/30/2012 | 5834.694 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 3/29/2012 | 5834.698 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 3/28/2012 | 5834.611 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 3/27/2012 | 5834.665 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 3/26/2012 | 5834.69 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 3/25/2012 | 5834.573 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 3/24/2012 | 5834.589 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 3/23/2012 | 5834.65 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 3/22/2012 | 5834.716 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 3/21/2012 | 5834.714 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 3/20/2012 | 5835.097 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 3/19/2012 | 5835.122 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 3/18/2012 | 5834.915 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 3/17/2012 | 5834.767 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 3/16/2012 | 5834.681 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 3/15/2012 | 5834.719 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 3/14/2012 | 5834.754 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 3/13/2012 | 5834.8 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 3/12/2012 | 5834.861 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 3/11/2012 | 5834.794 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 3/10/2012 | 5834.485 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 3/9/2012 | 5834.542 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 3/8/2012 | 5834.988 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 3/7/2012 | 5835 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 3/7/2012 | 5834.997 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 3/6/2012 | 5834.655 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 3/5/2012 | 5834.454 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 3/4/2012 | 5834.451 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 3/3/2012 | 5834.604 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 3/2/2012 | 5834.868 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 3/1/2012 | 5834.735 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 2/29/2012 | 5834.604 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 2/28/2012 | 5834.754 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 2/27/2012 | 5834.586 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 2/26/2012 | 5834.711 | Transducer | 974.9 | 994.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-45 S2 | 2/25/2012 | 5834.421 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 2/24/2012 | 5834.584 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 2/23/2012 | 5834.833 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 2/22/2012 | 5834.557 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 2/21/2012 | 5834.55 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 2/20/2012 | 5834.887 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 2/19/2012 | 5834.704 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 2/18/2012 | 5834.706 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 2/17/2012 | 5834.632 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 2/16/2012 | 5834.638 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 2/15/2012 | 5834.982 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 2/14/2012 | 5834.915 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 2/13/2012 | 5834.997 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 2/12/2012 | 5834.653 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 2/11/2012 | 5834.631 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 2/10/2012 | 5834.63 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 2/9/2012 | 5834.639 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 2/8/2012 | 5834.524 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 2/7/2012 | 5834.691 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 2/6/2012 | 5834.572 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 2/5/2012 | 5834.489 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 2/4/2012 | 5834.579 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 2/3/2012 | 5834.901 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 2/2/2012 | 5834.65 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 2/1/2012 | 5834.72 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 1/31/2012 | 5834.75 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 1/30/2012 | 5834.516 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 1/29/2012 | 5834.445 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 1/28/2012 | 5834.561 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 1/27/2012 | 5834.691 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 1/26/2012 | 5834.603 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 1/25/2012 | 5834.699 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 1/24/2012 | 5834.77 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 1/23/2012 | 5834.717 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 1/22/2012 | 5835.065 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 1/21/2012 | 5834.685 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 1/20/2012 | 5834.801 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 1/19/2012 | 5834.686 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 1/18/2012 | 5834.602 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 1/17/2012 | 5834.801 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 1/16/2012 | 5834.754 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 1/15/2012 | 5834.538 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 1/14/2012 | 5834.595 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 1/13/2012 | 5834.696 | Transducer | 974.9 | 994.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-45 S2 | 1/12/2012 | 5834.744 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 1/11/2012 | 5834.762 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 1/10/2012 | 5834.598 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 1/9/2012 | 5834.644 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 1/8/2012 | 5834.889 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 1/7/2012 | 5834.784 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 1/6/2012 | 5834.714 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 1/5/2012 | 5834.383 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 1/4/2012 | 5834.512 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 1/3/2012 | 5834.299 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 1/2/2012 | 5834.292 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 1/1/2012 | 5834.442 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 12/31/2011 | 5834.688 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 12/30/2011 | 5834.714 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 12/29/2011 | 5834.6 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 12/28/2011 | 5834.634 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 12/27/2011 | 5834.624 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 12/26/2011 | 5834.508 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 12/25/2011 | 5834.454 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 12/24/2011 | 5834.479 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 12/23/2011 | 5834.568 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 12/22/2011 | 5834.847 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 12/21/2011 | 5834.81 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 12/20/2011 | 5834.779 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 12/19/2011 | 5834.871 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 12/18/2011 | 5834.436 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 12/17/2011 | 5834.401 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 12/16/2011 | 5834.551 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 12/15/2011 | 5834.634 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 12/14/2011 | 5834.847 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 12/13/2011 | 5834.712 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 12/12/2011 | 5834.727 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 12/11/2011 | 5834.536 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 12/10/2011 | 5834.456 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 12/9/2011 | 5834.621 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 12/8/2011 | 5834.601 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 12/7/2011 | 5834.521 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 12/6/2011 | 5834.575 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 12/5/2011 | 5834.737 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 12/4/2011 | 5834.704 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 12/3/2011 | 5834.883 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 12/2/2011 | 5834.564 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 12/1/2011 | 5834.84 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/30/2011 | 5834.48 | Transducer | 974.9 | 994.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-45 S2 | 11/29/2011 | 5834.477 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/28/2011 | 5834.333 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/27/2011 | 5834.258 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/26/2011 | 5834.674 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/25/2011 | 5834.613 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/24/2011 | 5834.444 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/23/2011 | 5834.34 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/22/2011 | 5834.484 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/21/2011 | 5834.567 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/20/2011 | 5834.671 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/19/2011 | 5834.823 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/18/2011 | 5834.617 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/17/2011 | 5834.393 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/16/2011 | 5834.68 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/15/2011 | 5834.699 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/14/2011 | 5834.822 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/13/2011 | 5834.783 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/12/2011 | 5834.684 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/11/2011 | 5834.38 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/10/2011 | 5834.26 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/9/2011 | 5834.437 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/8/2011 | 5834.739 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/7/2011 | 5834.667 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/6/2011 | 5834.748 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/5/2011 | 5834.838 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/4/2011 | 5834.529 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/3/2011 | 5834.328 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/2/2011 | 5834.762 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 11/1/2011 | 5834.547 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/31/2011 | 5834.396 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/30/2011 | 5834.533 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/29/2011 | 5834.403 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/28/2011 | 5834.521 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/27/2011 | 5834.65 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/26/2011 | 5834.574 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/25/2011 | 5834.502 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/24/2011 | 5834.41 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/23/2011 | 5834.44 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/22/2011 | 5834.425 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/21/2011 | 5834.443 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/20/2011 | 5834.541 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/19/2011 | 5834.368 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/18/2011 | 5834.429 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/17/2011 | 5834.495 | Transducer | 974.9 | 994.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-45 S2 | 10/16/2011 | 5834.406 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/15/2011 | 5834.433 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/14/2011 | 5834.488 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/13/2011 | 5834.425 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/12/2011 | 5834.561 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/11/2011 | 5834.565 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/10/2011 | 5834.511 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/9/2011 | 5834.545 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/8/2011 | 5834.696 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/7/2011 | 5834.712 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/6/2011 | 5834.721 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/5/2011 | 5834.55 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/4/2011 | 5834.417 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/3/2011 | 5834.394 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/2/2011 | 5834.382 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 10/1/2011 | 5834.377 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/30/2011 | 5834.255 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/29/2011 | 5834.437 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/28/2011 | 5834.356 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/27/2011 | 5834.452 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/26/2011 | 5834.566 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/25/2011 | 5834.528 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/24/2011 | 5834.38 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/23/2011 | 5834.359 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/22/2011 | 5834.467 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/21/2011 | 5834.467 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/20/2011 | 5834.445 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/19/2011 | 5834.362 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/18/2011 | 5834.423 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/17/2011 | 5834.478 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/16/2011 | 5834.488 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/15/2011 | 5834.452 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/14/2011 | 5834.419 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/13/2011 | 5834.32 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/12/2011 | 5834.273 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/11/2011 | 5834.3 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/10/2011 | 5834.339 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/9/2011 | 5834.303 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/8/2011 | 5834.201 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/7/2011 | 5834.341 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/6/2011 | 5834.334 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/5/2011 | 5834.267 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/4/2011 | 5834.342 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/3/2011 | 5834.451 | Transducer | 974.9 | 994.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-45 S2 | 9/2/2011 | 5834.363 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 9/1/2011 | 5834.389 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/31/2011 | 5834.468 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/30/2011 | 5834.455 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/29/2011 | 5834.41 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/28/2011 | 5834.348 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/27/2011 | 5834.275 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/26/2011 | 5834.289 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/25/2011 | 5834.313 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/24/2011 | 5834.382 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/23/2011 | 5834.345 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/22/2011 | 5834.284 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/21/2011 | 5834.339 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/20/2011 | 5834.409 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/19/2011 | 5834.39 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/19/2011 | 5834.446 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/18/2011 | 5834.23 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/17/2011 | 5834.29 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/16/2011 | 5834.42 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/15/2011 | 5834.39 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/14/2011 | 5834.24 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/13/2011 | 5834.37 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/12/2011 | 5834.42 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/11/2011 | 5834.43 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/10/2011 | 5834.5 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/9/2011 | 5834.45 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/8/2011 | 5834.45 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/7/2011 | 5834.41 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/6/2011 | 5834.37 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/5/2011 | 5834.38 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/4/2011 | 5834.38 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/3/2011 | 5834.35 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/2/2011 | 5834.31 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 8/1/2011 | 5834.24 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/31/2011 | 5834.21 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/30/2011 | 5834.24 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/29/2011 | 5834.3 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/28/2011 | 5834.41 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/27/2011 | 5834.4 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/26/2011 | 5834.33 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/25/2011 | 5834.22 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/24/2011 | 5834.26 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/23/2011 | 5834.36 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/22/2011 | 5834.38 | Transducer | 974.9 | 994.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-45 S2 | 7/21/2011 | 5834.35 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/20/2011 | 5834.3 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/19/2011 | 5834.21 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/18/2011 | 5834.18 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/17/2011 | 5834.28 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/16/2011 | 5834.41 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/15/2011 | 5834.43 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/14/2011 | 5834.39 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/13/2011 | 5834.35 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/12/2011 | 5834.32 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/11/2011 | 5834.35 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/10/2011 | 5834.36 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/9/2011 | 5834.46 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/8/2011 | 5834.41 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/7/2011 | 5834.35 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/6/2011 | 5834.34 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/5/2011 | 5834.33 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/4/2011 | 5834.33 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/3/2011 | 5834.27 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/2/2011 | 5834.33 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 7/1/2011 | 5834.37 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/30/2011 | 5834.38 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/29/2011 | 5834.3 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/28/2011 | 5834.28 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/27/2011 | 5834.42 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/26/2011 | 5834.44 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/25/2011 | 5834.48 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/24/2011 | 5834.49 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/23/2011 | 5834.42 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/22/2011 | 5834.44 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/21/2011 | 5834.55 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/20/2011 | 5834.7 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/19/2011 | 5834.59 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/18/2011 | 5834.54 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/17/2011 | 5834.69 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/16/2011 | 5834.61 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/15/2011 | 5834.47 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/14/2011 | 5834.52 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/13/2011 | 5834.56 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/12/2011 | 5834.64 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/11/2011 | 5834.58 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/10/2011 | 5834.6 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/9/2011 | 5834.64 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/8/2011 | 5834.63 | Transducer | 974.9 | 994.9 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-45 S2 | 6/7/2011 | 5834.63 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/6/2011 | 5834.44 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/5/2011 | 5834.34 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/4/2011 | 5834.49 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/3/2011 | 5834.6 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/2/2011 | 5834.54 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 6/1/2011 | 5834.33 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/31/2011 | 5834.44 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/30/2011 | 5834.89 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/29/2011 | 5834.87 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/28/2011 | 5834.79 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/27/2011 | 5834.73 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/26/2011 | 5834.57 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/25/2011 | 5834.69 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/24/2011 | 5834.84 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/23/2011 | 5834.75 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/22/2011 | 5834.72 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/21/2011 | 5834.76 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/20/2011 | 5834.86 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/19/2011 | 5835.05 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/18/2011 | 5835.01 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/17/2011 | 5834.92 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/16/2011 | 5834.77 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/15/2011 | 5834.79 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/14/2011 | 5834.67 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/13/2011 | 5834.77 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/12/2011 | 5834.98 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/11/2011 | 5835.2 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/10/2011 | 5835.21 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/9/2011 | 5835.2 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/8/2011 | 5835.11 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/7/2011 | 5835.06 | Transducer | 974.9 | 994.9 | Regional |
| R-45 S2 | 5/6/2011 | 5834.94 | Transducer | 974.9 | 994.9 | Regional |
| R-50 S1 | 5/22/2013 | 5835.83 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/21/2013 | 5835.77 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/21/2013 | 5835.75 | Manual | 1077 | 1087 | Regional |
| R-50 S1 | 5/20/2013 | 5835.85 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/19/2013 | 5835.85 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/18/2013 | 5835.82 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/17/2013 | 5835.83 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/16/2013 | 5835.79 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/15/2013 | 5835.76 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/14/2013 | 5835.62 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/13/2013 | 5835.57 | Transducer | 1077 | 1087 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-50 S1 | 5/12/2013 | 5835.47 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/11/2013 | 5835.51 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/10/2013 | 5835.68 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/9/2013 | 5835.78 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/8/2013 | 5835.85 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/7/2013 | 5835.77 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/6/2013 | 5835.74 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/5/2013 | 5835.74 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/4/2013 | 5835.82 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/3/2013 | 5835.45 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/2/2013 | 5835.59 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/1/2013 | 5836 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/30/2013 | 5836 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/29/2013 | 5835.87 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/28/2013 | 5835.72 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/27/2013 | 5835.6 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/26/2013 | 5835.77 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/25/2013 | 5835.7 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/24/2013 | 5835.71 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/23/2013 | 5835.97 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/22/2013 | 5835.78 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/21/2013 | 5835.77 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/20/2013 | 5835.82 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/19/2013 | 5835.65 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/18/2013 | 5835.93 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/17/2013 | 5836.05 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/16/2013 | 5836.03 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/15/2013 | 5836.11 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/14/2013 | 5836.14 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/13/2013 | 5835.88 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/12/2013 | 5835.95 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/11/2013 | 5835.97 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/10/2013 | 5836.04 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/9/2013 | 5836.36 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/8/2013 | 5836.1 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/7/2013 | 5835.98 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/6/2013 | 5835.94 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/5/2013 | 5835.77 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/4/2013 | 5835.75 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/3/2013 | 5835.9 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/2/2013 | 5835.93 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/1/2013 | 5835.85 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/31/2013 | 5835.8 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/30/2013 | 5835.72 | Transducer | 1077 | 1087 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-50 S1 | 3/29/2013 | 5835.74 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/28/2013 | 5835.79 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/27/2013 | 5835.87 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/26/2013 | 5835.71 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/25/2013 | 5835.84 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/24/2013 | 5835.87 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/23/2013 | 5836.19 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/22/2013 | 5836.09 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/21/2013 | 5836 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/20/2013 | 5835.7 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/19/2013 | 5835.89 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/18/2013 | 5836.03 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/17/2013 | 5836.01 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/16/2013 | 5835.9 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/15/2013 | 5835.65 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/14/2013 | 5835.59 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/13/2013 | 5835.53 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/13/2013 | 5835.61 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/12/2013 | 5835.8 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/11/2013 | 5835.75 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/10/2013 | 5835.94 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/9/2013 | 5836.13 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/8/2013 | 5835.91 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/7/2013 | 5835.84 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/6/2013 | 5835.69 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/5/2013 | 5835.76 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/4/2013 | 5835.97 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/3/2013 | 5835.65 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/2/2013 | 5835.52 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/1/2013 | 5835.61 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/28/2013 | 5835.66 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/27/2013 | 5835.82 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/26/2013 | 5835.94 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/25/2013 | 5836.05 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/24/2013 | 5836.14 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/23/2013 | 5835.93 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/22/2013 | 5836.06 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/21/2013 | 5836.36 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/20/2013 | 5836.14 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/19/2013 | 5835.85 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/18/2013 | 5836.13 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/17/2013 | 5835.76 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/16/2013 | 5835.57 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/15/2013 | 5835.71 | Transducer | 1077 | 1087 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-50 S1 | 2/14/2013 | 5835.82 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/13/2013 | 5835.81 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/12/2013 | 5835.97 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/11/2013 | 5835.99 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/10/2013 | 5836.19 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/9/2013 | 5836.1 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/8/2013 | 5835.77 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/7/2013 | 5835.93 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/6/2013 | 5835.92 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/5/2013 | 5835.9 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/4/2013 | 5835.93 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/3/2013 | 5835.62 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/2/2013 | 5835.65 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/1/2013 | 5835.68 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/31/2013 | 5835.79 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/30/2013 | 5836.06 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/29/2013 | 5836.2 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/28/2013 | 5836.02 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/27/2013 | 5836.02 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/26/2013 | 5835.77 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/25/2013 | 5835.71 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/24/2013 | 5835.65 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/23/2013 | 5835.64 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/22/2013 | 5835.69 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/21/2013 | 5835.68 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/20/2013 | 5835.61 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/19/2013 | 5835.67 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/18/2013 | 5835.52 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/17/2013 | 5835.52 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/16/2013 | 5835.65 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/15/2013 | 5835.92 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/14/2013 | 5835.98 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/13/2013 | 5836.02 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/12/2013 | 5836.08 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/11/2013 | 5836.19 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/10/2013 | 5835.77 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/9/2013 | 5835.7 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/8/2013 | 5835.96 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/7/2013 | 5835.81 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/6/2013 | 5835.59 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/5/2013 | 5835.76 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/4/2013 | 5835.67 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/3/2013 | 5835.71 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/2/2013 | 5835.73 | Transducer | 1077 | 1087 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-50 S1 | 1/1/2013 | 5835.89 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/31/2012 | 5836.04 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/30/2012 | 5835.8 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/29/2012 | 5835.75 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/28/2012 | 5836.04 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/27/2012 | 5836.15 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/26/2012 | 5835.88 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/25/2012 | 5836.24 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/24/2012 | 5835.89 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/23/2012 | 5835.78 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/22/2012 | 5835.65 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/21/2012 | 5835.5 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/20/2012 | 5835.71 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/19/2012 | 5836.2 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/18/2012 | 5835.94 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/17/2012 | 5835.89 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/16/2012 | 5836.09 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/15/2012 | 5835.97 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/14/2012 | 5835.94 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/13/2012 | 5835.84 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/12/2012 | 5835.88 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/11/2012 | 5835.96 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/10/2012 | 5835.86 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/9/2012 | 5836.08 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/8/2012 | 5836.02 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/7/2012 | 5836.03 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/6/2012 | 5835.92 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/5/2012 | 5835.66 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/4/2012 | 5835.75 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/3/2012 | 5835.89 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/3/2012 | 5835.95 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/2/2012 | 5835.82 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/1/2012 | 5835.85 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/30/2012 | 5835.78 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/29/2012 | 5835.76 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/28/2012 | 5835.65 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/27/2012 | 5835.66 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/26/2012 | 5835.96 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/25/2012 | 5835.87 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/24/2012 | 5835.6 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/23/2012 | 5835.62 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/22/2012 | 5835.82 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/21/2012 | 5835.7 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/20/2012 | 5835.64 | Transducer | 1077 | 1087 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-50 S1 | 11/19/2012 | 5835.73 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/18/2012 | 5835.79 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/17/2012 | 5835.71 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/16/2012 | 5835.57 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/15/2012 | 5835.7 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/14/2012 | 5835.62 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/13/2012 | 5835.62 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/12/2012 | 5835.64 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/11/2012 | 5836.09 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/10/2012 | 5836.1 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/9/2012 | 5835.94 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/8/2012 | 5835.81 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/7/2012 | 5835.64 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/6/2012 | 5835.65 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/5/2012 | 5835.63 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/4/2012 | 5835.67 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/3/2012 | 5835.77 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/2/2012 | 5835.82 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/1/2012 | 5835.7 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/31/2012 | 5835.72 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/30/2012 | 5835.69 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/29/2012 | 5835.69 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/28/2012 | 5835.75 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/27/2012 | 5835.66 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/26/2012 | 5835.72 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/25/2012 | 5835.93 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/24/2012 | 5835.9 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/23/2012 | 5835.88 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/22/2012 | 5835.92 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/21/2012 | 5835.98 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/20/2012 | 5835.88 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/19/2012 | 5835.8 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/18/2012 | 5835.88 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/17/2012 | 5836.04 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/16/2012 | 5835.88 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/15/2012 | 5835.69 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/14/2012 | 5835.73 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/13/2012 | 5835.9 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/12/2012 | 5835.8 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/11/2012 | 5835.84 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/10/2012 | 5835.82 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/9/2012 | 5835.91 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/8/2012 | 5835.88 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/7/2012 | 5835.87 | Transducer | 1077 | 1087 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-50 S1 | 10/6/2012 | 5835.91 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/5/2012 | 5835.86 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/4/2012 | 5835.84 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/3/2012 | 5835.94 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/2/2012 | 5835.79 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/1/2012 | 5835.81 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/30/2012 | 5835.82 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/29/2012 | 5835.82 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/28/2012 | 5835.84 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/27/2012 | 5835.88 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/26/2012 | 5835.96 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/25/2012 | 5835.9 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/24/2012 | 5835.81 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/23/2012 | 5835.79 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/22/2012 | 5835.83 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/21/2012 | 5835.86 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/20/2012 | 5835.84 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/19/2012 | 5835.83 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/18/2012 | 5835.83 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/17/2012 | 5835.96 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/16/2012 | 5835.83 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/15/2012 | 5835.68 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/14/2012 | 5835.61 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/13/2012 | 5835.79 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/12/2012 | 5835.93 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/11/2012 | 5835.9 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/10/2012 | 5835.8 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/10/2012 | 5835.787 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/9/2012 | 5835.726 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/8/2012 | 5835.737 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/7/2012 | 5835.914 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/6/2012 | 5835.886 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/5/2012 | 5835.921 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/4/2012 | 5835.864 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/3/2012 | 5835.881 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/2/2012 | 5835.852 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/1/2012 | 5835.852 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/31/2012 | 5835.894 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/30/2012 | 5835.887 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/29/2012 | 5835.793 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/28/2012 | 5835.719 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/27/2012 | 5835.78 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/26/2012 | 5835.912 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/25/2012 | 5836.052 | Transducer | 1077 | 1087 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-50 S1 | 8/24/2012 | 5836.014 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/23/2012 | 5835.933 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/22/2012 | 5835.889 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/21/2012 | 5835.925 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/20/2012 | 5835.925 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/19/2012 | 5835.959 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/18/2012 | 5835.921 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/17/2012 | 5835.868 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/16/2012 | 5835.999 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/15/2012 | 5836.016 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/14/2012 | 5835.924 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/13/2012 | 5835.826 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/12/2012 | 5835.952 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/11/2012 | 5835.931 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/10/2012 | 5835.862 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/9/2012 | 5835.804 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/8/2012 | 5835.85 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/7/2012 | 5835.856 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/6/2012 | 5835.683 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/5/2012 | 5835.775 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/4/2012 | 5835.987 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/3/2012 | 5835.908 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/2/2012 | 5835.931 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/1/2012 | 5835.851 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/31/2012 | 5835.909 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/30/2012 | 5835.914 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/29/2012 | 5835.84 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/28/2012 | 5835.823 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/27/2012 | 5835.905 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/26/2012 | 5836.031 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/25/2012 | 5836.028 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/24/2012 | 5835.911 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/23/2012 | 5835.881 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/22/2012 | 5835.859 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/21/2012 | 5835.824 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/20/2012 | 5835.815 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/19/2012 | 5835.879 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/18/2012 | 5835.997 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/17/2012 | 5836.054 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/16/2012 | 5836.003 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/15/2012 | 5835.942 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/14/2012 | 5835.916 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/13/2012 | 5835.909 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/12/2012 | 5835.893 | Transducer | 1077 | 1087 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-50 S1 | 7/11/2012 | 5835.84 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/10/2012 | 5835.839 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/9/2012 | 5835.845 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/8/2012 | 5835.825 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/7/2012 | 5835.876 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/6/2012 | 5835.945 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/5/2012 | 5836.007 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/4/2012 | 5836.034 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/3/2012 | 5836.013 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/2/2012 | 5836.023 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/1/2012 | 5836.041 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/30/2012 | 5836.03 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/29/2012 | 5835.9 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/28/2012 | 5835.933 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/27/2012 | 5836.047 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/26/2012 | 5835.988 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/25/2012 | 5835.911 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/24/2012 | 5835.986 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/23/2012 | 5836.094 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/22/2012 | 5835.954 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/21/2012 | 5836.04 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/20/2012 | 5836.265 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/19/2012 | 5836.274 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/19/2012 | 5836.25 | Manual | 1077 | 1087 | Regional |
| R-50 S1 | 6/19/2012 | 5836.23 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/18/2012 | 5836.163 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/17/2012 | 5835.903 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/16/2012 | 5836.064 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/15/2012 | 5836.188 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/14/2012 | 5836.204 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/13/2012 | 5836.109 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/12/2012 | 5835.996 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/11/2012 | 5836.127 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/10/2012 | 5836.331 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/9/2012 | 5836.288 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/8/2012 | 5836.167 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/7/2012 | 5836.269 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/6/2012 | 5836.234 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/5/2012 | 5836.165 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/4/2012 | 5836.143 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/3/2012 | 5836.234 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/2/2012 | 5836.268 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/1/2012 | 5836.218 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/31/2012 | 5836.272 | Transducer | 1077 | 1087 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-50 S1 | 5/30/2012 | 5836.252 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/29/2012 | 5836.211 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/28/2012 | 5836.253 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/27/2012 | 5836.382 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/26/2012 | 5836.424 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/25/2012 | 5836.55 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/24/2012 | 5836.702 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/23/2012 | 5836.508 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/22/2012 | 5836.218 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/21/2012 | 5836.106 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/20/2012 | 5836.285 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/19/2012 | 5836.519 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/18/2012 | 5836.515 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/17/2012 | 5836.334 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/16/2012 | 5836.169 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/15/2012 | 5836.154 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/14/2012 | 5836.181 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/13/2012 | 5836.107 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/12/2012 | 5836.181 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/11/2012 | 5836.468 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/10/2012 | 5836.359 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/9/2012 | 5836.226 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/8/2012 | 5836.26 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/7/2012 | 5836.373 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/6/2012 | 5836.438 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/5/2012 | 5836.421 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/4/2012 | 5836.392 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/3/2012 | 5836.468 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/2/2012 | 5836.54 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/1/2012 | 5836.539 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/30/2012 | 5836.443 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/29/2012 | 5836.542 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/28/2012 | 5836.56 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/27/2012 | 5836.61 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/26/2012 | 5836.417 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/25/2012 | 5836.469 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/24/2012 | 5836.391 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/23/2012 | 5836.257 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/22/2012 | 5836.311 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/21/2012 | 5836.364 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/20/2012 | 5836.444 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/19/2012 | 5836.509 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/18/2012 | 5836.371 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/17/2012 | 5836.287 | Transducer | 1077 | 1087 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-50 S1 | 4/16/2012 | 5836.439 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/15/2012 | 5836.81 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/14/2012 | 5836.814 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/13/2012 | 5836.589 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/12/2012 | 5836.619 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/11/2012 | 5836.402 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/10/2012 | 5836.358 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/9/2012 | 5836.282 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/8/2012 | 5836.138 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/7/2012 | 5836.39 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/6/2012 | 5836.551 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/5/2012 | 5836.526 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/4/2012 | 5836.504 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/3/2012 | 5836.689 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/2/2012 | 5836.804 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 4/1/2012 | 5836.592 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/31/2012 | 5836.479 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/30/2012 | 5836.502 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/29/2012 | 5836.521 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/28/2012 | 5836.444 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/27/2012 | 5836.486 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/26/2012 | 5836.499 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/25/2012 | 5836.383 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/24/2012 | 5836.403 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/23/2012 | 5836.478 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/22/2012 | 5836.552 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/21/2012 | 5836.559 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/20/2012 | 5836.869 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/19/2012 | 5836.872 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/18/2012 | 5836.744 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/17/2012 | 5836.575 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/16/2012 | 5836.438 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/15/2012 | 5836.385 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/14/2012 | 5836.454 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/13/2012 | 5836.411 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/12/2012 | 5836.559 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/11/2012 | 5836.644 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/10/2012 | 5836.302 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/9/2012 | 5836.104 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/8/2012 | 5836.59 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/7/2012 | 5836.76 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/7/2012 | 5836.787 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/6/2012 | 5836.444 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/5/2012 | 5836.255 | Transducer | 1077 | 1087 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-50 S1 | 3/4/2012 | 5836.268 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/3/2012 | 5836.436 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/2/2012 | 5836.683 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 3/1/2012 | 5836.542 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/29/2012 | 5836.412 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/28/2012 | 5836.561 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/27/2012 | 5836.385 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/26/2012 | 5836.506 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/25/2012 | 5836.235 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/24/2012 | 5836.417 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/23/2012 | 5836.641 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/22/2012 | 5836.372 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/21/2012 | 5836.379 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/20/2012 | 5836.707 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/19/2012 | 5836.519 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/18/2012 | 5836.514 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/17/2012 | 5836.446 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/16/2012 | 5836.458 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/15/2012 | 5836.794 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/14/2012 | 5836.712 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/13/2012 | 5836.783 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/12/2012 | 5836.44 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/11/2012 | 5836.411 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/10/2012 | 5836.408 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/9/2012 | 5836.408 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/8/2012 | 5836.292 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/7/2012 | 5836.497 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/6/2012 | 5836.404 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/5/2012 | 5836.275 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/4/2012 | 5836.395 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/3/2012 | 5836.7 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/2/2012 | 5836.502 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 2/1/2012 | 5836.408 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/31/2012 | 5836.541 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/30/2012 | 5836.365 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/29/2012 | 5836.224 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/28/2012 | 5836.301 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/27/2012 | 5836.577 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/26/2012 | 5836.412 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/25/2012 | 5836.429 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/24/2012 | 5836.678 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/23/2012 | 5836.52 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/22/2012 | 5836.941 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/21/2012 | 5836.514 | Transducer | 1077 | 1087 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-50 S1 | 1/20/2012 | 5836.663 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/19/2012 | 5836.492 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/18/2012 | 5836.407 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/17/2012 | 5836.609 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/16/2012 | 5836.617 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/15/2012 | 5836.409 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/14/2012 | 5836.349 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/13/2012 | 5836.527 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/12/2012 | 5836.536 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/11/2012 | 5836.652 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/10/2012 | 5836.464 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/9/2012 | 5836.47 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/8/2012 | 5836.707 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/7/2012 | 5836.584 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/6/2012 | 5836.581 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/5/2012 | 5836.229 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/4/2012 | 5836.305 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/3/2012 | 5836.177 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/2/2012 | 5836.095 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 1/1/2012 | 5836.256 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/31/2011 | 5836.526 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/30/2011 | 5836.477 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/29/2011 | 5836.391 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/28/2011 | 5836.431 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/27/2011 | 5836.344 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/26/2011 | 5836.396 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/25/2011 | 5836.215 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/24/2011 | 5836.296 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/23/2011 | 5836.401 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/22/2011 | 5836.685 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/21/2011 | 5836.678 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/20/2011 | 5836.62 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/19/2011 | 5836.726 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/18/2011 | 5836.279 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/17/2011 | 5836.174 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/16/2011 | 5836.336 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/15/2011 | 5836.458 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/14/2011 | 5836.664 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/13/2011 | 5836.542 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/12/2011 | 5836.538 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/11/2011 | 5836.391 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/10/2011 | 5836.24 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/9/2011 | 5836.424 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/8/2011 | 5836.46 | Transducer | 1077 | 1087 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-50 S1 | 12/7/2011 | 5836.339 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/6/2011 | 5836.418 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/5/2011 | 5836.582 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/4/2011 | 5836.534 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/3/2011 | 5836.746 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/2/2011 | 5836.374 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 12/1/2011 | 5836.653 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/30/2011 | 5836.305 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/29/2011 | 5836.268 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/28/2011 | 5836.164 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/27/2011 | 5836.06 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/26/2011 | 5836.487 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/25/2011 | 5836.439 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/24/2011 | 5836.263 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/23/2011 | 5836.151 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/22/2011 | 5836.31 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/21/2011 | 5836.4 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/20/2011 | 5836.496 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/19/2011 | 5836.671 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/18/2011 | 5836.462 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/17/2011 | 5836.212 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/16/2011 | 5836.504 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/15/2011 | 5836.537 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/14/2011 | 5836.597 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/13/2011 | 5836.606 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/12/2011 | 5836.533 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/11/2011 | 5836.247 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/10/2011 | 5836.058 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/9/2011 | 5836.222 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/8/2011 | 5836.597 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/7/2011 | 5836.521 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/6/2011 | 5836.584 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/5/2011 | 5836.709 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/4/2011 | 5836.371 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/3/2011 | 5836.15 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/2/2011 | 5836.595 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 11/1/2011 | 5836.379 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/31/2011 | 5836.221 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/30/2011 | 5836.322 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/29/2011 | 5836.234 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/28/2011 | 5836.339 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/27/2011 | 5836.483 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/26/2011 | 5836.408 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/25/2011 | 5836.318 | Transducer | 1077 | 1087 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-50 S1 | 10/24/2011 | 5836.211 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/23/2011 | 5836.242 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/22/2011 | 5836.232 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/21/2011 | 5836.25 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/20/2011 | 5836.366 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/19/2011 | 5836.195 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/18/2011 | 5836.244 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/17/2011 | 5836.327 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/16/2011 | 5836.22 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/15/2011 | 5836.233 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/14/2011 | 5836.306 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/13/2011 | 5836.23 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/12/2011 | 5836.362 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/11/2011 | 5836.395 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/10/2011 | 5836.314 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/9/2011 | 5836.343 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/8/2011 | 5836.518 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/7/2011 | 5836.514 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/6/2011 | 5836.548 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/5/2011 | 5836.368 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/4/2011 | 5836.227 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/3/2011 | 5836.187 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/2/2011 | 5836.167 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 10/1/2011 | 5836.157 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/30/2011 | 5836.042 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/29/2011 | 5836.23 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/28/2011 | 5836.169 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/27/2011 | 5836.245 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/26/2011 | 5836.357 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/25/2011 | 5836.313 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/24/2011 | 5836.166 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/23/2011 | 5836.12 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/22/2011 | 5836.228 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/21/2011 | 5836.233 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/20/2011 | 5836.21 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/19/2011 | 5836.121 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/18/2011 | 5836.192 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/17/2011 | 5836.255 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/16/2011 | 5836.266 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/15/2011 | 5836.223 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/14/2011 | 5836.189 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/13/2011 | 5836.09 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/12/2011 | 5836.038 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/11/2011 | 5836.061 | Transducer | 1077 | 1087 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-50 S1 | 9/10/2011 | 5836.099 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/9/2011 | 5836.062 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/8/2011 | 5835.956 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/7/2011 | 5836.106 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/6/2011 | 5836.102 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/5/2011 | 5836.034 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/4/2011 | 5836.111 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/3/2011 | 5836.221 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/2/2011 | 5836.136 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 9/1/2011 | 5836.161 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/31/2011 | 5836.225 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/30/2011 | 5836.214 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/29/2011 | 5836.174 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/28/2011 | 5836.093 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/27/2011 | 5836.014 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/26/2011 | 5836.021 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/25/2011 | 5836.045 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/24/2011 | 5836.109 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/23/2011 | 5836.095 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/22/2011 | 5836.008 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/21/2011 | 5836.087 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/20/2011 | 5836.155 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/19/2011 | 5836.11 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/19/2011 | 5836.173 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/18/2011 | 5835.98 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/17/2011 | 5836.02 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/16/2011 | 5836.16 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/15/2011 | 5836.11 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/14/2011 | 5835.97 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/13/2011 | 5836.09 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/12/2011 | 5836.15 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/11/2011 | 5836.15 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/10/2011 | 5836.21 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/9/2011 | 5836.18 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/8/2011 | 5836.18 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/7/2011 | 5836.14 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/6/2011 | 5836.09 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/5/2011 | 5836.1 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/4/2011 | 5836.09 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/3/2011 | 5836.06 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/2/2011 | 5836.02 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 8/1/2011 | 5835.94 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/31/2011 | 5835.9 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/30/2011 | 5835.91 | Transducer | 1077 | 1087 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-50 S1 | 7/29/2011 | 5835.99 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/28/2011 | 5836.09 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/27/2011 | 5836.09 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/26/2011 | 5836.01 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/25/2011 | 5835.89 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/24/2011 | 5835.95 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/23/2011 | 5836.05 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/22/2011 | 5836.08 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/21/2011 | 5836.06 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/20/2011 | 5836 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/19/2011 | 5835.91 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/18/2011 | 5835.86 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/17/2011 | 5835.96 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/16/2011 | 5836.1 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/15/2011 | 5836.14 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/14/2011 | 5836.11 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/13/2011 | 5836.06 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/12/2011 | 5836.05 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/11/2011 | 5836.06 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/10/2011 | 5836.08 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/9/2011 | 5836.14 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/8/2011 | 5836.09 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/7/2011 | 5836.03 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/6/2011 | 5836.02 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/5/2011 | 5836.02 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/4/2011 | 5836.02 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/3/2011 | 5835.98 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/2/2011 | 5836.05 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 7/1/2011 | 5836.1 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/30/2011 | 5836.09 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/29/2011 | 5836.01 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/28/2011 | 5836 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/27/2011 | 5836.16 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/26/2011 | 5836.18 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/25/2011 | 5836.22 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/24/2011 | 5836.22 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/23/2011 | 5836.14 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/22/2011 | 5836.16 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/21/2011 | 5836.27 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/20/2011 | 5836.44 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/19/2011 | 5836.33 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/18/2011 | 5836.27 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/17/2011 | 5836.41 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/16/2011 | 5836.36 | Transducer | 1077 | 1087 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-50 S1 | 6/15/2011 | 5836.19 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/14/2011 | 5836.24 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/13/2011 | 5836.29 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/12/2011 | 5836.35 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/11/2011 | 5836.29 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/10/2011 | 5836.32 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/9/2011 | 5836.37 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/8/2011 | 5836.35 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/7/2011 | 5836.35 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/6/2011 | 5836.17 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/5/2011 | 5836.07 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/4/2011 | 5836.24 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/3/2011 | 5836.35 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/2/2011 | 5836.28 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 6/1/2011 | 5836.09 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/31/2011 | 5836.21 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/30/2011 | 5836.68 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/29/2011 | 5836.67 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/28/2011 | 5836.57 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/27/2011 | 5836.51 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/26/2011 | 5836.36 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/25/2011 | 5836.49 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/24/2011 | 5836.66 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/23/2011 | 5836.56 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/22/2011 | 5836.54 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/21/2011 | 5836.58 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/20/2011 | 5836.69 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/19/2011 | 5836.88 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/18/2011 | 5836.84 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/17/2011 | 5836.76 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/16/2011 | 5836.6 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/15/2011 | 5836.61 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/14/2011 | 5836.49 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/13/2011 | 5836.5 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/12/2011 | 5836.72 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/11/2011 | 5836.99 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/10/2011 | 5836.97 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/9/2011 | 5836.95 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/8/2011 | 5836.85 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/7/2011 | 5836.81 | Transducer | 1077 | 1087 | Regional |
| R-50 S1 | 5/6/2011 | 5836.66 | Transducer | 1077 | 1087 | Regional |
| R-50 S2 | 5/22/2013 | 5835.5 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/21/2013 | 5835.43 | Manual | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/21/2013 | 5835.49 | Transducer | 1185 | 1205.6 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-50 S2 | 5/20/2013 | 5835.57 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/19/2013 | 5835.57 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/18/2013 | 5835.55 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/17/2013 | 5835.56 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/16/2013 | 5835.52 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/15/2013 | 5835.48 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/14/2013 | 5835.35 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/13/2013 | 5835.31 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/12/2013 | 5835.23 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/11/2013 | 5835.28 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/10/2013 | 5835.45 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/9/2013 | 5835.54 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/8/2013 | 5835.59 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/7/2013 | 5835.52 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/6/2013 | 5835.48 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/5/2013 | 5835.5 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/4/2013 | 5835.57 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/3/2013 | 5835.23 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/2/2013 | 5835.37 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/1/2013 | 5835.75 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/30/2013 | 5835.76 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/29/2013 | 5835.65 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/28/2013 | 5835.48 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/27/2013 | 5835.37 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/26/2013 | 5835.55 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/25/2013 | 5835.48 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/24/2013 | 5835.49 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/23/2013 | 5835.74 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/22/2013 | 5835.56 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/21/2013 | 5835.58 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/20/2013 | 5835.62 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/19/2013 | 5835.47 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/18/2013 | 5835.73 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/17/2013 | 5835.85 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/16/2013 | 5835.84 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/15/2013 | 5835.9 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/14/2013 | 5835.91 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/13/2013 | 5835.67 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/12/2013 | 5835.72 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/11/2013 | 5835.74 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/10/2013 | 5835.82 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/9/2013 | 5836.11 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/8/2013 | 5835.85 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/7/2013 | 5835.75 | Transducer | 1185 | 1205.6 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-50 S2 | 4/6/2013 | 5835.72 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/5/2013 | 5835.54 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/4/2013 | 5835.54 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/3/2013 | 5835.67 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/2/2013 | 5835.71 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/1/2013 | 5835.63 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/31/2013 | 5835.58 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/30/2013 | 5835.5 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/29/2013 | 5835.52 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/28/2013 | 5835.56 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/27/2013 | 5835.64 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/26/2013 | 5835.5 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/25/2013 | 5835.63 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/24/2013 | 5835.67 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/23/2013 | 5835.96 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/22/2013 | 5835.87 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/21/2013 | 5835.77 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/20/2013 | 5835.49 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/19/2013 | 5835.67 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/18/2013 | 5835.82 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/17/2013 | 5835.79 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/16/2013 | 5835.66 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/15/2013 | 5835.42 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/14/2013 | 5835.37 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/13/2013 | 5835.32 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/13/2013 | 5835.4 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/12/2013 | 5835.57 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/11/2013 | 5835.53 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/10/2013 | 5835.73 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/9/2013 | 5835.89 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/8/2013 | 5835.69 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/7/2013 | 5835.63 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/6/2013 | 5835.47 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/5/2013 | 5835.57 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/4/2013 | 5835.75 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/3/2013 | 5835.44 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/2/2013 | 5835.31 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/1/2013 | 5835.38 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/28/2013 | 5835.43 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/27/2013 | 5835.61 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/26/2013 | 5835.7 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/25/2013 | 5835.82 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/24/2013 | 5835.89 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/23/2013 | 5835.7 | Transducer | 1185 | 1205.6 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-50 S2 | 2/22/2013 | 5835.83 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/21/2013 | 5836.12 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/20/2013 | 5835.9 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/19/2013 | 5835.62 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/18/2013 | 5835.9 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/17/2013 | 5835.53 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/16/2013 | 5835.36 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/15/2013 | 5835.49 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/14/2013 | 5835.6 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/13/2013 | 5835.57 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/12/2013 | 5835.72 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/11/2013 | 5835.74 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/10/2013 | 5835.94 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/9/2013 | 5835.84 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/8/2013 | 5835.53 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/7/2013 | 5835.69 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/6/2013 | 5835.69 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/5/2013 | 5835.66 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/4/2013 | 5835.68 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/3/2013 | 5835.39 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/2/2013 | 5835.43 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/1/2013 | 5835.45 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/31/2013 | 5835.55 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/30/2013 | 5835.82 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/29/2013 | 5835.92 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/28/2013 | 5835.75 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/27/2013 | 5835.75 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/26/2013 | 5835.51 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/25/2013 | 5835.46 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/24/2013 | 5835.4 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/23/2013 | 5835.4 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/22/2013 | 5835.45 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/21/2013 | 5835.44 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/20/2013 | 5835.37 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/19/2013 | 5835.43 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/18/2013 | 5835.28 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/17/2013 | 5835.29 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/16/2013 | 5835.43 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/15/2013 | 5835.67 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/14/2013 | 5835.73 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/13/2013 | 5835.76 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/12/2013 | 5835.82 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/11/2013 | 5835.91 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/10/2013 | 5835.51 | Transducer | 1185 | 1205.6 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-50 S2 | 1/9/2013 | 5835.47 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/8/2013 | 5835.71 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/7/2013 | 5835.56 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/6/2013 | 5835.37 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/5/2013 | 5835.52 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/4/2013 | 5835.43 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/3/2013 | 5835.48 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/2/2013 | 5835.49 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/1/2013 | 5835.65 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/31/2012 | 5835.77 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/30/2012 | 5835.54 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/29/2012 | 5835.5 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/28/2012 | 5835.8 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/27/2012 | 5835.89 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/26/2012 | 5835.62 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/25/2012 | 5835.97 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/24/2012 | 5835.62 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/23/2012 | 5835.54 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/22/2012 | 5835.41 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/21/2012 | 5835.27 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/20/2012 | 5835.49 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/19/2012 | 5835.93 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/18/2012 | 5835.69 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/17/2012 | 5835.64 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/16/2012 | 5835.83 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/15/2012 | 5835.72 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/14/2012 | 5835.68 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/13/2012 | 5835.58 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/12/2012 | 5835.61 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/11/2012 | 5835.7 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/10/2012 | 5835.61 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/9/2012 | 5835.81 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/8/2012 | 5835.75 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/7/2012 | 5835.76 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/6/2012 | 5835.65 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/5/2012 | 5835.39 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/4/2012 | 5835.5 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/3/2012 | 5835.67 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/3/2012 | 5835.64 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/2/2012 | 5835.55 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/1/2012 | 5835.59 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/30/2012 | 5835.51 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/29/2012 | 5835.49 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/28/2012 | 5835.39 | Transducer | 1185 | 1205.6 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-50 S2 | 11/27/2012 | 5835.41 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/26/2012 | 5835.7 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/25/2012 | 5835.61 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/24/2012 | 5835.34 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/23/2012 | 5835.39 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/22/2012 | 5835.56 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/21/2012 | 5835.44 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/20/2012 | 5835.38 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/19/2012 | 5835.47 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/18/2012 | 5835.53 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/17/2012 | 5835.43 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/16/2012 | 5835.31 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/15/2012 | 5835.42 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/14/2012 | 5835.34 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/13/2012 | 5835.33 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/12/2012 | 5835.39 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/11/2012 | 5835.82 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/10/2012 | 5835.82 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/9/2012 | 5835.66 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/8/2012 | 5835.53 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/7/2012 | 5835.37 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/6/2012 | 5835.38 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/5/2012 | 5835.34 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/4/2012 | 5835.37 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/3/2012 | 5835.47 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/2/2012 | 5835.51 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/1/2012 | 5835.4 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/31/2012 | 5835.42 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/30/2012 | 5835.39 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/29/2012 | 5835.38 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/28/2012 | 5835.44 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/27/2012 | 5835.35 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/26/2012 | 5835.42 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/25/2012 | 5835.64 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/24/2012 | 5835.59 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/23/2012 | 5835.57 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/22/2012 | 5835.61 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/21/2012 | 5835.65 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/20/2012 | 5835.56 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/19/2012 | 5835.47 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/18/2012 | 5835.56 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/17/2012 | 5835.71 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/16/2012 | 5835.54 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/15/2012 | 5835.36 | Transducer | 1185 | 1205.6 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-50 S2 | 10/14/2012 | 5835.42 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/13/2012 | 5835.58 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/12/2012 | 5835.48 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/11/2012 | 5835.52 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/10/2012 | 5835.5 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/9/2012 | 5835.58 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/8/2012 | 5835.56 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/7/2012 | 5835.55 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/6/2012 | 5835.57 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/5/2012 | 5835.52 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/4/2012 | 5835.51 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/3/2012 | 5835.61 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/2/2012 | 5835.46 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/1/2012 | 5835.48 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/30/2012 | 5835.48 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/29/2012 | 5835.5 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/28/2012 | 5835.51 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/27/2012 | 5835.54 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/26/2012 | 5835.63 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/25/2012 | 5835.56 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/24/2012 | 5835.47 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/23/2012 | 5835.46 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/22/2012 | 5835.5 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/21/2012 | 5835.52 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/20/2012 | 5835.5 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/19/2012 | 5835.49 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/18/2012 | 5835.5 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/17/2012 | 5835.61 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/16/2012 | 5835.49 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/15/2012 | 5835.35 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/14/2012 | 5835.29 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/13/2012 | 5835.46 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/12/2012 | 5835.59 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/11/2012 | 5835.57 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/10/2012 | 5835.47 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/10/2012 | 5835.462 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/9/2012 | 5835.397 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/8/2012 | 5835.423 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/7/2012 | 5835.586 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/6/2012 | 5835.555 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/5/2012 | 5835.586 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/4/2012 | 5835.513 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/3/2012 | 5835.54 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/2/2012 | 5835.518 | Transducer | 1185 | 1205.6 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-50 S2 | 9/1/2012 | 5835.516 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/31/2012 | 5835.573 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/30/2012 | 5835.574 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/29/2012 | 5835.487 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/28/2012 | 5835.434 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/27/2012 | 5835.481 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/26/2012 | 5835.607 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/25/2012 | 5835.736 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/24/2012 | 5835.688 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/23/2012 | 5835.606 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/22/2012 | 5835.557 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/21/2012 | 5835.593 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/20/2012 | 5835.583 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/19/2012 | 5835.624 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/18/2012 | 5835.592 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/17/2012 | 5835.552 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/16/2012 | 5835.693 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/15/2012 | 5835.712 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/14/2012 | 5835.621 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/13/2012 | 5835.521 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/12/2012 | 5835.651 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/11/2012 | 5835.629 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/10/2012 | 5835.561 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/9/2012 | 5835.509 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/8/2012 | 5835.539 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/7/2012 | 5835.513 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/6/2012 | 5835.353 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/5/2012 | 5835.436 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/4/2012 | 5835.625 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/3/2012 | 5835.546 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/2/2012 | 5835.568 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/1/2012 | 5835.508 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/31/2012 | 5835.559 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/30/2012 | 5835.566 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/29/2012 | 5835.505 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/28/2012 | 5835.508 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/27/2012 | 5835.569 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/26/2012 | 5835.689 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/25/2012 | 5835.682 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/24/2012 | 5835.564 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/23/2012 | 5835.528 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/22/2012 | 5835.508 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/21/2012 | 5835.474 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/20/2012 | 5835.476 | Transducer | 1185 | 1205.6 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-50 S2 | 7/19/2012 | 5835.537 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/18/2012 | 5835.655 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/17/2012 | 5835.705 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/16/2012 | 5835.66 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/15/2012 | 5835.614 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/14/2012 | 5835.579 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/13/2012 | 5835.577 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/12/2012 | 5835.558 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/11/2012 | 5835.508 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/10/2012 | 5835.504 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/9/2012 | 5835.507 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/8/2012 | 5835.485 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/7/2012 | 5835.537 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/6/2012 | 5835.604 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/5/2012 | 5835.66 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/4/2012 | 5835.678 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/3/2012 | 5835.659 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/2/2012 | 5835.665 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/1/2012 | 5835.694 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/30/2012 | 5835.682 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/29/2012 | 5835.569 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/28/2012 | 5835.609 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/27/2012 | 5835.728 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/26/2012 | 5835.672 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/25/2012 | 5835.589 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/24/2012 | 5835.646 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/23/2012 | 5835.751 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/22/2012 | 5835.615 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/21/2012 | 5835.713 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/20/2012 | 5835.927 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/19/2012 | 5835.915 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/19/2012 | 5835.983 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/19/2012 | 5835.91 | Manual | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/18/2012 | 5835.915 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/17/2012 | 5835.671 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/16/2012 | 5835.822 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/15/2012 | 5835.948 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/14/2012 | 5835.961 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/13/2012 | 5835.873 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/12/2012 | 5835.773 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/11/2012 | 5835.9 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/10/2012 | 5836.09 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/9/2012 | 5836.047 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/8/2012 | 5835.936 | Transducer | 1185 | 1205.6 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-50 S2 | 6/7/2012 | 5836.033 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/6/2012 | 5836.006 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/5/2012 | 5835.925 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/4/2012 | 5835.917 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/3/2012 | 5836.01 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/2/2012 | 5836.047 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/1/2012 | 5835.996 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/31/2012 | 5836.06 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/30/2012 | 5836.045 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/29/2012 | 5836.017 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/28/2012 | 5836.058 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/27/2012 | 5836.18 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/26/2012 | 5836.214 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/25/2012 | 5836.341 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/24/2012 | 5836.489 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/23/2012 | 5836.293 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/22/2012 | 5836.016 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/21/2012 | 5835.917 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/20/2012 | 5836.089 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/19/2012 | 5836.328 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/18/2012 | 5836.311 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/17/2012 | 5836.134 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/16/2012 | 5835.978 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/15/2012 | 5835.973 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/14/2012 | 5835.997 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/13/2012 | 5835.932 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/12/2012 | 5836.011 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/11/2012 | 5836.27 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/10/2012 | 5836.15 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/9/2012 | 5836.025 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/8/2012 | 5836.052 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/7/2012 | 5836.158 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/6/2012 | 5836.223 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/5/2012 | 5836.215 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/4/2012 | 5836.203 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/3/2012 | 5836.288 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/2/2012 | 5836.348 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/1/2012 | 5836.33 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/30/2012 | 5836.25 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/29/2012 | 5836.342 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/28/2012 | 5836.375 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/27/2012 | 5836.422 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/26/2012 | 5836.241 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/25/2012 | 5836.302 | Transducer | 1185 | 1205.6 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-50 S2 | 4/24/2012 | 5836.209 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/23/2012 | 5836.09 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/22/2012 | 5836.151 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/21/2012 | 5836.201 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/20/2012 | 5836.289 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/19/2012 | 5836.348 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/18/2012 | 5836.213 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/17/2012 | 5836.137 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/16/2012 | 5836.301 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/15/2012 | 5836.652 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/14/2012 | 5836.648 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/13/2012 | 5836.438 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/12/2012 | 5836.446 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/11/2012 | 5836.238 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/10/2012 | 5836.19 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/9/2012 | 5836.116 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/8/2012 | 5835.994 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/7/2012 | 5836.24 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/6/2012 | 5836.383 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/5/2012 | 5836.359 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/4/2012 | 5836.34 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/3/2012 | 5836.529 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/2/2012 | 5836.631 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 4/1/2012 | 5836.429 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/31/2012 | 5836.323 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/30/2012 | 5836.348 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/29/2012 | 5836.35 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/28/2012 | 5836.275 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/27/2012 | 5836.319 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/26/2012 | 5836.331 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/25/2012 | 5836.221 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/24/2012 | 5836.236 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/23/2012 | 5836.323 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/22/2012 | 5836.394 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/21/2012 | 5836.411 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/20/2012 | 5836.7 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/19/2012 | 5836.705 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/18/2012 | 5836.59 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/17/2012 | 5836.429 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/16/2012 | 5836.292 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/15/2012 | 5836.252 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/14/2012 | 5836.314 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/13/2012 | 5836.274 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/12/2012 | 5836.411 | Transducer | 1185 | 1205.6 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-50 S2 | 3/11/2012 | 5836.485 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/10/2012 | 5836.148 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/9/2012 | 5835.981 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/8/2012 | 5836.466 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/7/2012 | 5836.613 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/7/2012 | 5836.64 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/6/2012 | 5836.294 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/5/2012 | 5836.127 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/4/2012 | 5836.148 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/3/2012 | 5836.319 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/2/2012 | 5836.548 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 3/1/2012 | 5836.407 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/29/2012 | 5836.289 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/28/2012 | 5836.398 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/27/2012 | 5836.245 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/26/2012 | 5836.339 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/25/2012 | 5836.042 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/24/2012 | 5836.232 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/23/2012 | 5836.422 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/22/2012 | 5836.163 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/21/2012 | 5836.179 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/20/2012 | 5836.49 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/19/2012 | 5836.307 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/18/2012 | 5836.313 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/17/2012 | 5836.25 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/16/2012 | 5836.277 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/15/2012 | 5836.626 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/14/2012 | 5836.537 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/13/2012 | 5836.595 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/12/2012 | 5836.266 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/11/2012 | 5836.234 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/10/2012 | 5836.246 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/9/2012 | 5836.231 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/8/2012 | 5836.139 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/7/2012 | 5836.322 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/6/2012 | 5836.229 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/5/2012 | 5836.115 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/4/2012 | 5836.241 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/3/2012 | 5836.535 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/2/2012 | 5836.331 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 2/1/2012 | 5836.264 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/31/2012 | 5836.372 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/30/2012 | 5836.198 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/29/2012 | 5836.073 | Transducer | 1185 | 1205.6 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-50 S2 | 1/28/2012 | 5836.158 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/27/2012 | 5836.396 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/26/2012 | 5836.238 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/25/2012 | 5836.255 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/24/2012 | 5836.476 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/23/2012 | 5836.347 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/22/2012 | 5836.74 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/21/2012 | 5836.35 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/20/2012 | 5836.481 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/19/2012 | 5836.333 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/18/2012 | 5836.255 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/17/2012 | 5836.452 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/16/2012 | 5836.446 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/15/2012 | 5836.238 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/14/2012 | 5836.189 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/13/2012 | 5836.365 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/12/2012 | 5836.377 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/11/2012 | 5836.46 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/10/2012 | 5836.268 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/9/2012 | 5836.294 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/8/2012 | 5836.517 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/7/2012 | 5836.398 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/6/2012 | 5836.383 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/5/2012 | 5836.062 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/4/2012 | 5836.143 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/3/2012 | 5836.001 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/2/2012 | 5835.938 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 1/1/2012 | 5836.107 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/31/2011 | 5836.349 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/30/2011 | 5836.31 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/29/2011 | 5836.218 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/28/2011 | 5836.262 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/27/2011 | 5836.184 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/26/2011 | 5836.218 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/25/2011 | 5836.065 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/24/2011 | 5836.137 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/23/2011 | 5836.24 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/22/2011 | 5836.526 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/21/2011 | 5836.515 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/20/2011 | 5836.472 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/19/2011 | 5836.548 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/18/2011 | 5836.123 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/17/2011 | 5836.038 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/16/2011 | 5836.184 | Transducer | 1185 | 1205.6 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-50 S2 | 12/15/2011 | 5836.297 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/14/2011 | 5836.498 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/13/2011 | 5836.372 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/12/2011 | 5836.366 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/11/2011 | 5836.208 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/10/2011 | 5836.078 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/9/2011 | 5836.267 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/8/2011 | 5836.288 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/7/2011 | 5836.187 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/6/2011 | 5836.255 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/5/2011 | 5836.417 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/4/2011 | 5836.374 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/3/2011 | 5836.561 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/2/2011 | 5836.224 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 12/1/2011 | 5836.483 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/30/2011 | 5836.133 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/29/2011 | 5836.106 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/28/2011 | 5835.994 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/27/2011 | 5835.942 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/26/2011 | 5836.32 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/25/2011 | 5836.264 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/24/2011 | 5836.097 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/23/2011 | 5836.023 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/22/2011 | 5836.163 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/21/2011 | 5836.248 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/20/2011 | 5836.342 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/19/2011 | 5836.502 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/18/2011 | 5836.29 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/17/2011 | 5836.064 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/16/2011 | 5836.333 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/15/2011 | 5836.361 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/14/2011 | 5836.426 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/13/2011 | 5836.424 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/12/2011 | 5836.347 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/11/2011 | 5836.072 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/10/2011 | 5835.937 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/9/2011 | 5836.09 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/8/2011 | 5836.419 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/7/2011 | 5836.347 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/6/2011 | 5836.428 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/5/2011 | 5836.527 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/4/2011 | 5836.206 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/3/2011 | 5836.026 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 11/2/2011 | 5836.418 | Transducer | 1185 | 1205.6 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-50 S2 | 11/1/2011 | 5836.201 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/31/2011 | 5836.077 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/30/2011 | 5836.159 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/29/2011 | 5836.078 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/28/2011 | 5836.171 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/27/2011 | 5836.314 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/26/2011 | 5836.225 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/25/2011 | 5836.142 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/24/2011 | 5836.071 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/23/2011 | 5836.098 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/22/2011 | 5836.086 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/21/2011 | 5836.094 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/20/2011 | 5836.186 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/19/2011 | 5836.046 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/18/2011 | 5836.086 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/17/2011 | 5836.143 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/16/2011 | 5836.056 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/15/2011 | 5836.069 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/14/2011 | 5836.13 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/13/2011 | 5836.061 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/12/2011 | 5836.19 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/11/2011 | 5836.203 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/10/2011 | 5836.139 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/9/2011 | 5836.178 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/8/2011 | 5836.346 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/7/2011 | 5836.345 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/6/2011 | 5836.364 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/5/2011 | 5836.185 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/4/2011 | 5836.05 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/3/2011 | 5836.016 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/2/2011 | 5835.998 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 10/1/2011 | 5835.984 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/30/2011 | 5835.908 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/29/2011 | 5836.052 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/28/2011 | 5836.002 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/27/2011 | 5836.073 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/26/2011 | 5836.181 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/25/2011 | 5836.143 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/24/2011 | 5836.018 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/23/2011 | 5836.006 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/22/2011 | 5836.087 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/21/2011 | 5836.083 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/20/2011 | 5836.062 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/19/2011 | 5835.992 | Transducer | 1185 | 1205.6 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-50 S2 | 9/18/2011 | 5836.043 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/17/2011 | 5836.09 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/16/2011 | 5836.091 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/15/2011 | 5836.059 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/14/2011 | 5836.016 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/13/2011 | 5835.934 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/12/2011 | 5835.903 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/11/2011 | 5835.917 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/10/2011 | 5835.946 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/9/2011 | 5835.909 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/8/2011 | 5835.85 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/7/2011 | 5835.958 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/6/2011 | 5835.942 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/5/2011 | 5835.903 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/4/2011 | 5835.969 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/3/2011 | 5836.052 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/2/2011 | 5835.98 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 9/1/2011 | 5835.994 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/31/2011 | 5836.055 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/30/2011 | 5836.045 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/29/2011 | 5836.004 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/28/2011 | 5835.937 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/27/2011 | 5835.883 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/26/2011 | 5835.895 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/25/2011 | 5835.928 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/24/2011 | 5835.97 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/23/2011 | 5835.938 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/22/2011 | 5835.891 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/21/2011 | 5835.927 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/20/2011 | 5835.992 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/19/2011 | 5835.95 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/19/2011 | 5835.985 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/18/2011 | 5835.83 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/17/2011 | 5835.89 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/16/2011 | 5835.99 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/15/2011 | 5835.94 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/14/2011 | 5835.84 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/13/2011 | 5835.95 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/12/2011 | 5835.99 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/11/2011 | 5835.99 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/10/2011 | 5836.04 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/9/2011 | 5836.01 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/8/2011 | 5836.01 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/7/2011 | 5835.97 | Transducer | 1185 | 1205.6 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-50 S2 | 8/6/2011 | 5835.93 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/5/2011 | 5835.93 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/4/2011 | 5835.92 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/3/2011 | 5835.88 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/2/2011 | 5835.84 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 8/1/2011 | 5835.77 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/31/2011 | 5835.75 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/30/2011 | 5835.76 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/29/2011 | 5835.83 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/28/2011 | 5835.89 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/27/2011 | 5835.89 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/26/2011 | 5835.79 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/25/2011 | 5835.69 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/24/2011 | 5835.72 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/23/2011 | 5835.79 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/22/2011 | 5835.81 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/21/2011 | 5835.77 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/20/2011 | 5835.72 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/19/2011 | 5835.64 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/18/2011 | 5835.61 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/17/2011 | 5835.71 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/16/2011 | 5835.82 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/15/2011 | 5835.85 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/14/2011 | 5835.82 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/13/2011 | 5835.78 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/12/2011 | 5835.76 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/11/2011 | 5835.77 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/10/2011 | 5835.8 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/9/2011 | 5835.85 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/8/2011 | 5835.81 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/7/2011 | 5835.75 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/6/2011 | 5835.74 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/5/2011 | 5835.75 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/4/2011 | 5835.75 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/3/2011 | 5835.7 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/2/2011 | 5835.76 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 7/1/2011 | 5835.8 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/30/2011 | 5835.79 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/29/2011 | 5835.7 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/28/2011 | 5835.69 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/27/2011 | 5835.85 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/26/2011 | 5835.88 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/25/2011 | 5835.92 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/24/2011 | 5835.92 | Transducer | 1185 | 1205.6 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-50 S2 | 6/23/2011 | 5835.84 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/22/2011 | 5835.87 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/21/2011 | 5835.99 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/20/2011 | 5836.16 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/19/2011 | 5836.03 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/18/2011 | 5835.98 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/17/2011 | 5836.11 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/16/2011 | 5836.06 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/15/2011 | 5835.9 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/14/2011 | 5835.95 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/13/2011 | 5836 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/12/2011 | 5836.05 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/11/2011 | 5836 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/10/2011 | 5836.03 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/9/2011 | 5836.09 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/8/2011 | 5836.06 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/7/2011 | 5836.07 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/6/2011 | 5835.88 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/5/2011 | 5835.79 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/4/2011 | 5835.95 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/3/2011 | 5836.06 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/2/2011 | 5835.98 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 6/1/2011 | 5835.8 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/31/2011 | 5835.94 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/30/2011 | 5836.38 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/29/2011 | 5836.37 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/28/2011 | 5836.28 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/27/2011 | 5836.22 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/26/2011 | 5836.07 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/25/2011 | 5836.2 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/24/2011 | 5836.35 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/23/2011 | 5836.27 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/22/2011 | 5836.27 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/20/2011 | 5836.39 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/19/2011 | 5836.57 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/18/2011 | 5836.52 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/17/2011 | 5836.49 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/11/2011 | 5836.67 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/10/2011 | 5836.66 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/9/2011 | 5836.63 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/8/2011 | 5836.53 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/7/2011 | 5836.49 | Transducer | 1185 | 1205.6 | Regional |
| R-50 S2 | 5/6/2011 | 5836.35 | Transducer | 1185 | 1205.6 | Regional |
| R-61 S1 | 5/22/2013 | 5837.58 | Transducer | 1125 | 1135 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-61 S1 | 5/21/2013 | 5837.52 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/20/2013 | 5837.62 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/19/2013 | 5837.64 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/18/2013 | 5837.56 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/17/2013 | 5837.59 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/16/2013 | 5837.51 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/15/2013 | 5837.48 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/14/2013 | 5837.35 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/13/2013 | 5837.32 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/12/2013 | 5837.18 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/11/2013 | 5837.25 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/10/2013 | 5837.42 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/9/2013 | 5837.5 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/8/2013 | 5837.58 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/7/2013 | 5837.5 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/6/2013 | 5837.47 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/5/2013 | 5837.47 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/4/2013 | 5837.55 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/3/2013 | 5837.19 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/2/2013 | 5837.33 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/1/2013 | 5837.73 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/30/2013 | 5837.71 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/29/2013 | 5837.61 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/28/2013 | 5837.43 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/27/2013 | 5837.3 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/26/2013 | 5837.53 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/25/2013 | 5837.42 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/24/2013 | 5837.46 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/23/2013 | 5837.7 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/22/2013 | 5837.55 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/21/2013 | 5837.56 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/20/2013 | 5837.61 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/19/2013 | 5837.45 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/18/2013 | 5837.71 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/17/2013 | 5837.83 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/16/2013 | 5837.79 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/15/2013 | 5837.86 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/14/2013 | 5837.9 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/13/2013 | 5837.63 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/12/2013 | 5837.69 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/11/2013 | 5837.74 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/10/2013 | 5837.81 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/9/2013 | 5838.14 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/8/2013 | 5837.82 | Transducer | 1125 | 1135 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-61 S1 | 4/7/2013 | 5837.71 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/6/2013 | 5837.7 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/5/2013 | 5837.52 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/4/2013 | 5837.5 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/3/2013 | 5837.65 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/2/2013 | 5837.67 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/1/2013 | 5837.61 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/31/2013 | 5837.53 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/30/2013 | 5837.46 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/29/2013 | 5837.47 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/28/2013 | 5837.53 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/27/2013 | 5837.61 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/26/2013 | 5837.49 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/25/2013 | 5837.6 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/24/2013 | 5837.61 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/23/2013 | 5837.93 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/22/2013 | 5837.82 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/21/2013 | 5837.77 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/20/2013 | 5837.42 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/19/2013 | 5837.61 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/18/2013 | 5837.79 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/17/2013 | 5837.71 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/16/2013 | 5837.61 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/15/2013 | 5837.36 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/14/2013 | 5837.33 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/13/2013 | 5837.25 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/13/2013 | 5837.35 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/12/2013 | 5837.52 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/11/2013 | 5837.49 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/10/2013 | 5837.71 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/9/2013 | 5837.88 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/8/2013 | 5837.66 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/7/2013 | 5837.58 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/6/2013 | 5837.41 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/5/2013 | 5837.5 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/4/2013 | 5837.7 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/3/2013 | 5837.4 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/2/2013 | 5837.26 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/1/2013 | 5837.38 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/28/2013 | 5837.42 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/27/2013 | 5837.59 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/26/2013 | 5837.69 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/25/2013 | 5837.81 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/24/2013 | 5837.92 | Transducer | 1125 | 1135 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-61 S1 | 2/23/2013 | 5837.7 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/22/2013 | 5837.83 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/21/2013 | 5838.11 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/20/2013 | 5837.85 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/19/2013 | 5837.58 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/18/2013 | 5837.89 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/17/2013 | 5837.5 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/16/2013 | 5837.31 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/15/2013 | 5837.46 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/14/2013 | 5837.57 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/13/2013 | 5837.56 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/12/2013 | 5837.72 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/11/2013 | 5837.77 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/10/2013 | 5837.92 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/9/2013 | 5837.82 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/8/2013 | 5837.53 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/7/2013 | 5837.65 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/6/2013 | 5837.69 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/5/2013 | 5837.66 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/4/2013 | 5837.7 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/3/2013 | 5837.39 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/2/2013 | 5837.43 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/1/2013 | 5837.46 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/31/2013 | 5837.52 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/30/2013 | 5837.83 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/29/2013 | 5837.96 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/28/2013 | 5837.77 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/27/2013 | 5837.76 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/26/2013 | 5837.46 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/25/2013 | 5837.41 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/24/2013 | 5837.34 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/23/2013 | 5837.35 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/22/2013 | 5837.4 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/21/2013 | 5837.39 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/20/2013 | 5837.36 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/19/2013 | 5837.39 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/18/2013 | 5837.29 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/17/2013 | 5837.25 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/16/2013 | 5837.4 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/15/2013 | 5837.66 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/14/2013 | 5837.71 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/13/2013 | 5837.74 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/12/2013 | 5837.8 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/11/2013 | 5837.89 | Transducer | 1125 | 1135 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-61 S1 | 1/10/2013 | 5837.52 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/9/2013 | 5837.4 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/8/2013 | 5837.67 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/7/2013 | 5837.56 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/6/2013 | 5837.34 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/5/2013 | 5837.47 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/4/2013 | 5837.39 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/3/2013 | 5837.48 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/2/2013 | 5837.46 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/1/2013 | 5837.67 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/31/2012 | 5837.81 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/30/2012 | 5837.57 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/29/2012 | 5837.48 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/28/2012 | 5837.83 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/27/2012 | 5837.93 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/26/2012 | 5837.6 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/25/2012 | 5838 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/24/2012 | 5837.64 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/23/2012 | 5837.51 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/22/2012 | 5837.39 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/21/2012 | 5837.25 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/20/2012 | 5837.5 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/19/2012 | 5837.98 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/18/2012 | 5837.73 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/17/2012 | 5837.63 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/16/2012 | 5837.83 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/15/2012 | 5837.7 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/14/2012 | 5837.69 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/13/2012 | 5837.58 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/12/2012 | 5837.62 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/11/2012 | 5837.71 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/10/2012 | 5837.6 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/9/2012 | 5837.85 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/8/2012 | 5837.78 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/7/2012 | 5837.79 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/6/2012 | 5837.63 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/5/2012 | 5837.42 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/4/2012 | 5837.51 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/3/2012 | 5837.7 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/3/2012 | 5837.6 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/2/2012 | 5837.56 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/1/2012 | 5837.56 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/30/2012 | 5837.48 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/29/2012 | 5837.46 | Transducer | 1125 | 1135 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-61 S1 | 11/28/2012 | 5837.35 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/27/2012 | 5837.41 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/26/2012 | 5837.66 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/25/2012 | 5837.62 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/24/2012 | 5837.3 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/23/2012 | 5837.33 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/22/2012 | 5837.54 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/21/2012 | 5837.42 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/20/2012 | 5837.39 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/19/2012 | 5837.48 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/18/2012 | 5837.54 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/17/2012 | 5837.42 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/16/2012 | 5837.28 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/15/2012 | 5837.44 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/14/2012 | 5837.37 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/13/2012 | 5837.39 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/12/2012 | 5837.4 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/11/2012 | 5837.85 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/10/2012 | 5837.85 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/9/2012 | 5837.69 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/8/2012 | 5837.55 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/7/2012 | 5837.38 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/6/2012 | 5837.42 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/5/2012 | 5837.37 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/4/2012 | 5837.4 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/3/2012 | 5837.54 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/2/2012 | 5837.56 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/1/2012 | 5837.5 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/1/2012 | 5837.426 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 10/31/2012 | 5837.449 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 10/30/2012 | 5837.427 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 10/29/2012 | 5837.465 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 10/28/2012 | 5837.529 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 10/27/2012 | 5837.454 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 10/26/2012 | 5837.521 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 10/25/2012 | 5837.696 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 10/24/2012 | 5837.659 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 10/23/2012 | 5837.663 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 10/22/2012 | 5837.699 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 10/22/2012 | 5837.7 | Manual | 1125 | 1135 | Regional |
| R-61 S1 | 9/5/2012 | 5837.803 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 9/4/2012 | 5837.78 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 9/3/2012 | 5837.792 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 9/2/2012 | 5837.73 | Transducer | 1125 | 1135 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-61 S1 | 9/1/2012 | 5837.73 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/31/2012 | 5837.801 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/30/2012 | 5837.79 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/29/2012 | 5837.69 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/28/2012 | 5837.627 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/27/2012 | 5837.697 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/26/2012 | 5837.849 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/25/2012 | 5837.964 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/24/2012 | 5837.935 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/23/2012 | 5837.823 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/22/2012 | 5837.763 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/21/2012 | 5837.847 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/20/2012 | 5837.833 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/19/2012 | 5837.846 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/18/2012 | 5837.813 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/17/2012 | 5837.759 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/16/2012 | 5837.911 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/15/2012 | 5837.906 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/14/2012 | 5837.805 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/13/2012 | 5837.702 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/12/2012 | 5837.838 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/11/2012 | 5837.815 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/10/2012 | 5837.74 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/9/2012 | 5837.695 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/8/2012 | 5837.757 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/7/2012 | 5837.718 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/6/2012 | 5837.543 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/5/2012 | 5837.658 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/4/2012 | 5837.844 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/3/2012 | 5837.759 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/2/2012 | 5837.789 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/1/2012 | 5837.713 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 7/31/2012 | 5837.812 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 7/30/2012 | 5837.787 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 7/29/2012 | 5837.698 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 7/28/2012 | 5837.694 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 7/27/2012 | 5837.777 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 7/26/2012 | 5837.887 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 7/25/2012 | 5837.898 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 7/24/2012 | 5837.812 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 7/23/2012 | 5837.756 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 7/22/2012 | 5837.727 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 7/21/2012 | 5837.678 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 7/20/2012 | 5837.67 | Transducer | 1125 | 1135 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-61 S1 | 7/19/2012 | 5837.781 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 7/18/2012 | 5837.868 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 7/17/2012 | 5837.918 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 7/16/2012 | 5837.864 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 7/15/2012 | 5837.838 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 7/14/2012 | 5837.767 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 7/13/2012 | 5837.778 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 7/12/2012 | 5837.76 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 7/11/2012 | 5837.709 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 7/10/2012 | 5837.714 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 7/9/2012 | 5837.7 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 7/8/2012 | 5837.699 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 7/7/2012 | 5837.785 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 7/6/2012 | 5837.826 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 7/5/2012 | 5837.893 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 7/4/2012 | 5837.912 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 7/3/2012 | 5837.931 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 7/2/2012 | 5837.919 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 7/1/2012 | 5837.943 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 6/30/2012 | 5837.944 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 6/29/2012 | 5837.797 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 6/28/2012 | 5837.819 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 6/27/2012 | 5837.961 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 6/26/2012 | 5837.935 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 6/25/2012 | 5837.829 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 6/24/2012 | 5837.913 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 6/23/2012 | 5838.049 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 6/22/2012 | 5837.911 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 6/21/2012 | 5837.958 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 6/20/2012 | 5838.2 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 6/19/2012 | 5838.216 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 6/18/2012 | 5838.152 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 6/17/2012 | 5837.898 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 6/16/2012 | 5838.051 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 6/15/2012 | 5838.153 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 6/14/2012 | 5838.158 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 6/13/2012 | 5838.105 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 6/12/2012 | 5837.974 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 6/11/2012 | 5838.088 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 6/10/2012 | 5838.277 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 6/9/2012 | 5838.234 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 6/8/2012 | 5838.14 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 6/7/2012 | 5838.229 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 6/6/2012 | 5838.228 | Transducer | 1125 | 1135 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-61 S1 | 6/6/2012 | 5838.178 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 6/5/2012 | 5838.153 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 6/4/2012 | 5838.134 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 6/3/2012 | 5838.226 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 6/2/2012 | 5838.214 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 6/1/2012 | 5838.203 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/31/2012 | 5838.27 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/30/2012 | 5838.252 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/29/2012 | 5838.174 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/28/2012 | 5838.264 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/27/2012 | 5838.339 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/26/2012 | 5838.375 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/25/2012 | 5838.499 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/24/2012 | 5838.641 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/23/2012 | 5838.444 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/22/2012 | 5838.182 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/21/2012 | 5838.046 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/20/2012 | 5838.219 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/19/2012 | 5838.492 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/18/2012 | 5838.437 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/17/2012 | 5838.298 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/16/2012 | 5838.091 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/15/2012 | 5838.085 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/14/2012 | 5838.109 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/13/2012 | 5838.041 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/12/2012 | 5838.168 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/11/2012 | 5838.398 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/10/2012 | 5838.331 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/9/2012 | 5838.172 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/8/2012 | 5838.229 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/7/2012 | 5838.365 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/6/2012 | 5838.372 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/5/2012 | 5838.41 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/4/2012 | 5838.362 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/3/2012 | 5838.443 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/2/2012 | 5838.491 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 5/1/2012 | 5838.529 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/30/2012 | 5838.426 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/29/2012 | 5838.515 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/28/2012 | 5838.484 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/27/2012 | 5838.577 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/26/2012 | 5838.354 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/25/2012 | 5838.398 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/24/2012 | 5838.355 | Transducer | 1125 | 1135 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-61 S1 | 4/23/2012 | 5838.209 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/22/2012 | 5838.258 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/21/2012 | 5838.335 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/20/2012 | 5838.384 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/19/2012 | 5838.468 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/18/2012 | 5838.316 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/17/2012 | 5838.256 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/16/2012 | 5838.435 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/15/2012 | 5838.743 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/14/2012 | 5838.745 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/13/2012 | 5838.518 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/12/2012 | 5838.551 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/11/2012 | 5838.34 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/10/2012 | 5838.303 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/9/2012 | 5838.213 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/8/2012 | 5838.095 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/7/2012 | 5838.354 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/6/2012 | 5838.509 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/5/2012 | 5838.491 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/4/2012 | 5838.468 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/3/2012 | 5838.649 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/2/2012 | 5838.737 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 4/1/2012 | 5838.534 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/31/2012 | 5838.422 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/30/2012 | 5838.434 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/29/2012 | 5838.433 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/28/2012 | 5838.39 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/27/2012 | 5838.456 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/26/2012 | 5838.476 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/25/2012 | 5838.345 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/24/2012 | 5838.377 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/23/2012 | 5838.441 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/22/2012 | 5838.511 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/21/2012 | 5838.502 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/20/2012 | 5838.837 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/19/2012 | 5838.795 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/18/2012 | 5838.659 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/17/2012 | 5838.496 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/16/2012 | 5838.382 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/15/2012 | 5838.312 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/14/2012 | 5838.38 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/13/2012 | 5838.332 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/12/2012 | 5838.481 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/11/2012 | 5838.581 | Transducer | 1125 | 1135 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-61 S1 | 3/10/2012 | 5838.239 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/9/2012 | 5838.082 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/8/2012 | 5838.527 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/7/2012 | 5838.734 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/6/2012 | 5838.563 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/6/2012 | 5838.391 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/5/2012 | 5838.245 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/4/2012 | 5838.198 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/3/2012 | 5838.393 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/2/2012 | 5838.683 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 3/1/2012 | 5838.533 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/29/2012 | 5838.411 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/28/2012 | 5838.569 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/27/2012 | 5838.407 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/26/2012 | 5838.519 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/25/2012 | 5838.226 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/24/2012 | 5838.438 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/23/2012 | 5838.663 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/22/2012 | 5838.386 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/21/2012 | 5838.389 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/20/2012 | 5838.714 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/19/2012 | 5838.468 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/18/2012 | 5838.516 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/17/2012 | 5838.396 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/16/2012 | 5838.441 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/15/2012 | 5838.758 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/14/2012 | 5838.664 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/13/2012 | 5838.733 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/12/2012 | 5838.34 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/11/2012 | 5838.307 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/10/2012 | 5838.347 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/9/2012 | 5838.369 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/8/2012 | 5838.265 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/7/2012 | 5838.434 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/6/2012 | 5838.344 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/5/2012 | 5838.213 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/4/2012 | 5838.376 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/3/2012 | 5838.684 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/2/2012 | 5838.431 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 2/1/2012 | 5838.344 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/31/2012 | 5838.475 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/30/2012 | 5838.343 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/29/2012 | 5838.211 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/28/2012 | 5838.245 | Transducer | 1125 | 1135 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-61 S1 | 1/27/2012 | 5838.556 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/26/2012 | 5838.403 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/25/2012 | 5838.417 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/24/2012 | 5838.61 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/23/2012 | 5838.504 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/22/2012 | 5838.923 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/21/2012 | 5838.447 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/20/2012 | 5838.596 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/19/2012 | 5838.434 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/18/2012 | 5838.346 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/17/2012 | 5838.545 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/16/2012 | 5838.541 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/15/2012 | 5838.331 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/14/2012 | 5838.278 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/13/2012 | 5838.458 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/12/2012 | 5838.467 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/11/2012 | 5838.569 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/10/2012 | 5838.372 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/9/2012 | 5838.379 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/8/2012 | 5838.606 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/7/2012 | 5838.475 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/6/2012 | 5838.509 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/5/2012 | 5838.117 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/4/2012 | 5838.202 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/3/2012 | 5838.111 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/2/2012 | 5837.992 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 1/1/2012 | 5838.195 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/31/2011 | 5838.46 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/30/2011 | 5838.367 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/29/2011 | 5838.279 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/28/2011 | 5838.327 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/27/2011 | 5838.24 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/26/2011 | 5838.295 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/25/2011 | 5838.168 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/24/2011 | 5838.212 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/23/2011 | 5838.315 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/22/2011 | 5838.595 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/21/2011 | 5838.581 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/20/2011 | 5838.512 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/19/2011 | 5838.61 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/18/2011 | 5838.176 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/17/2011 | 5838.077 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/16/2011 | 5838.268 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/15/2011 | 5838.349 | Transducer | 1125 | 1135 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-61 S1 | 12/14/2011 | 5838.607 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/13/2011 | 5838.476 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/12/2011 | 5838.43 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/11/2011 | 5838.316 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/10/2011 | 5838.132 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/9/2011 | 5838.364 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/8/2011 | 5838.35 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/7/2011 | 5838.239 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/6/2011 | 5838.315 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/5/2011 | 5838.517 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/4/2011 | 5838.459 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/3/2011 | 5838.661 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/2/2011 | 5838.25 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 12/1/2011 | 5838.57 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/30/2011 | 5838.209 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/29/2011 | 5838.176 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/28/2011 | 5838.036 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/27/2011 | 5837.939 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/26/2011 | 5838.409 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/25/2011 | 5838.361 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/24/2011 | 5838.193 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/23/2011 | 5838.038 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/22/2011 | 5838.208 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/21/2011 | 5838.345 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/20/2011 | 5838.392 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/19/2011 | 5838.568 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/18/2011 | 5838.356 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/17/2011 | 5838.148 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/16/2011 | 5838.44 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/15/2011 | 5838.484 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/14/2011 | 5838.542 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/13/2011 | 5838.541 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/12/2011 | 5838.468 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/11/2011 | 5838.146 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/10/2011 | 5838.007 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/9/2011 | 5838.13 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/8/2011 | 5838.543 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/7/2011 | 5838.459 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/6/2011 | 5838.532 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/5/2011 | 5838.6 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/4/2011 | 5838.265 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/3/2011 | 5838.044 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/2/2011 | 5838.532 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 11/1/2011 | 5838.261 | Transducer | 1125 | 1135 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-61 S1 | 10/31/2011 | 5838.146 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 10/30/2011 | 5838.224 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 10/29/2011 | 5838.123 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 10/28/2011 | 5838.273 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 10/27/2011 | 5838.456 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 10/26/2011 | 5838.33 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 10/25/2011 | 5838.197 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 10/24/2011 | 5838.132 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 10/23/2011 | 5838.123 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 10/22/2011 | 5838.123 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 10/21/2011 | 5838.133 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 10/20/2011 | 5838.235 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 10/19/2011 | 5838.117 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 10/18/2011 | 5838.167 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 10/17/2011 | 5838.254 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 10/16/2011 | 5838.145 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 10/15/2011 | 5838.124 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 10/14/2011 | 5838.241 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 10/13/2011 | 5838.156 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 10/12/2011 | 5838.25 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 10/11/2011 | 5838.276 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 10/10/2011 | 5838.199 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 10/9/2011 | 5838.228 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 10/8/2011 | 5838.441 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 10/7/2011 | 5838.381 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 10/6/2011 | 5838.451 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 10/5/2011 | 5838.227 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 10/4/2011 | 5838.119 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 10/3/2011 | 5838.042 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 10/2/2011 | 5838.025 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 10/1/2011 | 5838.061 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 9/30/2011 | 5837.9 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 9/29/2011 | 5838.129 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 9/28/2011 | 5838.06 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 9/28/2011 | 5838.084 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 9/27/2011 | 5838.15 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 9/26/2011 | 5838.21 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 9/25/2011 | 5838.16 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 9/24/2011 | 5838.02 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 9/23/2011 | 5837.98 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 9/22/2011 | 5838.08 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 9/21/2011 | 5838.13 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 9/20/2011 | 5838.11 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 9/19/2011 | 5837.98 | Transducer | 1125 | 1135 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-61 S1 | 9/18/2011 | 5838.05 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 9/17/2011 | 5838.11 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 9/16/2011 | 5838.16 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 9/15/2011 | 5838.12 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 9/14/2011 | 5838.08 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 9/13/2011 | 5837.94 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 9/12/2011 | 5837.93 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 9/11/2011 | 5837.95 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 9/10/2011 | 5837.96 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 9/9/2011 | 5837.92 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 9/8/2011 | 5837.86 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 9/7/2011 | 5837.97 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 9/6/2011 | 5838.01 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 9/5/2011 | 5837.9 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 9/4/2011 | 5838.02 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 9/3/2011 | 5838.12 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 9/2/2011 | 5838.03 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 9/1/2011 | 5838.01 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/31/2011 | 5838.11 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/30/2011 | 5838.06 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/29/2011 | 5838.01 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/28/2011 | 5837.97 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/27/2011 | 5837.89 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/26/2011 | 5837.85 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/25/2011 | 5837.91 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/24/2011 | 5837.94 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/23/2011 | 5837.93 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/22/2011 | 5837.84 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/21/2011 | 5837.91 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/20/2011 | 5838.01 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/19/2011 | 5837.97 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/18/2011 | 5837.8 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/17/2011 | 5837.87 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/16/2011 | 5838.01 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/15/2011 | 5837.96 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/14/2011 | 5837.82 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/13/2011 | 5837.94 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/12/2011 | 5837.95 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/11/2011 | 5837.94 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/10/2011 | 5838.04 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/9/2011 | 5837.98 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/8/2011 | 5837.95 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/7/2011 | 5837.93 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/6/2011 | 5837.84 | Transducer | 1125 | 1135 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-61 S1 | 8/5/2011 | 5837.88 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/4/2011 | 5837.86 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/3/2011 | 5837.78 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/2/2011 | 5837.74 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 8/1/2011 | 5837.64 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 7/31/2011 | 5837.65 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 7/30/2011 | 5837.6 | Transducer | 1125 | 1135 | Regional |
| R-61 S1 | 7/29/2011 | 5837.65 | Transducer | 1125 | 1135 | Regional |
| R-61 S2 | 5/22/2013 | 5837.72 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/21/2013 | 5837.69 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/20/2013 | 5837.74 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/19/2013 | 5837.76 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/18/2013 | 5837.72 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/17/2013 | 5837.71 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/16/2013 | 5837.63 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/15/2013 | 5837.64 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/14/2013 | 5837.47 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/13/2013 | 5837.44 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/12/2013 | 5837.35 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/11/2013 | 5837.36 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/10/2013 | 5837.54 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/9/2013 | 5837.67 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/8/2013 | 5837.69 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/7/2013 | 5837.6 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/6/2013 | 5837.57 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/5/2013 | 5837.57 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/4/2013 | 5837.7 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/3/2013 | 5837.35 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/2/2013 | 5837.49 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/1/2013 | 5837.84 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/30/2013 | 5837.88 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/29/2013 | 5837.76 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/28/2013 | 5837.57 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/27/2013 | 5837.48 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/26/2013 | 5837.64 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/25/2013 | 5837.6 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/24/2013 | 5837.57 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/23/2013 | 5837.83 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/22/2013 | 5837.68 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/21/2013 | 5837.66 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/20/2013 | 5837.75 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/19/2013 | 5837.57 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/18/2013 | 5837.83 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/17/2013 | 5838 | Transducer | 1220.4 | 1241 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-61 S2 | 4/16/2013 | 5837.98 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/15/2013 | 5838.05 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/14/2013 | 5838.02 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/13/2013 | 5837.81 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/12/2013 | 5837.83 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/11/2013 | 5837.85 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/10/2013 | 5837.97 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/9/2013 | 5838.23 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/8/2013 | 5837.95 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/7/2013 | 5837.88 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/6/2013 | 5837.84 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/5/2013 | 5837.62 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/4/2013 | 5837.65 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/3/2013 | 5837.79 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/2/2013 | 5837.79 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/1/2013 | 5837.71 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/31/2013 | 5837.68 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/30/2013 | 5837.61 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/29/2013 | 5837.63 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/28/2013 | 5837.64 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/27/2013 | 5837.77 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/26/2013 | 5837.63 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/25/2013 | 5837.76 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/24/2013 | 5837.76 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/23/2013 | 5838.09 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/22/2013 | 5837.95 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/21/2013 | 5837.9 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/20/2013 | 5837.61 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/19/2013 | 5837.75 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/18/2013 | 5837.94 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/17/2013 | 5837.84 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/16/2013 | 5837.73 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/15/2013 | 5837.52 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/14/2013 | 5837.47 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/13/2013 | 5837.39 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/13/2013 | 5837.46 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/12/2013 | 5837.69 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/11/2013 | 5837.64 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/10/2013 | 5837.85 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/9/2013 | 5838.02 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/8/2013 | 5837.79 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/7/2013 | 5837.74 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/6/2013 | 5837.57 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/5/2013 | 5837.63 | Transducer | 1220.4 | 1241 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-61 S2 | 3/4/2013 | 5837.84 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/3/2013 | 5837.5 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/2/2013 | 5837.41 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/1/2013 | 5837.51 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/28/2013 | 5837.55 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/27/2013 | 5837.75 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/26/2013 | 5837.84 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/25/2013 | 5837.97 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/24/2013 | 5838.05 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/23/2013 | 5837.83 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/22/2013 | 5837.96 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/21/2013 | 5838.21 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/20/2013 | 5838.03 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/19/2013 | 5837.7 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/18/2013 | 5837.98 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/17/2013 | 5837.61 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/16/2013 | 5837.46 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/15/2013 | 5837.62 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/14/2013 | 5837.69 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/13/2013 | 5837.68 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/12/2013 | 5837.82 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/11/2013 | 5837.85 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/10/2013 | 5838.09 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/9/2013 | 5837.94 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/8/2013 | 5837.62 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/7/2013 | 5837.82 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/6/2013 | 5837.77 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/5/2013 | 5837.79 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/4/2013 | 5837.77 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/3/2013 | 5837.46 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/2/2013 | 5837.56 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/1/2013 | 5837.54 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/31/2013 | 5837.69 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/30/2013 | 5837.96 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/29/2013 | 5838.03 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/28/2013 | 5837.84 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/27/2013 | 5837.87 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/26/2013 | 5837.62 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/25/2013 | 5837.57 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/24/2013 | 5837.47 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/23/2013 | 5837.52 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/22/2013 | 5837.57 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/21/2013 | 5837.52 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/20/2013 | 5837.46 | Transducer | 1220.4 | 1241 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-61 S2 | 1/19/2013 | 5837.51 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/18/2013 | 5837.39 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/17/2013 | 5837.43 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/16/2013 | 5837.57 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/15/2013 | 5837.82 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/14/2013 | 5837.83 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/13/2013 | 5837.86 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/12/2013 | 5837.92 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/11/2013 | 5838.04 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/10/2013 | 5837.59 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/9/2013 | 5837.54 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/8/2013 | 5837.84 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/7/2013 | 5837.64 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/6/2013 | 5837.46 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/5/2013 | 5837.64 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/4/2013 | 5837.51 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/3/2013 | 5837.6 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/2/2013 | 5837.63 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/1/2013 | 5837.8 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/31/2012 | 5837.89 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/30/2012 | 5837.69 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/29/2012 | 5837.6 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/28/2012 | 5837.91 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/27/2012 | 5838.05 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/26/2012 | 5837.72 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/25/2012 | 5838.12 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/24/2012 | 5837.74 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/23/2012 | 5837.65 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/22/2012 | 5837.52 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/21/2012 | 5837.38 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/20/2012 | 5837.64 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/19/2012 | 5838.05 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/18/2012 | 5837.81 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/17/2012 | 5837.76 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/16/2012 | 5837.99 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/15/2012 | 5837.83 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/14/2012 | 5837.8 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/13/2012 | 5837.69 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/12/2012 | 5837.74 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/11/2012 | 5837.83 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/10/2012 | 5837.77 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/9/2012 | 5837.97 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/8/2012 | 5837.87 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/7/2012 | 5837.86 | Transducer | 1220.4 | 1241 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-61 S2 | 12/6/2012 | 5837.74 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/5/2012 | 5837.53 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/4/2012 | 5837.64 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/3/2012 | 5837.73 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/3/2012 | 5837.81 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/2/2012 | 5837.66 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/1/2012 | 5837.72 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/30/2012 | 5837.64 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/29/2012 | 5837.57 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/28/2012 | 5837.53 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/27/2012 | 5837.51 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/26/2012 | 5837.79 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/25/2012 | 5837.74 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/24/2012 | 5837.47 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/23/2012 | 5837.47 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/22/2012 | 5837.66 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/21/2012 | 5837.55 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/20/2012 | 5837.48 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/19/2012 | 5837.6 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/18/2012 | 5837.62 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/17/2012 | 5837.56 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/16/2012 | 5837.44 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/15/2012 | 5837.54 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/14/2012 | 5837.47 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/13/2012 | 5837.47 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/12/2012 | 5837.51 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/11/2012 | 5837.99 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/10/2012 | 5837.94 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/9/2012 | 5837.78 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/8/2012 | 5837.65 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/7/2012 | 5837.53 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/6/2012 | 5837.5 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/5/2012 | 5837.47 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/4/2012 | 5837.55 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/3/2012 | 5837.65 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/2/2012 | 5837.64 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/1/2012 | 5837.569 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/1/2012 | 5837.58 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 10/31/2012 | 5837.577 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 10/30/2012 | 5837.555 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 10/29/2012 | 5837.563 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 10/28/2012 | 5837.648 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 10/27/2012 | 5837.571 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 10/26/2012 | 5837.604 | Transducer | 1220.4 | 1241 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-61 S2 | 10/25/2012 | 5837.833 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 10/24/2012 | 5837.794 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 10/23/2012 | 5837.799 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 10/22/2012 | 5837.888 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 10/22/2012 | 5837.87 | Manual | 1220.4 | 1241 | Regional |
| R-61 S2 | 9/5/2012 | 5838.084 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 9/4/2012 | 5837.99 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 9/3/2012 | 5838.026 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 9/2/2012 | 5837.996 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 9/1/2012 | 5838.013 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/31/2012 | 5838.069 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/30/2012 | 5838.029 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/29/2012 | 5837.941 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/28/2012 | 5837.885 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/27/2012 | 5837.921 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/26/2012 | 5838.105 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/25/2012 | 5838.206 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/24/2012 | 5838.154 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/23/2012 | 5838.09 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/22/2012 | 5838.047 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/21/2012 | 5838.047 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/20/2012 | 5838.064 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/19/2012 | 5838.094 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/18/2012 | 5838.061 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/17/2012 | 5838.012 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/16/2012 | 5838.142 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/15/2012 | 5838.155 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/14/2012 | 5838.049 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/13/2012 | 5837.96 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/12/2012 | 5838.073 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/11/2012 | 5838.064 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/10/2012 | 5837.977 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/9/2012 | 5837.94 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/8/2012 | 5837.974 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/7/2012 | 5837.995 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/6/2012 | 5837.813 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/5/2012 | 5837.905 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/4/2012 | 5838.097 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/3/2012 | 5838.025 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/2/2012 | 5838.066 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/1/2012 | 5837.977 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 7/31/2012 | 5838.016 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 7/30/2012 | 5838.014 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 7/29/2012 | 5837.964 | Transducer | 1220.4 | 1241 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-61 S2 | 7/28/2012 | 5837.969 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 7/27/2012 | 5838.032 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 7/26/2012 | 5838.14 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 7/25/2012 | 5838.148 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 7/24/2012 | 5838.018 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 7/23/2012 | 5838.012 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 7/22/2012 | 5837.975 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 7/21/2012 | 5837.948 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 7/20/2012 | 5837.941 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 7/19/2012 | 5838.011 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 7/18/2012 | 5838.15 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 7/17/2012 | 5838.157 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 7/16/2012 | 5838.121 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 7/15/2012 | 5838.069 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 7/14/2012 | 5838.037 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 7/13/2012 | 5838.036 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 7/12/2012 | 5838 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 7/11/2012 | 5837.949 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 7/10/2012 | 5837.978 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 7/9/2012 | 5837.982 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 7/8/2012 | 5837.955 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 7/7/2012 | 5838.008 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 7/6/2012 | 5838.08 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 7/5/2012 | 5838.163 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 7/4/2012 | 5838.141 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 7/3/2012 | 5838.157 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 7/2/2012 | 5838.163 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 7/1/2012 | 5838.212 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 6/30/2012 | 5838.169 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 6/29/2012 | 5838.053 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 6/28/2012 | 5838.078 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 6/27/2012 | 5838.203 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 6/26/2012 | 5838.166 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 6/25/2012 | 5838.084 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 6/24/2012 | 5838.154 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 6/23/2012 | 5838.27 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 6/22/2012 | 5838.134 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 6/21/2012 | 5838.23 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 6/20/2012 | 5838.442 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 6/19/2012 | 5838.464 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 6/18/2012 | 5838.387 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 6/17/2012 | 5838.12 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 6/16/2012 | 5838.284 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 6/15/2012 | 5838.416 | Transducer | 1220.4 | 1241 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-61 S2 | 6/14/2012 | 5838.433 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 6/13/2012 | 5838.34 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 6/12/2012 | 5838.24 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 6/11/2012 | 5838.398 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 6/10/2012 | 5838.563 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 6/9/2012 | 5838.509 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 6/8/2012 | 5838.41 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 6/7/2012 | 5838.497 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 6/6/2012 | 5838.493 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 6/6/2012 | 5838.478 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 6/5/2012 | 5838.394 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 6/4/2012 | 5838.378 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 6/3/2012 | 5838.498 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 6/2/2012 | 5838.5 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 6/1/2012 | 5838.447 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/31/2012 | 5838.52 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/30/2012 | 5838.502 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/29/2012 | 5838.477 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/28/2012 | 5838.518 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/27/2012 | 5838.656 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/26/2012 | 5838.663 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/25/2012 | 5838.806 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/24/2012 | 5838.916 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/23/2012 | 5838.728 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/22/2012 | 5838.449 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/21/2012 | 5838.353 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/20/2012 | 5838.515 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/19/2012 | 5838.729 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/18/2012 | 5838.708 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/17/2012 | 5838.548 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/16/2012 | 5838.387 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/15/2012 | 5838.404 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/14/2012 | 5838.436 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/13/2012 | 5838.358 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/12/2012 | 5838.43 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/11/2012 | 5838.728 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/10/2012 | 5838.604 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/9/2012 | 5838.446 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/8/2012 | 5838.487 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/7/2012 | 5838.596 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/6/2012 | 5838.642 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/5/2012 | 5838.669 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/4/2012 | 5838.623 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/3/2012 | 5838.711 | Transducer | 1220.4 | 1241 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-61 S2 | 5/2/2012 | 5838.775 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 5/1/2012 | 5838.763 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/30/2012 | 5838.671 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/29/2012 | 5838.751 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/28/2012 | 5838.771 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/27/2012 | 5838.812 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/26/2012 | 5838.646 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/25/2012 | 5838.68 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/24/2012 | 5838.578 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/23/2012 | 5838.464 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/22/2012 | 5838.526 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/21/2012 | 5838.585 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/20/2012 | 5838.689 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/19/2012 | 5838.726 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/18/2012 | 5838.591 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/17/2012 | 5838.531 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/16/2012 | 5838.69 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/15/2012 | 5839.044 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/14/2012 | 5839.04 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/13/2012 | 5838.815 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/12/2012 | 5838.81 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/11/2012 | 5838.614 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/10/2012 | 5838.577 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/9/2012 | 5838.501 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/8/2012 | 5838.352 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/7/2012 | 5838.635 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/6/2012 | 5838.814 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/5/2012 | 5838.751 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/4/2012 | 5838.746 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/3/2012 | 5838.914 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/2/2012 | 5839.029 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 4/1/2012 | 5838.837 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/31/2012 | 5838.684 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/30/2012 | 5838.709 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/29/2012 | 5838.719 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/28/2012 | 5838.646 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/27/2012 | 5838.706 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/26/2012 | 5838.73 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/25/2012 | 5838.614 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/24/2012 | 5838.632 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/23/2012 | 5838.716 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/22/2012 | 5838.771 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/21/2012 | 5838.825 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/20/2012 | 5839.09 | Transducer | 1220.4 | 1241 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-61 S2 | 3/19/2012 | 5839.117 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/18/2012 | 5838.988 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/17/2012 | 5838.821 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/16/2012 | 5838.664 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/15/2012 | 5838.64 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/14/2012 | 5838.661 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/13/2012 | 5838.64 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/12/2012 | 5838.762 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/11/2012 | 5838.855 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/10/2012 | 5838.542 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/9/2012 | 5838.35 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/8/2012 | 5838.837 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/7/2012 | 5838.995 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/6/2012 | 5838.885 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/6/2012 | 5838.703 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/5/2012 | 5838.536 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/4/2012 | 5838.511 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/3/2012 | 5838.709 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/2/2012 | 5838.956 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 3/1/2012 | 5838.839 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/29/2012 | 5838.701 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/28/2012 | 5838.851 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/27/2012 | 5838.677 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/26/2012 | 5838.8 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/25/2012 | 5838.544 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/24/2012 | 5838.708 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/23/2012 | 5838.917 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/22/2012 | 5838.627 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/21/2012 | 5838.657 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/20/2012 | 5838.959 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/19/2012 | 5838.802 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/18/2012 | 5838.756 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/17/2012 | 5838.701 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/16/2012 | 5838.707 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/15/2012 | 5839.029 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/14/2012 | 5838.933 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/13/2012 | 5838.969 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/12/2012 | 5838.649 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/11/2012 | 5838.61 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/10/2012 | 5838.608 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/9/2012 | 5838.613 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/8/2012 | 5838.494 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/7/2012 | 5838.682 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/6/2012 | 5838.613 | Transducer | 1220.4 | 1241 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-61 S2 | 2/5/2012 | 5838.511 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/4/2012 | 5838.591 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/3/2012 | 5838.938 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/2/2012 | 5838.698 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 2/1/2012 | 5838.616 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/31/2012 | 5838.753 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/30/2012 | 5838.564 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/29/2012 | 5838.415 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/28/2012 | 5838.523 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/27/2012 | 5838.762 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/26/2012 | 5838.63 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/25/2012 | 5838.627 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/24/2012 | 5838.855 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/23/2012 | 5838.71 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/22/2012 | 5839.139 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/21/2012 | 5838.731 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/20/2012 | 5838.87 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/19/2012 | 5838.709 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/18/2012 | 5838.607 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/17/2012 | 5838.852 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/16/2012 | 5838.808 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/15/2012 | 5838.58 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/14/2012 | 5838.572 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/13/2012 | 5838.71 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/12/2012 | 5838.744 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/11/2012 | 5838.807 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/10/2012 | 5838.635 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/9/2012 | 5838.656 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/8/2012 | 5838.876 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/7/2012 | 5838.751 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/6/2012 | 5838.708 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/5/2012 | 5838.411 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/4/2012 | 5838.483 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/3/2012 | 5838.319 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/2/2012 | 5838.276 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 1/1/2012 | 5838.437 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/31/2011 | 5838.679 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/30/2011 | 5838.639 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/29/2011 | 5838.531 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/28/2011 | 5838.604 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/27/2011 | 5838.512 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/26/2011 | 5838.545 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/25/2011 | 5838.396 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/24/2011 | 5838.491 | Transducer | 1220.4 | 1241 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-61 S2 | 12/23/2011 | 5838.604 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/22/2011 | 5838.871 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/21/2011 | 5838.867 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/20/2011 | 5838.803 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/19/2011 | 5838.88 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/18/2011 | 5838.432 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/17/2011 | 5838.378 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/16/2011 | 5838.516 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/15/2011 | 5838.648 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/14/2011 | 5838.86 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/13/2011 | 5838.688 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/12/2011 | 5838.725 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/11/2011 | 5838.55 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/10/2011 | 5838.41 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/9/2011 | 5838.612 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/8/2011 | 5838.633 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/7/2011 | 5838.52 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/6/2011 | 5838.602 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/5/2011 | 5838.77 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/4/2011 | 5838.706 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/3/2011 | 5838.902 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/2/2011 | 5838.537 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 12/1/2011 | 5838.783 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/30/2011 | 5838.446 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/29/2011 | 5838.427 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/28/2011 | 5838.321 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/27/2011 | 5838.222 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/26/2011 | 5838.659 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/25/2011 | 5838.611 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/24/2011 | 5838.439 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/23/2011 | 5838.341 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/22/2011 | 5838.535 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/21/2011 | 5838.601 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/20/2011 | 5838.695 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/19/2011 | 5838.869 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/18/2011 | 5838.575 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/17/2011 | 5838.708 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/16/2011 | 5838.859 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/15/2011 | 5838.86 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/14/2011 | 5838.729 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/13/2011 | 5838.711 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/12/2011 | 5838.7 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/11/2011 | 5838.32 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/10/2011 | 5838.321 | Transducer | 1220.4 | 1241 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-61 S2 | 11/9/2011 | 5838.531 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/8/2011 | 5838.871 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/7/2011 | 5838.765 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/6/2011 | 5838.879 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/5/2011 | 5838.787 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/4/2011 | 5838.547 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/3/2011 | 5838.341 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/2/2011 | 5838.789 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 11/1/2011 | 5838.501 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 10/31/2011 | 5838.477 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 10/30/2011 | 5838.58 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 10/29/2011 | 5838.398 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 10/28/2011 | 5838.511 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 10/27/2011 | 5838.636 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 10/26/2011 | 5838.564 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 10/25/2011 | 5838.384 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 10/24/2011 | 5838.381 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 10/23/2011 | 5838.364 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 10/22/2011 | 5838.382 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 10/21/2011 | 5838.429 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 10/20/2011 | 5838.514 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 10/19/2011 | 5838.362 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 10/18/2011 | 5838.429 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 10/17/2011 | 5838.491 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 10/16/2011 | 5838.345 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 10/15/2011 | 5838.417 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 10/14/2011 | 5838.483 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 10/13/2011 | 5838.375 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 10/12/2011 | 5838.559 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 10/11/2011 | 5838.515 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 10/10/2011 | 5838.495 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 10/9/2011 | 5838.572 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 10/8/2011 | 5838.605 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 10/7/2011 | 5838.69 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 10/6/2011 | 5838.688 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 10/5/2011 | 5838.487 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 10/4/2011 | 5838.291 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 10/3/2011 | 5838.279 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 10/2/2011 | 5838.313 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 10/1/2011 | 5838.302 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 9/30/2011 | 5838.187 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 9/29/2011 | 5838.371 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 9/28/2011 | 5838.3 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 9/28/2011 | 5838.311 | Transducer | 1220.4 | 1241 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-61 S2 | 9/27/2011 | 5838.4 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 9/26/2011 | 5838.5 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 9/25/2011 | 5838.45 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 9/24/2011 | 5838.3 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 9/23/2011 | 5838.27 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 9/22/2011 | 5838.38 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 9/21/2011 | 5838.35 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 9/20/2011 | 5838.36 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 9/19/2011 | 5838.26 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 9/18/2011 | 5838.37 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 9/17/2011 | 5838.38 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 9/16/2011 | 5838.35 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 9/15/2011 | 5838.37 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 9/14/2011 | 5838.31 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 9/13/2011 | 5838.23 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 9/12/2011 | 5838.18 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 9/11/2011 | 5838.18 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 9/10/2011 | 5838.24 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 9/9/2011 | 5838.21 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 9/8/2011 | 5838.11 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 9/7/2011 | 5838.26 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 9/6/2011 | 5838.24 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 9/5/2011 | 5838.18 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 9/4/2011 | 5838.28 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 9/3/2011 | 5838.37 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 9/2/2011 | 5838.27 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 9/1/2011 | 5838.24 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/31/2011 | 5838.34 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/30/2011 | 5838.34 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/29/2011 | 5838.3 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/28/2011 | 5838.22 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/27/2011 | 5838.15 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/26/2011 | 5838.17 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/25/2011 | 5838.15 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/24/2011 | 5838.26 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/23/2011 | 5838.21 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/22/2011 | 5838.14 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/21/2011 | 5838.2 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/20/2011 | 5838.27 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/19/2011 | 5838.22 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/18/2011 | 5838.04 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/17/2011 | 5838.12 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/16/2011 | 5838.27 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/15/2011 | 5838.18 | Transducer | 1220.4 | 1241 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-61 S2 | 8/14/2011 | 5838.04 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/13/2011 | 5838.19 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/12/2011 | 5838.26 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/11/2011 | 5838.21 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/10/2011 | 5838.27 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/9/2011 | 5838.21 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/8/2011 | 5838.21 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/7/2011 | 5838.2 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/6/2011 | 5838.1 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/5/2011 | 5838.1 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/4/2011 | 5838.08 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/3/2011 | 5838.1 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/2/2011 | 5838.04 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 8/1/2011 | 5837.94 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 7/31/2011 | 5837.92 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 7/30/2011 | 5837.91 | Transducer | 1220.4 | 1241 | Regional |
| R-61 S2 | 7/29/2011 | 5837.89 | Transducer | 1220.4 | 1241 | Regional |
| R-62 | 5/22/2013 | 5840.59 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/21/2013 | 5840.55 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/20/2013 | 5840.66 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/19/2013 | 5840.63 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/18/2013 | 5840.62 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/17/2013 | 5840.63 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/16/2013 | 5840.55 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/15/2013 | 5840.55 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/14/2013 | 5840.37 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/13/2013 | 5840.32 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/12/2013 | 5840.24 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/11/2013 | 5840.28 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/10/2013 | 5840.49 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/9/2013 | 5840.58 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/8/2013 | 5840.62 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/7/2013 | 5840.54 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/6/2013 | 5840.54 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/5/2013 | 5840.5 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/4/2013 | 5840.62 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/3/2013 | 5840.24 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/2/2013 | 5840.37 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/1/2013 | 5840.76 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/30/2013 | 5840.76 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/29/2013 | 5840.64 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/28/2013 | 5840.49 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/27/2013 | 5840.4 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/26/2013 | 5840.59 | Transducer | 1158.4 | 1179.1 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-62 | 4/25/2013 | 5840.52 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/24/2013 | 5840.54 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/23/2013 | 5840.69 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/23/2013 | 5840.65 | Manual | 1158.4 | 1179.1 | Regional |
| R-62 | 4/23/2013 | 5840.74 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/22/2013 | 5840.52 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/21/2013 | 5840.53 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/20/2013 | 5840.62 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/19/2013 | 5840.46 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/18/2013 | 5840.74 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/17/2013 | 5840.85 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/16/2013 | 5840.84 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/15/2013 | 5840.9 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/14/2013 | 5840.9 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/13/2013 | 5840.64 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/12/2013 | 5840.7 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/11/2013 | 5840.72 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/10/2013 | 5840.82 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/9/2013 | 5841.12 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/8/2013 | 5840.8 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/7/2013 | 5840.71 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/6/2013 | 5840.64 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/5/2013 | 5840.5 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/4/2013 | 5840.49 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/3/2013 | 5840.59 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/2/2013 | 5840.63 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/1/2013 | 5840.56 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/31/2013 | 5840.54 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/30/2013 | 5840.47 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/29/2013 | 5840.5 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/28/2013 | 5840.55 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/27/2013 | 5840.63 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/26/2013 | 5840.45 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/25/2013 | 5840.59 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/24/2013 | 5840.65 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/23/2013 | 5840.95 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/22/2013 | 5840.81 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/21/2013 | 5840.71 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/20/2013 | 5840.41 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/19/2013 | 5840.63 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/18/2013 | 5840.76 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/17/2013 | 5840.72 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/16/2013 | 5840.57 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/15/2013 | 5840.33 | Transducer | 1158.4 | 1179.1 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-62 | 3/14/2013 | 5840.33 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/13/2013 | 5840.32 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/12/2013 | 5840.51 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/11/2013 | 5840.46 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/10/2013 | 5840.69 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/9/2013 | 5840.86 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/8/2013 | 5840.6 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/7/2013 | 5840.54 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/6/2013 | 5840.42 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/5/2013 | 5840.5 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/4/2013 | 5840.71 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/3/2013 | 5840.35 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/2/2013 | 5840.24 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/1/2013 | 5840.38 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/28/2013 | 5840.41 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/27/2013 | 5840.62 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/26/2013 | 5840.7 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/25/2013 | 5840.83 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/24/2013 | 5840.92 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/23/2013 | 5840.66 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/22/2013 | 5840.79 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/21/2013 | 5841.08 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/20/2013 | 5840.84 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/19/2013 | 5840.58 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/18/2013 | 5840.87 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/17/2013 | 5840.5 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/16/2013 | 5840.27 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/15/2013 | 5840.46 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/14/2013 | 5840.54 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/13/2013 | 5840.53 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/12/2013 | 5840.74 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/11/2013 | 5840.71 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/10/2013 | 5840.89 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/9/2013 | 5840.81 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/8/2013 | 5840.46 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/7/2013 | 5840.65 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/6/2013 | 5840.61 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/5/2013 | 5840.62 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/4/2013 | 5840.61 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/3/2013 | 5840.31 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/2/2013 | 5840.35 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/1/2013 | 5840.42 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 1/31/2013 | 5840.52 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 1/30/2013 | 5840.79 | Transducer | 1158.4 | 1179.1 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-62 | 1/29/2013 | 5840.86 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 1/28/2013 | 5840.71 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 1/27/2013 | 5840.7 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 1/26/2013 | 5840.4 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 1/25/2013 | 5840.35 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 1/24/2013 | 5840.29 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 1/23/2013 | 5840.33 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 1/22/2013 | 5840.35 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 1/21/2013 | 5840.34 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 1/20/2013 | 5840.26 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 1/19/2013 | 5840.35 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 1/18/2013 | 5840.24 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 1/17/2013 | 5840.22 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 1/16/2013 | 5840.41 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 1/15/2013 | 5840.63 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 1/14/2013 | 5840.71 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 1/13/2013 | 5840.73 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 1/12/2013 | 5840.79 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 1/11/2013 | 5840.88 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 1/10/2013 | 5840.43 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 1/9/2013 | 5840.39 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 1/8/2013 | 5840.66 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 1/7/2013 | 5840.5 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 1/6/2013 | 5840.25 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 1/5/2013 | 5840.43 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 1/4/2013 | 5840.39 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 1/3/2013 | 5840.45 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 1/2/2013 | 5840.47 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 1/1/2013 | 5840.6 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 12/31/2012 | 5840.78 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 12/30/2012 | 5840.5 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 12/29/2012 | 5840.49 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 12/28/2012 | 5840.79 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 12/27/2012 | 5840.86 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 12/26/2012 | 5840.6 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 12/25/2012 | 5840.96 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 12/24/2012 | 5840.56 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 12/23/2012 | 5840.5 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 12/22/2012 | 5840.39 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 12/21/2012 | 5840.22 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 12/20/2012 | 5840.43 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 12/19/2012 | 5840.91 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 12/18/2012 | 5840.7 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 12/17/2012 | 5840.61 | Transducer | 1158.4 | 1179.1 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-62 | 12/16/2012 | 5840.84 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 12/15/2012 | 5840.7 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 12/14/2012 | 5840.65 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 12/13/2012 | 5840.54 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 12/12/2012 | 5840.63 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 12/11/2012 | 5840.71 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 12/10/2012 | 5840.6 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 12/9/2012 | 5840.77 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 12/8/2012 | 5840.69 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 12/7/2012 | 5840.69 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 12/6/2012 | 5840.61 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 12/5/2012 | 5840.31 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 12/4/2012 | 5840.45 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 12/3/2012 | 5840.6 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 12/2/2012 | 5840.46 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 12/1/2012 | 5840.49 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 11/30/2012 | 5840.42 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 11/29/2012 | 5840.4 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 11/28/2012 | 5840.3 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 11/27/2012 | 5840.32 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 11/26/2012 | 5840.48 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 11/26/2012 | 5841.17 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 11/25/2012 | 5841.05 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 11/24/2012 | 5840.81 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 11/23/2012 | 5840.81 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 11/22/2012 | 5841.02 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 11/21/2012 | 5840.94 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 11/20/2012 | 5840.83 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 11/19/2012 | 5840.92 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 11/18/2012 | 5841.03 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 11/17/2012 | 5840.96 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 11/16/2012 | 5840.83 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 11/15/2012 | 5840.96 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 11/14/2012 | 5840.89 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 11/13/2012 | 5840.9 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 11/12/2012 | 5840.89 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 11/11/2012 | 5841.33 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 11/10/2012 | 5841.36 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 11/9/2012 | 5841.17 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 11/8/2012 | 5841.08 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 11/7/2012 | 5840.92 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 11/6/2012 | 5840.94 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 11/5/2012 | 5840.87 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 11/4/2012 | 5840.92 | Transducer | 1158.4 | 1179.1 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-62 | 11/3/2012 | 5841.06 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 11/2/2012 | 5841.11 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 11/1/2012 | 5841 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 10/31/2012 | 5841.02 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 10/30/2012 | 5841 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 10/29/2012 | 5841.01 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 10/28/2012 | 5841.03 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 10/27/2012 | 5840.99 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 10/26/2012 | 5841.02 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 10/25/2012 | 5841.26 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 10/24/2012 | 5841.18 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 10/23/2012 | 5841.16 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 10/22/2012 | 5841.24 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 10/21/2012 | 5841.29 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 10/20/2012 | 5841.15 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 10/19/2012 | 5841.07 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 10/18/2012 | 5841.19 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 10/17/2012 | 5841.35 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 10/16/2012 | 5841.18 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 10/15/2012 | 5840.95 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 10/14/2012 | 5841 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 10/13/2012 | 5841.2 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 10/12/2012 | 5841.06 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 10/11/2012 | 5841.11 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 10/10/2012 | 5841.12 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 10/9/2012 | 5841.2 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 10/8/2012 | 5841.18 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 10/7/2012 | 5841.13 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 10/6/2012 | 5841.17 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 10/5/2012 | 5841.14 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 10/4/2012 | 5841.08 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 10/3/2012 | 5841.19 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 10/2/2012 | 5841.07 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 10/1/2012 | 5841.08 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 9/30/2012 | 5841.05 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 9/29/2012 | 5841.09 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 9/28/2012 | 5841.07 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 9/27/2012 | 5841.1 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 9/26/2012 | 5841.19 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 9/25/2012 | 5841.16 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 9/24/2012 | 5841.03 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 9/23/2012 | 5841 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 9/22/2012 | 5841.04 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 9/21/2012 | 5841.11 | Transducer | 1158.4 | 1179.1 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-62 | 9/20/2012 | 5841.09 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 9/19/2012 | 5841.07 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 9/18/2012 | 5841.07 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 9/17/2012 | 5841.18 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 9/16/2012 | 5841.06 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 9/15/2012 | 5840.92 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 9/14/2012 | 5840.82 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 9/13/2012 | 5841.023 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 9/13/2012 | 5840.85 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 9/12/2012 | 5841.138 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 9/11/2012 | 5841.133 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 9/10/2012 | 5841.028 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 9/9/2012 | 5840.935 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 9/8/2012 | 5840.938 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 9/7/2012 | 5841.111 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 9/6/2012 | 5841.121 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 9/5/2012 | 5841.15 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 9/4/2012 | 5841.086 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 9/3/2012 | 5841.08 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 9/2/2012 | 5841.085 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 9/1/2012 | 5841.08 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 8/31/2012 | 5841.124 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 8/30/2012 | 5841.108 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 8/29/2012 | 5840.985 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 8/28/2012 | 5840.957 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 8/27/2012 | 5840.984 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 8/26/2012 | 5841.12 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 8/25/2012 | 5841.256 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 8/24/2012 | 5841.247 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 8/23/2012 | 5841.165 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 8/22/2012 | 5841.119 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 8/21/2012 | 5841.117 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 8/20/2012 | 5841.112 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 8/19/2012 | 5841.147 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 8/18/2012 | 5841.145 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 8/17/2012 | 5841.09 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 8/16/2012 | 5841.171 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 8/15/2012 | 5841.183 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 8/14/2012 | 5841.093 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 8/13/2012 | 5840.989 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 8/12/2012 | 5841.118 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 8/11/2012 | 5841.101 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 8/10/2012 | 5841.068 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 8/9/2012 | 5840.99 | Transducer | 1158.4 | 1179.1 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-62 | 8/8/2012 | 5841.057 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 8/7/2012 | 5841.104 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 8/6/2012 | 5840.942 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 8/5/2012 | 5841.041 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 8/4/2012 | 5841.246 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 8/3/2012 | 5841.158 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 8/2/2012 | 5841.147 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 8/1/2012 | 5841.075 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 7/31/2012 | 5841.13 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 7/30/2012 | 5841.176 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 7/29/2012 | 5841.105 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 7/28/2012 | 5841.106 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 7/27/2012 | 5841.134 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 7/26/2012 | 5841.263 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 7/25/2012 | 5841.255 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 7/24/2012 | 5841.143 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 7/23/2012 | 5841.112 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 7/22/2012 | 5841.094 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 7/21/2012 | 5841.102 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 7/20/2012 | 5841.05 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 7/19/2012 | 5841.125 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 7/18/2012 | 5841.246 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 7/17/2012 | 5841.294 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 7/16/2012 | 5841.261 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 7/15/2012 | 5841.196 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 7/14/2012 | 5841.162 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 7/13/2012 | 5841.163 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 7/12/2012 | 5841.186 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 7/11/2012 | 5841.137 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 7/10/2012 | 5841.11 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 7/9/2012 | 5841.16 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 7/8/2012 | 5841.116 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 7/7/2012 | 5841.169 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 7/6/2012 | 5841.293 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 7/5/2012 | 5841.354 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 7/4/2012 | 5841.371 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 7/3/2012 | 5841.372 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 7/2/2012 | 5841.376 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 7/1/2012 | 5841.365 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 6/30/2012 | 5841.355 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 6/29/2012 | 5841.239 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 6/28/2012 | 5841.283 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 6/27/2012 | 5841.409 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 6/26/2012 | 5841.4 | Transducer | 1158.4 | 1179.1 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-62 | 6/25/2012 | 5841.33 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 6/24/2012 | 5841.422 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 6/23/2012 | 5841.506 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 6/22/2012 | 5841.411 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 6/21/2012 | 5841.458 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 6/20/2012 | 5841.688 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 6/19/2012 | 5841.713 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 6/18/2012 | 5841.622 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 6/17/2012 | 5841.402 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 6/16/2012 | 5841.553 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 6/15/2012 | 5841.692 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 6/14/2012 | 5841.674 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 6/13/2012 | 5841.619 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 6/12/2012 | 5841.471 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 6/11/2012 | 5841.544 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 6/11/2012 | 5841.645 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 6/10/2012 | 5841.794 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 6/9/2012 | 5841.773 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 6/8/2012 | 5841.615 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 6/7/2012 | 5841.74 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 6/6/2012 | 5841.68 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 6/5/2012 | 5841.616 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 6/4/2012 | 5841.633 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 6/3/2012 | 5841.685 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 6/2/2012 | 5841.708 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 6/1/2012 | 5841.701 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/31/2012 | 5841.765 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/30/2012 | 5841.745 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/29/2012 | 5841.713 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/28/2012 | 5841.71 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/27/2012 | 5841.873 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/26/2012 | 5841.902 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/25/2012 | 5841.987 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/24/2012 | 5842.132 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/23/2012 | 5841.97 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/22/2012 | 5841.624 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/21/2012 | 5841.566 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/20/2012 | 5841.731 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/19/2012 | 5841.966 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/18/2012 | 5841.946 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/17/2012 | 5841.721 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/16/2012 | 5841.597 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/15/2012 | 5841.563 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/14/2012 | 5841.625 | Transducer | 1158.4 | 1179.1 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-62 | 5/13/2012 | 5841.509 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/12/2012 | 5841.59 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/11/2012 | 5841.872 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/10/2012 | 5841.768 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/9/2012 | 5841.672 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/8/2012 | 5841.708 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/7/2012 | 5841.808 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/6/2012 | 5841.832 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/5/2012 | 5841.818 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/4/2012 | 5841.795 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/3/2012 | 5841.866 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/2/2012 | 5841.974 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 5/1/2012 | 5841.931 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/30/2012 | 5841.82 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/29/2012 | 5841.912 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/28/2012 | 5841.919 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/27/2012 | 5841.997 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/26/2012 | 5841.751 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/25/2012 | 5841.815 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/24/2012 | 5841.737 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/23/2012 | 5841.605 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/22/2012 | 5841.662 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/21/2012 | 5841.721 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/20/2012 | 5841.808 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/19/2012 | 5841.91 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/18/2012 | 5841.73 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/17/2012 | 5841.694 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/16/2012 | 5841.836 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/15/2012 | 5842.196 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/14/2012 | 5842.187 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/13/2012 | 5841.918 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/12/2012 | 5841.971 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/11/2012 | 5841.727 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/10/2012 | 5841.729 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/9/2012 | 5841.625 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/8/2012 | 5841.484 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/7/2012 | 5841.786 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/6/2012 | 5841.941 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/5/2012 | 5841.881 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/4/2012 | 5841.854 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/3/2012 | 5842.06 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/2/2012 | 5842.164 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 4/1/2012 | 5841.944 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/31/2012 | 5841.821 | Transducer | 1158.4 | 1179.1 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-62 | 3/30/2012 | 5841.861 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/29/2012 | 5841.833 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/28/2012 | 5841.791 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/27/2012 | 5841.76 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/26/2012 | 5841.797 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/25/2012 | 5841.677 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/24/2012 | 5841.688 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/23/2012 | 5841.767 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/22/2012 | 5841.868 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/21/2012 | 5841.861 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/20/2012 | 5842.142 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/19/2012 | 5842.13 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/18/2012 | 5841.935 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/17/2012 | 5841.762 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/16/2012 | 5841.585 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/15/2012 | 5841.458 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/14/2012 | 5841.488 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/13/2012 | 5841.501 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/12/2012 | 5841.622 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/11/2012 | 5841.72 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/10/2012 | 5841.434 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/9/2012 | 5841.286 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/8/2012 | 5841.31 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/7/2012 | 5842.085 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/6/2012 | 5841.697 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/6/2012 | 5841.914 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/5/2012 | 5841.522 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/4/2012 | 5841.581 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/3/2012 | 5841.716 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/2/2012 | 5841.997 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 3/1/2012 | 5841.817 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/29/2012 | 5841.694 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/28/2012 | 5841.875 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/27/2012 | 5841.707 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/26/2012 | 5841.797 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/25/2012 | 5841.559 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/24/2012 | 5841.729 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/23/2012 | 5841.939 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/22/2012 | 5841.918 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/21/2012 | 5841.891 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/20/2012 | 5841.968 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/19/2012 | 5841.695 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/18/2012 | 5841.708 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/17/2012 | 5841.575 | Transducer | 1158.4 | 1179.1 | Regional |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| R-62 | 2/16/2012 | 5841.579 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/15/2012 | 5841.845 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/14/2012 | 5841.638 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/13/2012 | 5841.698 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/12/2012 | 5841.394 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/11/2012 | 5841.335 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/10/2012 | 5841.38 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/9/2012 | 5841.37 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/8/2012 | 5841.275 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/7/2012 | 5841.499 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/6/2012 | 5841.401 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/5/2012 | 5841.268 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/4/2012 | 5841.358 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/3/2012 | 5841.642 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/2/2012 | 5841.373 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 2/1/2012 | 5841.209 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 1/31/2012 | 5827.92 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 1/30/2012 | 5826.492 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 1/29/2012 | 5825.923 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 1/28/2012 | 5818.555 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 1/27/2012 | 5841.628 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 1/26/2012 | 5841.579 | Transducer | 1158.4 | 1179.1 | Regional |
| R-62 | 1/26/2012 | 5841.55 | Manual | 1158.4 | 1179.1 | Regional |
| R-62 | 10/26/2011 | 5842.38 | Manual | 1158.4 | 1179.1 | Regional |
| R-62 | 10/11/2011 | 5842.61 | Manual | 1158.4 | 1179.1 | Regional |
| R-62 | 8/29/2011 | 5842.88 | Manual | 1158.4 | 1179.1 | Regional |
| SCI-1 | 5/22/2013 | 6369.69 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/21/2013 | 6369.57 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/20/2013 | 6369.73 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/19/2013 | 6369.81 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/18/2013 | 6369.75 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/17/2013 | 6369.75 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/16/2013 | 6369.69 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/15/2013 | 6369.7 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/14/2013 | 6369.46 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/13/2013 | 6369.34 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/12/2013 | 6369.08 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/11/2013 | 6369.02 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/10/2013 | 6369.35 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/9/2013 | 6369.55 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/8/2013 | 6369.74 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/7/2013 | 6369.58 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/6/2013 | 6369.53 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/5/2013 | 6369.5 | Transducer | 358.4 | 377.9 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| SCI-1 | 5/4/2013 | 6369.87 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/3/2013 | 6368.94 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/2/2013 | 6368.96 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/1/2013 | 6369.55 | Manual | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/1/2013 | 6369.85 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/30/2013 | 6369.94 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/29/2013 | 6369.78 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/28/2013 | 6369.48 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/27/2013 | 6369.07 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/26/2013 | 6369.48 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/25/2013 | 6369.3 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/24/2013 | 6369.19 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/23/2013 | 6369.88 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/22/2013 | 6369.43 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/21/2013 | 6369.37 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/20/2013 | 6369.58 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/19/2013 | 6368.97 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/18/2013 | 6369.49 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/17/2013 | 6369.8 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/16/2013 | 6369.75 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/15/2013 | 6369.94 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/14/2013 | 6370.13 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/13/2013 | 6369.54 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/12/2013 | 6369.67 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/11/2013 | 6369.64 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/10/2013 | 6369.67 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/9/2013 | 6370.52 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/8/2013 | 6370.08 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/7/2013 | 6369.89 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/6/2013 | 6369.91 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/5/2013 | 6369.54 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/4/2013 | 6369.42 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/3/2013 | 6369.7 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/2/2013 | 6369.9 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/1/2013 | 6369.74 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/31/2013 | 6369.66 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/30/2013 | 6369.46 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/29/2013 | 6369.46 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/28/2013 | 6369.55 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/27/2013 | 6369.7 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/27/2013 | 6369.79 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/26/2013 | 6369.37 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/25/2013 | 6369.56 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/24/2013 | 6369.51 | Transducer | 358.4 | 377.9 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| SCI-1 | 3/23/2013 | 6370.26 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/22/2013 | 6370.16 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/21/2013 | 6370.18 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/20/2013 | 6369.35 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/19/2013 | 6369.73 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/18/2013 | 6370.09 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/17/2013 | 6370.14 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/16/2013 | 6370.09 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/15/2013 | 6369.56 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/14/2013 | 6369.41 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/13/2013 | 6369.34 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/12/2013 | 6369.73 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/11/2013 | 6369.51 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/10/2013 | 6369.88 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/9/2013 | 6370.4 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/8/2013 | 6370.04 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/7/2013 | 6369.96 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/6/2013 | 6369.58 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/5/2013 | 6369.63 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/4/2013 | 6370.29 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/3/2013 | 6369.66 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/2/2013 | 6369.29 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/1/2013 | 6369.39 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/28/2013 | 6369.38 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/27/2013 | 6369.58 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/26/2013 | 6369.88 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/25/2013 | 6369.94 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/24/2013 | 6370.36 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/23/2013 | 6369.81 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/22/2013 | 6369.98 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/21/2013 | 6370.69 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/20/2013 | 6370.46 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/19/2013 | 6369.79 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/18/2013 | 6370.58 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/17/2013 | 6369.87 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/16/2013 | 6369.31 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/15/2013 | 6369.54 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/14/2013 | 6369.81 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/13/2013 | 6369.69 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/12/2013 | 6369.99 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/11/2013 | 6369.98 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/10/2013 | 6370.19 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/9/2013 | 6370.47 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/8/2013 | 6369.74 | Transducer | 358.4 | 377.9 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| SCI-1 | 2/7/2013 | 6370.09 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/6/2013 | 6370.14 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/5/2013 | 6370.11 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/4/2013 | 6370.32 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/3/2013 | 6369.63 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/2/2013 | 6369.63 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/1/2013 | 6369.65 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/31/2013 | 6369.73 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/30/2013 | 6370.11 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/29/2013 | 6370.67 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/28/2013 | 6370.41 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/27/2013 | 6370.54 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/26/2013 | 6370.08 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/25/2013 | 6370 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/24/2013 | 6369.87 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/23/2013 | 6369.85 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/22/2013 | 6369.98 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/21/2013 | 6369.97 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/20/2013 | 6369.81 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/19/2013 | 6370 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/18/2013 | 6369.65 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/17/2013 | 6369.5 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/16/2013 | 6369.68 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/15/2013 | 6370.18 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/14/2013 | 6370.24 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/13/2013 | 6370.27 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/12/2013 | 6370.35 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/11/2013 | 6371.03 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/10/2013 | 6370.21 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/9/2013 | 6369.89 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/8/2013 | 6370.44 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/7/2013 | 6370.38 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/6/2013 | 6369.78 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/5/2013 | 6370.19 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/4/2013 | 6369.95 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/3/2013 | 6369.97 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/2/2013 | 6369.94 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/1/2013 | 6370.26 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/31/2012 | 6370.47 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/30/2012 | 6370.21 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/29/2012 | 6369.9 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/28/2012 | 6370.44 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/27/2012 | 6370.69 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/26/2012 | 6370.29 | Transducer | 358.4 | 377.9 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| SCI-1 | 12/25/2012 | 6371.18 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/24/2012 | 6370.5 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/23/2012 | 6370.34 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/22/2012 | 6370.1 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/21/2012 | 6369.57 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/20/2012 | 6369.71 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/19/2012 | 6371 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/18/2012 | 6370.38 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/17/2012 | 6370.3 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/16/2012 | 6370.76 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/15/2012 | 6370.5 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/14/2012 | 6370.54 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/13/2012 | 6370.34 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/12/2012 | 6370.38 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/11/2012 | 6370.44 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/10/2012 | 6370.24 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/9/2012 | 6370.81 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/8/2012 | 6370.72 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/7/2012 | 6370.86 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/6/2012 | 6370.77 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/5/2012 | 6370.15 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/4/2012 | 6370.28 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/3/2012 | 6370.79 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/2/2012 | 6370.5 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/1/2012 | 6370.65 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/30/2012 | 6370.51 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/29/2012 | 6370.54 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/28/2012 | 6370.27 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/27/2012 | 6370.17 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/26/2012 | 6370.55 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/26/2012 | 6370.93 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/25/2012 | 6370.89 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/24/2012 | 6370.27 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/23/2012 | 6370.22 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/22/2012 | 6370.76 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/21/2012 | 6370.53 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/20/2012 | 6370.34 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/19/2012 | 6370.53 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/18/2012 | 6370.75 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/17/2012 | 6370.6 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/16/2012 | 6370.27 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/15/2012 | 6370.58 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/14/2012 | 6370.39 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/13/2012 | 6370.33 | Transducer | 358.4 | 377.9 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| SCI-1 | 11/12/2012 | 6370.13 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/11/2012 | 6371.09 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/10/2012 | 6371.34 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/9/2012 | 6371.12 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/8/2012 | 6370.93 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/7/2012 | 6370.56 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/6/2012 | 6370.61 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/5/2012 | 6370.5 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/4/2012 | 6370.55 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/3/2012 | 6370.75 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/2/2012 | 6370.88 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/1/2012 | 6370.61 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/31/2012 | 6370.66 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/30/2012 | 6370.59 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/29/2012 | 6370.54 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/28/2012 | 6370.67 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/27/2012 | 6370.44 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/26/2012 | 6370.45 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/25/2012 | 6370.91 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/24/2012 | 6370.87 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/23/2012 | 6370.79 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/22/2012 | 6370.89 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/21/2012 | 6371.04 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/20/2012 | 6370.89 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/19/2012 | 6370.63 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/18/2012 | 6370.74 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/17/2012 | 6371.23 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/16/2012 | 6370.96 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/15/2012 | 6370.51 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/14/2012 | 6370.47 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/13/2012 | 6370.86 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/12/2012 | 6370.64 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/11/2012 | 6370.73 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/10/2012 | 6370.62 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/9/2012 | 6370.83 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/8/2012 | 6370.75 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/7/2012 | 6370.68 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/6/2012 | 6370.74 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/5/2012 | 6370.69 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/4/2012 | 6370.64 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/3/2012 | 6370.79 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/2/2012 | 6370.63 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/1/2012 | 6370.63 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/30/2012 | 6370.63 | Transducer | 358.4 | 377.9 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| SCI-1 | 9/29/2012 | 6370.63 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/28/2012 | 6370.63 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/27/2012 | 6370.65 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/26/2012 | 6370.76 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/25/2012 | 6370.73 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/24/2012 | 6370.64 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/23/2012 | 6370.59 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/22/2012 | 6370.62 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/21/2012 | 6370.66 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/20/2012 | 6370.64 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/19/2012 | 6370.62 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/18/2012 | 6370.59 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/17/2012 | 6370.76 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/16/2012 | 6370.65 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/15/2012 | 6370.48 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/14/2012 | 6370.34 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/13/2012 | 6370.36 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/13/2012 | 6370.473 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/12/2012 | 6370.634 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/11/2012 | 6370.638 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/10/2012 | 6370.524 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/9/2012 | 6370.426 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/8/2012 | 6370.381 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/7/2012 | 6370.57 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/6/2012 | 6370.524 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/5/2012 | 6370.565 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/4/2012 | 6370.491 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/3/2012 | 6370.509 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/2/2012 | 6370.46 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/1/2012 | 6370.43 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/31/2012 | 6370.467 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/30/2012 | 6370.472 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/29/2012 | 6370.373 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/28/2012 | 6370.264 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/27/2012 | 6370.272 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/26/2012 | 6370.371 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/25/2012 | 6370.53 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/24/2012 | 6370.509 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/23/2012 | 6370.428 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/22/2012 | 6370.362 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/21/2012 | 6370.397 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/20/2012 | 6370.374 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/19/2012 | 6370.411 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/18/2012 | 6370.378 | Transducer | 358.4 | 377.9 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| SCI-1 | 8/17/2012 | 6370.282 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/16/2012 | 6370.419 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/15/2012 | 6370.471 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/14/2012 | 6370.404 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/13/2012 | 6370.263 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/12/2012 | 6370.406 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/11/2012 | 6370.407 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/10/2012 | 6370.34 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/9/2012 | 6370.2 | Manual | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/9/2012 | 6370.299 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/8/2012 | 6370.372 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/7/2012 | 6370.433 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/6/2012 | 6370.057 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/5/2012 | 6370.133 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/4/2012 | 6370.544 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/3/2012 | 6370.354 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/2/2012 | 6370.451 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/1/2012 | 6370.279 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/31/2012 | 6370.393 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/30/2012 | 6370.399 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/29/2012 | 6370.226 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/28/2012 | 6370.171 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/27/2012 | 6370.257 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/26/2012 | 6370.513 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/25/2012 | 6370.546 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/24/2012 | 6370.332 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/23/2012 | 6370.265 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/22/2012 | 6370.218 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/21/2012 | 6370.147 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/20/2012 | 6370.087 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/19/2012 | 6370.162 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/18/2012 | 6370.37 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/17/2012 | 6370.502 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/16/2012 | 6370.432 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/15/2012 | 6370.335 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/14/2012 | 6370.264 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/13/2012 | 6370.254 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/12/2012 | 6370.236 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/11/2012 | 6370.125 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/10/2012 | 6370.119 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/9/2012 | 6370.122 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/8/2012 | 6370.047 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/7/2012 | 6370.068 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/6/2012 | 6370.158 | Transducer | 358.4 | 377.9 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| SCI-1 | 7/5/2012 | 6370.265 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/4/2012 | 6370.298 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/3/2012 | 6370.284 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/2/2012 | 6370.278 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/1/2012 | 6370.337 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/30/2012 | 6370.341 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/29/2012 | 6370.066 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/28/2012 | 6370.061 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/27/2012 | 6370.291 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/26/2012 | 6370.178 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/25/2012 | 6369.976 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/24/2012 | 6370.066 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/23/2012 | 6370.328 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/22/2012 | 6370.002 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/21/2012 | 6370.029 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/20/2012 | 6370.469 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/19/2012 | 6370.507 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/18/2012 | 6370.465 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/17/2012 | 6369.87 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/16/2012 | 6370.085 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/15/2012 | 6370.333 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/14/2012 | 6370.385 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/13/2012 | 6370.202 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/12/2012 | 6369.898 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/11/2012 | 6370.043 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/10/2012 | 6370.459 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/9/2012 | 6370.41 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/8/2012 | 6370.106 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/7/2012 | 6370.3 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/6/2012 | 6370.292 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/6/2012 | 6370.261 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/5/2012 | 6370.101 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/4/2012 | 6369.977 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/3/2012 | 6370.123 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/2/2012 | 6370.202 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/1/2012 | 6370.039 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/31/2012 | 6370.133 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/30/2012 | 6370.086 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/29/2012 | 6369.944 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/28/2012 | 6369.954 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/27/2012 | 6370.177 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/26/2012 | 6370.2 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/25/2012 | 6370.421 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/24/2012 | 6370.8 | Transducer | 358.4 | 377.9 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| SCI-1 | 5/23/2012 | 6370.584 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/22/2012 | 6370.108 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/21/2012 | 6369.643 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/20/2012 | 6369.893 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/19/2012 | 6370.461 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/18/2012 | 6370.563 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/17/2012 | 6370.235 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/16/2012 | 6369.856 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/15/2012 | 6369.807 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/14/2012 | 6369.85 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/13/2012 | 6369.633 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/12/2012 | 6369.617 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/11/2012 | 6370.297 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/10/2012 | 6370.156 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/9/2012 | 6369.781 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/8/2012 | 6369.787 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/7/2012 | 6370.007 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/6/2012 | 6370.158 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/5/2012 | 6370.101 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/4/2012 | 6369.978 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/3/2012 | 6370.12 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/2/2012 | 6370.29 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/1/2012 | 6370.324 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/30/2012 | 6370.029 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/29/2012 | 6370.226 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/28/2012 | 6370.268 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/27/2012 | 6370.437 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/26/2012 | 6370.025 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/25/2012 | 6370.22 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/24/2012 | 6370.082 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/23/2012 | 6369.729 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/22/2012 | 6369.802 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/21/2012 | 6369.896 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/20/2012 | 6370.027 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/19/2012 | 6370.283 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/18/2012 | 6369.992 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/17/2012 | 6369.673 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/16/2012 | 6369.825 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/15/2012 | 6370.606 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/14/2012 | 6370.857 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/13/2012 | 6370.398 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/12/2012 | 6370.548 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/11/2012 | 6370.122 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/10/2012 | 6370.076 | Transducer | 358.4 | 377.9 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| SCI-1 | 4/9/2012 | 6369.932 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/8/2012 | 6369.436 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/7/2012 | 6369.879 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/6/2012 | 6370.25 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/5/2012 | 6370.182 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/4/2012 | 6370.025 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/3/2012 | 6370.356 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/2/2012 | 6370.813 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 4/1/2012 | 6370.435 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/31/2012 | 6370.157 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/30/2012 | 6370.228 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/29/2012 | 6370.313 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/28/2012 | 6370.109 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/27/2012 | 6370.193 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/26/2012 | 6370.294 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/25/2012 | 6370.004 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/24/2012 | 6369.972 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/23/2012 | 6370.07 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/22/2012 | 6370.218 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/21/2012 | 6370.098 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/20/2012 | 6370.737 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/19/2012 | 6370.841 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/18/2012 | 6370.797 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/17/2012 | 6370.525 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/16/2012 | 6370.25 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/15/2012 | 6370.092 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/14/2012 | 6370.268 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/13/2012 | 6370.115 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/12/2012 | 6370.429 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/11/2012 | 6370.806 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/10/2012 | 6370.107 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/9/2012 | 6369.409 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/8/2012 | 6370.407 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/7/2012 | 6371.08 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/6/2012 | 6370.418 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/5/2012 | 6369.962 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/4/2012 | 6369.872 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/3/2012 | 6370.099 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/2/2012 | 6370.766 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 3/1/2012 | 6370.582 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/29/2012 | 6370.212 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/28/2012 | 6370.691 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/27/2012 | 6370.263 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/26/2012 | 6370.677 | Transducer | 358.4 | 377.9 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| SCI-1 | 2/25/2012 | 6369.969 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/24/2012 | 6370.183 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/23/2012 | 6370.898 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/22/2012 | 6370.236 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/21/2012 | 6370.106 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/20/2012 | 6370.876 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/19/2012 | 6370.51 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/18/2012 | 6370.52 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/17/2012 | 6370.348 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/16/2012 | 6370.191 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/15/2012 | 6370.921 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/14/2012 | 6370.802 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/13/2012 | 6371.085 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/12/2012 | 6370.388 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/11/2012 | 6370.341 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/10/2012 | 6370.326 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/9/2012 | 6370.414 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/8/2012 | 6370.082 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/7/2012 | 6370.554 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/6/2012 | 6370.425 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/5/2012 | 6370.036 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/4/2012 | 6370.174 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/3/2012 | 6370.75 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/2/2012 | 6370.621 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 2/1/2012 | 6370.34 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/31/2012 | 6370.729 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/30/2012 | 6370.412 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/29/2012 | 6370.002 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/28/2012 | 6370.021 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/27/2012 | 6370.761 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/26/2012 | 6370.316 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/25/2012 | 6370.227 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/24/2012 | 6370.839 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/23/2012 | 6370.321 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/22/2012 | 6371.456 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/21/2012 | 6370.478 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/20/2012 | 6370.92 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/19/2012 | 6370.585 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/18/2012 | 6370.312 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/17/2012 | 6370.763 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/16/2012 | 6370.935 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/15/2012 | 6370.494 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/14/2012 | 6370.252 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/13/2012 | 6370.616 | Transducer | 358.4 | 377.9 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| SCI-1 | 1/12/2012 | 6370.628 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/11/2012 | 6370.821 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/10/2012 | 6370.606 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/9/2012 | 6370.521 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/8/2012 | 6371.087 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/7/2012 | 6370.871 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/6/2012 | 6370.974 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/5/2012 | 6370.354 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/4/2012 | 6370.567 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/3/2012 | 6370.294 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/2/2012 | 6369.949 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 1/1/2012 | 6370.117 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/31/2011 | 6370.839 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/30/2011 | 6370.76 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/29/2011 | 6370.58 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/28/2011 | 6370.701 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/27/2011 | 6370.477 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/26/2011 | 6370.705 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/25/2011 | 6370.241 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/24/2011 | 6370.322 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/23/2011 | 6370.396 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/22/2011 | 6370.885 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/21/2011 | 6370.904 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/20/2011 | 6370.934 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/19/2011 | 6371.429 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/18/2011 | 6370.533 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/17/2011 | 6370.198 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/16/2011 | 6370.455 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/15/2011 | 6370.642 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/14/2011 | 6371.2 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/13/2011 | 6371.012 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/12/2011 | 6370.967 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/11/2011 | 6370.799 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/10/2011 | 6370.376 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/9/2011 | 6370.793 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/8/2011 | 6370.934 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/7/2011 | 6370.575 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/6/2011 | 6370.724 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/5/2011 | 6370.983 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/4/2011 | 6370.963 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/3/2011 | 6371.583 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/2/2011 | 6370.698 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 12/1/2011 | 6371.578 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/30/2011 | 6371.338 | Transducer | 358.4 | 377.9 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| SCI-1 | 11/30/2011 | 6370.884 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/29/2011 | 6370.874 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/28/2011 | 6370.663 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/27/2011 | 6370.214 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/26/2011 | 6371.161 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/25/2011 | 6371.216 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/24/2011 | 6370.838 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/23/2011 | 6370.458 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/22/2011 | 6370.737 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/21/2011 | 6370.937 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/20/2011 | 6371.089 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/19/2011 | 6371.57 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/18/2011 | 6371.242 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/17/2011 | 6370.495 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/16/2011 | 6371.098 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/15/2011 | 6371.161 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/14/2011 | 6371.335 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/13/2011 | 6371.43 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/12/2011 | 6371.423 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/11/2011 | 6370.908 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/10/2011 | 6370.405 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/9/2011 | 6370.558 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/8/2011 | 6371.27 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/7/2011 | 6371.147 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/6/2011 | 6371.243 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/5/2011 | 6371.699 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/4/2011 | 6371.159 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/3/2011 | 6370.528 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/2/2011 | 6371.523 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 11/1/2011 | 6371.153 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/31/2011 | 6370.791 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/30/2011 | 6371.043 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/29/2011 | 6370.81 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/28/2011 | 6370.97 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/27/2011 | 6371.29 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/26/2011 | 6371.234 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/25/2011 | 6371.116 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/24/2011 | 6370.871 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/23/2011 | 6370.932 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/22/2011 | 6370.933 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/21/2011 | 6370.924 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/20/2011 | 6371.25 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/19/2011 | 6370.841 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/18/2011 | 6370.891 | Transducer | 358.4 | 377.9 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| SCI-1 | 10/17/2011 | 6371.152 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/16/2011 | 6370.899 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/15/2011 | 6370.889 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/14/2011 | 6371.065 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/13/2011 | 6370.826 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/12/2011 | 6371.102 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/11/2011 | 6371.201 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/10/2011 | 6371.015 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/9/2011 | 6371.027 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/8/2011 | 6371.368 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/7/2011 | 6371.352 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/6/2011 | 6371.688 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/5/2011 | 6371.275 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/4/2011 | 6371.106 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/3/2011 | 6371.059 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/2/2011 | 6371.044 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 10/1/2011 | 6371.037 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/30/2011 | 6370.727 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/29/2011 | 6371.049 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/28/2011 | 6370.899 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/27/2011 | 6371.005 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/26/2011 | 6371.234 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/25/2011 | 6371.153 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/24/2011 | 6371.011 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/23/2011 | 6370.94 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/22/2011 | 6371.058 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/21/2011 | 6371.079 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/20/2011 | 6371.083 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/19/2011 | 6370.972 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/18/2011 | 6371.038 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/17/2011 | 6371.131 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/16/2011 | 6371.162 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/15/2011 | 6371.144 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/14/2011 | 6371.143 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/13/2011 | 6371.048 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/12/2011 | 6370.994 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/11/2011 | 6371.01 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/10/2011 | 6371.052 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/9/2011 | 6371.014 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/8/2011 | 6370.87 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/7/2011 | 6371.032 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/6/2011 | 6371.036 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/5/2011 | 6370.929 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/4/2011 | 6370.995 | Transducer | 358.4 | 377.9 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| SCI-1 | 9/3/2011 | 6371.14 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/2/2011 | 6371.048 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 9/1/2011 | 6371.071 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/31/2011 | 6371.167 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/30/2011 | 6371.182 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/29/2011 | 6371.166 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/28/2011 | 6371.103 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/27/2011 | 6371.009 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/26/2011 | 6371.004 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/25/2011 | 6371.013 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/24/2011 | 6371.09 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/23/2011 | 6371.087 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/22/2011 | 6370.995 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/22/2011 | 6370.98 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/21/2011 | 6371.05 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/20/2011 | 6371.14 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/19/2011 | 6371.13 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/18/2011 | 6370.95 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/17/2011 | 6370.93 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/16/2011 | 6371.06 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/15/2011 | 6371.03 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/14/2011 | 6370.85 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/13/2011 | 6370.96 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/12/2011 | 6371.02 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/11/2011 | 6371.02 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/10/2011 | 6371.11 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/9/2011 | 6371.09 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/8/2011 | 6371.12 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/7/2011 | 6371.09 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/6/2011 | 6371.05 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/5/2011 | 6371.07 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/4/2011 | 6371.07 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/3/2011 | 6371.05 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/2/2011 | 6371.04 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 8/1/2011 | 6370.95 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/31/2011 | 6370.91 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/30/2011 | 6370.9 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/29/2011 | 6370.98 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/28/2011 | 6371.09 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/27/2011 | 6371.13 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/26/2011 | 6371.08 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/25/2011 | 6370.94 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/24/2011 | 6370.97 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/23/2011 | 6371.08 | Transducer | 358.4 | 377.9 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| SCI-1 | 7/22/2011 | 6371.13 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/21/2011 | 6371.12 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/20/2011 | 6371.07 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/19/2011 | 6370.98 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/18/2011 | 6370.89 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/17/2011 | 6370.95 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/16/2011 | 6371.09 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/15/2011 | 6371.14 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/14/2011 | 6371.12 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/13/2011 | 6371.08 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/12/2011 | 6371.06 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/11/2011 | 6371.06 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/10/2011 | 6371.09 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/9/2011 | 6371.17 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/8/2011 | 6371.14 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/7/2011 | 6371.07 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/6/2011 | 6371.07 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/5/2011 | 6371.07 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/4/2011 | 6371.08 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/3/2011 | 6371.02 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/2/2011 | 6371.08 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 7/1/2011 | 6371.14 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/30/2011 | 6371.15 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/29/2011 | 6371.06 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/28/2011 | 6370.98 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/27/2011 | 6371.15 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/26/2011 | 6371.14 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/25/2011 | 6371.19 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/24/2011 | 6371.2 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/23/2011 | 6371.09 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/22/2011 | 6371.06 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/21/2011 | 6371.16 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/20/2011 | 6371.38 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/19/2011 | 6371.28 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/18/2011 | 6371.19 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/17/2011 | 6371.37 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/16/2011 | 6371.36 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/15/2011 | 6371.16 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/14/2011 | 6371.21 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/13/2011 | 6371.26 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/12/2011 | 6371.34 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/11/2011 | 6371.27 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/10/2011 | 6371.32 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/9/2011 | 6371.38 | Transducer | 358.4 | 377.9 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| SCI-1 | 6/8/2011 | 6371.38 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/7/2011 | 6371.43 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/6/2011 | 6371.23 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/5/2011 | 6371.07 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/4/2011 | 6371.24 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/3/2011 | 6371.37 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/2/2011 | 6371.29 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 6/1/2011 | 6371.01 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/31/2011 | 6371.03 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/30/2011 | 6371.56 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/29/2011 | 6371.6 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/28/2011 | 6371.51 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/27/2011 | 6371.46 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/26/2011 | 6371.23 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/25/2011 | 6371.3 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/24/2011 | 6371.58 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/23/2011 | 6371.32 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/22/2011 | 6371.2 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/21/2011 | 6371.2 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/20/2011 | 6371.34 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/19/2011 | 6371.79 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/18/2011 | 6371.81 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/17/2011 | 6371.7 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/16/2011 | 6371.29 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/15/2011 | 6371.37 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/14/2011 | 6371.03 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/13/2011 | 6370.88 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/12/2011 | 6371.26 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/11/2011 | 6371.85 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/10/2011 | 6371.85 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/9/2011 | 6371.94 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/8/2011 | 6371.73 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/7/2011 | 6371.67 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-1 | 5/6/2011 | 6371.34 | Transducer | 358.4 | 377.9 | Intermediate |
| SCI-2 | 5/22/2013 | 6208.4 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/21/2013 | 6208.42 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/20/2013 | 6208.47 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/19/2013 | 6208.44 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/18/2013 | 6208.4 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/17/2013 | 6208.37 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/16/2013 | 6208.31 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/15/2013 | 6208.27 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/14/2013 | 6208.16 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/13/2013 | 6208.16 | Transducer | 548 | 568 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| SCI-2 | 5/12/2013 | 6208.14 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/11/2013 | 6208.22 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/10/2013 | 6208.41 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/9/2013 | 6208.51 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/8/2013 | 6208.58 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/7/2013 | 6208.5 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/6/2013 | 6208.48 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/5/2013 | 6208.49 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/4/2013 | 6208.62 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/3/2013 | 6208.34 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/2/2013 | 6208.49 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/1/2013 | 6208.87 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/30/2013 | 6208.84 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/29/2013 | 6208.73 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/28/2013 | 6208.63 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/27/2013 | 6208.55 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/26/2013 | 6208.77 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/25/2013 | 6208.75 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/24/2013 | 6208.78 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/23/2013 | 6209.06 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/22/2013 | 6208.9 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/21/2013 | 6208.93 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/20/2013 | 6209.04 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/19/2013 | 6208.92 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/18/2013 | 6209.2 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/17/2013 | 6209.31 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/16/2013 | 6209.26 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/15/2013 | 6209.29 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/14/2013 | 6209.3 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/13/2013 | 6209.05 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/12/2013 | 6209.12 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/11/2013 | 6209.14 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/10/2013 | 6209.15 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/9/2013 | 6209.37 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/8/2013 | 6209.05 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/7/2013 | 6208.9 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/6/2013 | 6208.86 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/5/2013 | 6208.72 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/4/2013 | 6208.73 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/3/2013 | 6208.86 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/2/2013 | 6208.9 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/1/2013 | 6208.82 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/31/2013 | 6208.79 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/30/2013 | 6208.76 | Transducer | 548 | 568 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| SCI-2 | 3/29/2013 | 6208.81 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/28/2013 | 6208.88 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/27/2013 | 6208.97 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/27/2013 | 6208.99 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/26/2013 | 6208.88 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/25/2013 | 6209.03 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/24/2013 | 6209.04 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/23/2013 | 6209.29 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/22/2013 | 6209.14 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/21/2013 | 6209.06 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/20/2013 | 6208.77 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/19/2013 | 6208.95 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/18/2013 | 6209.04 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/17/2013 | 6208.97 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/16/2013 | 6208.87 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/15/2013 | 6208.69 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/14/2013 | 6208.71 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/13/2013 | 6208.79 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/12/2013 | 6209.01 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/11/2013 | 6208.98 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/10/2013 | 6209.14 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/9/2013 | 6209.28 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/8/2013 | 6209.06 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/7/2013 | 6209.01 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/6/2013 | 6208.89 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/5/2013 | 6208.95 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/4/2013 | 6209.15 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/3/2013 | 6208.9 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/2/2013 | 6208.86 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/1/2013 | 6209.02 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/28/2013 | 6209.13 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/27/2013 | 6209.31 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/26/2013 | 6209.44 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/25/2013 | 6209.48 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/24/2013 | 6209.56 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/23/2013 | 6209.34 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/22/2013 | 6209.4 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/21/2013 | 6209.61 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/20/2013 | 6209.32 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/19/2013 | 6209 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/18/2013 | 6209.25 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/17/2013 | 6208.93 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/16/2013 | 6208.79 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/15/2013 | 6208.96 | Transducer | 548 | 568 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| SCI-2 | 2/14/2013 | 6209.09 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/13/2013 | 6209.09 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/12/2013 | 6209.24 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/11/2013 | 6209.21 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/10/2013 | 6209.31 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/9/2013 | 6209.17 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/8/2013 | 6208.84 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/7/2013 | 6208.96 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/6/2013 | 6208.92 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/5/2013 | 6208.87 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/4/2013 | 6208.9 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/3/2013 | 6208.63 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/2/2013 | 6208.7 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/1/2013 | 6208.71 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/31/2013 | 6208.9 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/30/2013 | 6209.09 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/29/2013 | 6209.13 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/28/2013 | 6208.89 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/27/2013 | 6208.83 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/26/2013 | 6208.57 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/25/2013 | 6208.54 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/24/2013 | 6208.51 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/23/2013 | 6208.53 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/22/2013 | 6208.6 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/21/2013 | 6208.62 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/20/2013 | 6208.59 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/19/2013 | 6208.71 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/18/2013 | 6208.65 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/17/2013 | 6208.72 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/16/2013 | 6208.89 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/15/2013 | 6209.16 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/14/2013 | 6209.19 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/13/2013 | 6209.18 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/12/2013 | 6209.16 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/11/2013 | 6209.22 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/10/2013 | 6208.83 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/9/2013 | 6208.78 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/8/2013 | 6208.98 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/7/2013 | 6208.85 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/6/2013 | 6208.71 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/5/2013 | 6208.91 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/4/2013 | 6208.88 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/3/2013 | 6208.98 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/2/2013 | 6209.02 | Transducer | 548 | 568 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| SCI-2 | 1/1/2013 | 6209.15 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/31/2012 | 6209.26 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/30/2012 | 6209.07 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/29/2012 | 6209.03 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/28/2012 | 6209.25 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/27/2012 | 6209.3 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/26/2012 | 6209.01 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/25/2012 | 6209.27 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/24/2012 | 6208.91 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/23/2012 | 6208.86 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/22/2012 | 6208.8 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/21/2012 | 6208.72 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/20/2012 | 6208.88 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/19/2012 | 6209.3 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/18/2012 | 6209.05 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/17/2012 | 6208.96 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/16/2012 | 6209.11 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/15/2012 | 6208.91 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/14/2012 | 6208.87 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/13/2012 | 6208.75 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/12/2012 | 6208.78 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/11/2012 | 6208.84 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/10/2012 | 6208.69 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/9/2012 | 6208.83 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/8/2012 | 6208.68 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/7/2012 | 6208.62 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/6/2012 | 6208.49 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/5/2012 | 6208.25 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/4/2012 | 6208.35 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/4/2012 | 6208.23 | Manual | 548 | 568 | Intermediate |
| SCI-2 | 12/4/2012 | 6208.21 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/3/2012 | 6208.5 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/2/2012 | 6208.34 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/1/2012 | 6208.35 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/30/2012 | 6208.26 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/29/2012 | 6208.25 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/28/2012 | 6208.17 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/27/2012 | 6208.17 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/26/2012 | 6208.43 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/25/2012 | 6208.32 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/24/2012 | 6208.09 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/23/2012 | 6208.13 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/22/2012 | 6208.32 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/21/2012 | 6208.22 | Transducer | 548 | 568 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| SCI-2 | 11/20/2012 | 6208.16 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/19/2012 | 6208.25 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/18/2012 | 6208.31 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/17/2012 | 6208.24 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/16/2012 | 6208.14 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/15/2012 | 6208.29 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/14/2012 | 6208.26 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/13/2012 | 6208.31 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/12/2012 | 6208.32 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/11/2012 | 6208.69 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/10/2012 | 6208.62 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/9/2012 | 6208.41 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/8/2012 | 6208.26 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/7/2012 | 6208.1 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/6/2012 | 6208.13 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/5/2012 | 6208.16 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/4/2012 | 6208.22 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/3/2012 | 6208.31 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/2/2012 | 6208.35 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/1/2012 | 6208.24 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/31/2012 | 6208.26 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/30/2012 | 6208.26 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/29/2012 | 6208.26 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/28/2012 | 6208.34 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/27/2012 | 6208.28 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/26/2012 | 6208.34 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/25/2012 | 6208.51 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/24/2012 | 6208.46 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/23/2012 | 6208.41 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/22/2012 | 6208.41 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/21/2012 | 6208.42 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/20/2012 | 6208.31 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/19/2012 | 6208.21 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/18/2012 | 6208.24 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/17/2012 | 6208.34 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/16/2012 | 6208.17 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/15/2012 | 6208 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/14/2012 | 6208.03 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/13/2012 | 6208.17 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/12/2012 | 6208.06 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/11/2012 | 6208.1 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/10/2012 | 6208.05 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/9/2012 | 6208.12 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/8/2012 | 6208.07 | Transducer | 548 | 568 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| SCI-2 | 10/7/2012 | 6208.02 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/6/2012 | 6208.03 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/5/2012 | 6207.97 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/4/2012 | 6207.92 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/3/2012 | 6207.99 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/2/2012 | 6207.83 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/1/2012 | 6207.82 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/30/2012 | 6207.82 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/29/2012 | 6207.82 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/28/2012 | 6207.82 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/27/2012 | 6207.83 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/26/2012 | 6207.87 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/25/2012 | 6207.78 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/24/2012 | 6207.69 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/23/2012 | 6207.66 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/22/2012 | 6207.69 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/21/2012 | 6207.7 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/20/2012 | 6207.67 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/19/2012 | 6207.65 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/18/2012 | 6207.62 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/17/2012 | 6207.7 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/16/2012 | 6207.59 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/15/2012 | 6207.48 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/14/2012 | 6207.44 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/13/2012 | 6207.49 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/13/2012 | 6207.608 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/12/2012 | 6207.721 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/11/2012 | 6207.68 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/10/2012 | 6207.588 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/9/2012 | 6207.561 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/8/2012 | 6207.575 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/7/2012 | 6207.729 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/6/2012 | 6207.677 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/5/2012 | 6207.699 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/4/2012 | 6207.625 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/3/2012 | 6207.641 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/2/2012 | 6207.6 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/1/2012 | 6207.584 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/31/2012 | 6207.605 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/30/2012 | 6207.584 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/29/2012 | 6207.514 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/28/2012 | 6207.484 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/27/2012 | 6207.559 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/26/2012 | 6207.67 | Transducer | 548 | 568 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| SCI-2 | 8/25/2012 | 6207.763 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/24/2012 | 6207.687 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/23/2012 | 6207.59 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/22/2012 | 6207.531 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/21/2012 | 6207.555 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/20/2012 | 6207.523 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/19/2012 | 6207.538 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/18/2012 | 6207.494 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/17/2012 | 6207.418 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/16/2012 | 6207.542 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/14/2012 | 6207.66 | Manual | 548 | 568 | Intermediate |
| SCI-2 | 8/14/2012 | 6207.433 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/13/2012 | 6207.373 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/12/2012 | 6207.485 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/11/2012 | 6207.448 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/10/2012 | 6207.383 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/9/2012 | 6207.346 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/8/2012 | 6207.397 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/7/2012 | 6207.426 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/6/2012 | 6207.294 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/5/2012 | 6207.397 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/4/2012 | 6207.581 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/3/2012 | 6207.478 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/2/2012 | 6207.487 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/1/2012 | 6207.4 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/31/2012 | 6207.453 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/30/2012 | 6207.457 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/29/2012 | 6207.402 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/28/2012 | 6207.401 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/27/2012 | 6207.469 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/26/2012 | 6207.56 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/25/2012 | 6207.529 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/24/2012 | 6207.415 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/23/2012 | 6207.392 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/22/2012 | 6207.388 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/21/2012 | 6207.381 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/20/2012 | 6207.398 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/19/2012 | 6207.471 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/18/2012 | 6207.566 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/17/2012 | 6207.594 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/16/2012 | 6207.532 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/15/2012 | 6207.483 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/14/2012 | 6207.46 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/13/2012 | 6207.459 | Transducer | 548 | 568 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| SCI-2 | 7/12/2012 | 6207.465 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/11/2012 | 6207.44 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/10/2012 | 6207.482 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/9/2012 | 6207.527 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/8/2012 | 6207.557 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/7/2012 | 6207.638 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/6/2012 | 6207.718 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/5/2012 | 6207.775 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/4/2012 | 6207.794 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/3/2012 | 6207.781 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/2/2012 | 6207.783 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/1/2012 | 6207.797 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/30/2012 | 6207.794 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/29/2012 | 6207.704 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/28/2012 | 6207.752 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/27/2012 | 6207.876 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/26/2012 | 6207.851 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/25/2012 | 6207.801 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/24/2012 | 6207.888 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/23/2012 | 6208.025 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/22/2012 | 6207.912 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/21/2012 | 6207.99 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/20/2012 | 6208.17 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/19/2012 | 6208.132 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/18/2012 | 6208.081 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/17/2012 | 6207.842 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/16/2012 | 6207.998 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/15/2012 | 6208.104 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/14/2012 | 6208.111 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/13/2012 | 6208.048 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/12/2012 | 6207.963 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/11/2012 | 6208.093 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/10/2012 | 6208.254 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/9/2012 | 6208.202 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/8/2012 | 6208.08 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/7/2012 | 6208.167 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/6/2012 | 6208.129 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/6/2012 | 6208.153 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/5/2012 | 6208.073 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/4/2012 | 6208.067 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/3/2012 | 6208.145 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/2/2012 | 6208.174 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/1/2012 | 6208.12 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/31/2012 | 6208.174 | Transducer | 548 | 568 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| SCI-2 | 5/30/2012 | 6208.176 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/29/2012 | 6208.154 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/28/2012 | 6208.204 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/27/2012 | 6208.314 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/26/2012 | 6208.313 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/25/2012 | 6208.354 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/24/2012 | 6208.384 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/23/2012 | 6208.214 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/22/2012 | 6207.949 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/21/2012 | 6207.882 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/20/2012 | 6208.046 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/19/2012 | 6208.214 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/18/2012 | 6208.173 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/17/2012 | 6207.996 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/16/2012 | 6207.865 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/15/2012 | 6207.891 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/14/2012 | 6207.978 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/13/2012 | 6207.989 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/12/2012 | 6208.057 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/11/2012 | 6208.326 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/10/2012 | 6208.242 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/9/2012 | 6208.142 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/8/2012 | 6208.191 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/7/2012 | 6208.312 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/6/2012 | 6208.373 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/5/2012 | 6208.377 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/4/2012 | 6208.357 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/3/2012 | 6208.421 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/2/2012 | 6208.476 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/1/2012 | 6208.464 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/30/2012 | 6208.356 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/29/2012 | 6208.429 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/28/2012 | 6208.404 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/27/2012 | 6208.432 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/26/2012 | 6208.238 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/25/2012 | 6208.301 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/24/2012 | 6208.256 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/23/2012 | 6208.173 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/22/2012 | 6208.266 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/21/2012 | 6208.357 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/20/2012 | 6208.441 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/19/2012 | 6208.54 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/18/2012 | 6208.463 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/17/2012 | 6208.444 | Transducer | 548 | 568 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| SCI-2 | 4/16/2012 | 6208.591 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/15/2012 | 6208.886 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/14/2012 | 6208.842 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/13/2012 | 6208.591 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/12/2012 | 6208.616 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/11/2012 | 6208.431 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/10/2012 | 6208.448 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/9/2012 | 6208.463 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/8/2012 | 6208.394 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/7/2012 | 6208.687 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/6/2012 | 6208.865 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/5/2012 | 6208.862 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/4/2012 | 6208.849 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/3/2012 | 6208.971 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/2/2012 | 6209.036 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 4/1/2012 | 6208.816 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/31/2012 | 6208.714 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/30/2012 | 6208.742 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/29/2012 | 6208.775 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/28/2012 | 6208.732 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/27/2012 | 6208.782 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/26/2012 | 6208.83 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/25/2012 | 6208.756 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/24/2012 | 6208.809 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/23/2012 | 6208.918 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/22/2012 | 6209.007 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/21/2012 | 6209 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/20/2012 | 6209.234 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/19/2012 | 6209.152 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/18/2012 | 6208.979 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/17/2012 | 6208.811 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/16/2012 | 6208.699 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/15/2012 | 6208.68 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/14/2012 | 6208.779 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/13/2012 | 6208.755 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/12/2012 | 6208.879 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/11/2012 | 6208.966 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/10/2012 | 6208.719 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/9/2012 | 6208.571 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/8/2012 | 6209.012 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/7/2012 | 6209.153 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/6/2012 | 6208.82 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/5/2012 | 6208.762 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/4/2012 | 6208.839 | Transducer | 548 | 568 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| SCI-2 | 3/3/2012 | 6208.994 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/2/2012 | 6209.207 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 3/1/2012 | 6209.089 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/29/2012 | 6208.956 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/28/2012 | 6209.121 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/27/2012 | 6208.965 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/26/2012 | 6209.109 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/25/2012 | 6208.874 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/24/2012 | 6209.008 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/23/2012 | 6209.238 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/22/2012 | 6208.973 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/21/2012 | 6208.965 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/20/2012 | 6209.234 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/19/2012 | 6209.035 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/18/2012 | 6209.025 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/17/2012 | 6208.972 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/16/2012 | 6208.963 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/15/2012 | 6209.229 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/14/2012 | 6209.072 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/13/2012 | 6209.065 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/12/2012 | 6208.73 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/11/2012 | 6208.706 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/10/2012 | 6208.707 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/9/2012 | 6208.739 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/8/2012 | 6208.655 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/7/2012 | 6208.849 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/6/2012 | 6208.794 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/5/2012 | 6208.703 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/4/2012 | 6208.818 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/3/2012 | 6209.075 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/2/2012 | 6208.878 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 2/1/2012 | 6208.785 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/31/2012 | 6208.906 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/30/2012 | 6208.777 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/29/2012 | 6208.699 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/28/2012 | 6208.793 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/27/2012 | 6209.092 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/26/2012 | 6208.955 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/25/2012 | 6208.961 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/24/2012 | 6209.184 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/23/2012 | 6208.971 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/22/2012 | 6209.317 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/21/2012 | 6208.851 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/20/2012 | 6208.963 | Transducer | 548 | 568 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| SCI-2 | 1/19/2012 | 6208.785 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/18/2012 | 6208.706 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/17/2012 | 6208.848 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/16/2012 | 6208.826 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/15/2012 | 6208.645 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/14/2012 | 6208.598 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/13/2012 | 6208.762 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/12/2012 | 6208.726 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/11/2012 | 6208.813 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/10/2012 | 6208.626 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/9/2012 | 6208.601 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/8/2012 | 6208.76 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/7/2012 | 6208.577 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/6/2012 | 6208.55 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/5/2012 | 6208.247 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/4/2012 | 6208.373 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/3/2012 | 6208.341 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/2/2012 | 6208.338 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 1/1/2012 | 6208.507 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/31/2011 | 6208.766 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/30/2011 | 6208.71 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/29/2011 | 6208.633 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/28/2011 | 6208.688 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/27/2011 | 6208.617 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/26/2011 | 6208.726 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/25/2011 | 6208.619 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/24/2011 | 6208.762 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/23/2011 | 6208.861 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/22/2011 | 6209.094 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/21/2011 | 6209.032 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/20/2011 | 6208.901 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/19/2011 | 6208.974 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/18/2011 | 6208.594 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/17/2011 | 6208.552 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/16/2011 | 6208.738 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/15/2011 | 6208.848 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/14/2011 | 6209.018 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/13/2011 | 6208.87 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/12/2011 | 6208.842 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/11/2011 | 6208.731 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/10/2011 | 6208.613 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/9/2011 | 6208.797 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/8/2011 | 6208.855 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/7/2011 | 6208.759 | Transducer | 548 | 568 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| SCI-2 | 12/6/2011 | 6208.849 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/5/2011 | 6208.979 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/4/2011 | 6208.891 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/3/2011 | 6209.05 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/2/2011 | 6208.651 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 12/1/2011 | 6208.887 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/30/2011 | 6208.778 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/30/2011 | 6208.563 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/29/2011 | 6208.578 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/28/2011 | 6208.557 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/27/2011 | 6208.484 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/26/2011 | 6208.888 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/25/2011 | 6208.865 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/24/2011 | 6208.735 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/23/2011 | 6208.677 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/22/2011 | 6208.83 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/21/2011 | 6208.93 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/20/2011 | 6208.988 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/19/2011 | 6209.093 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/18/2011 | 6208.932 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/17/2011 | 6208.691 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/16/2011 | 6208.946 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/15/2011 | 6208.918 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/14/2011 | 6208.943 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/13/2011 | 6208.887 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/12/2011 | 6208.803 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/11/2011 | 6208.583 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/10/2011 | 6208.463 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/9/2011 | 6208.651 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/8/2011 | 6208.979 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/7/2011 | 6208.868 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/6/2011 | 6208.834 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/5/2011 | 6208.909 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/4/2011 | 6208.59 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/3/2011 | 6208.373 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/2/2011 | 6208.782 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 11/1/2011 | 6208.555 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/31/2011 | 6208.423 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/30/2011 | 6208.537 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/29/2011 | 6208.476 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/28/2011 | 6208.581 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/27/2011 | 6208.684 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/26/2011 | 6208.579 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/25/2011 | 6208.49 | Transducer | 548 | 568 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| SCI-2 | 10/24/2011 | 6208.4 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/23/2011 | 6208.452 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/22/2011 | 6208.464 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/21/2011 | 6208.476 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/20/2011 | 6208.593 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/19/2011 | 6208.455 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/18/2011 | 6208.507 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/17/2011 | 6208.588 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/16/2011 | 6208.499 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/15/2011 | 6208.524 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/14/2011 | 6208.608 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/13/2011 | 6208.526 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/12/2011 | 6208.64 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/11/2011 | 6208.651 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/10/2011 | 6208.564 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/9/2011 | 6208.577 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/8/2011 | 6208.689 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/7/2011 | 6208.598 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/6/2011 | 6208.564 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/5/2011 | 6208.342 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/4/2011 | 6208.204 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/3/2011 | 6208.163 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/2/2011 | 6208.157 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 10/1/2011 | 6208.181 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/30/2011 | 6208.094 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/29/2011 | 6208.285 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/28/2011 | 6208.225 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/27/2011 | 6208.281 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/26/2011 | 6208.341 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/25/2011 | 6208.273 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/24/2011 | 6208.144 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/23/2011 | 6208.111 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/22/2011 | 6208.207 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/21/2011 | 6208.197 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/20/2011 | 6208.19 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/19/2011 | 6208.118 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/18/2011 | 6208.176 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/17/2011 | 6208.221 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/16/2011 | 6208.198 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/15/2011 | 6208.129 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/14/2011 | 6208.089 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/13/2011 | 6208.006 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/12/2011 | 6207.978 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/11/2011 | 6208.015 | Transducer | 548 | 568 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| SCI-2 | 9/10/2011 | 6208.064 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/9/2011 | 6208.054 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/8/2011 | 6207.975 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/7/2011 | 6208.139 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/6/2011 | 6208.153 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/5/2011 | 6208.108 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/4/2011 | 6208.182 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/3/2011 | 6208.272 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/2/2011 | 6208.185 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 9/1/2011 | 6208.196 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/31/2011 | 6208.231 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/30/2011 | 6208.189 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/29/2011 | 6208.141 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/28/2011 | 6208.068 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/27/2011 | 6208.013 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/26/2011 | 6208.035 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/25/2011 | 6208.07 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/24/2011 | 6208.138 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/23/2011 | 6208.142 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/22/2011 | 6208.08 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/22/2011 | 6208.094 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/21/2011 | 6208.16 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/20/2011 | 6208.21 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/19/2011 | 6208.18 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/18/2011 | 6208.07 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/17/2011 | 6208.11 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/16/2011 | 6208.23 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/15/2011 | 6208.19 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/14/2011 | 6208.07 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/13/2011 | 6208.18 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/12/2011 | 6208.2 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/11/2011 | 6208.23 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/10/2011 | 6208.25 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/9/2011 | 6208.19 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/8/2011 | 6208.18 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/7/2011 | 6208.13 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/6/2011 | 6208.09 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/5/2011 | 6208.09 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/4/2011 | 6208.08 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/3/2011 | 6208.04 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/2/2011 | 6208.02 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 8/1/2011 | 6207.98 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/31/2011 | 6208 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/30/2011 | 6208.05 | Transducer | 548 | 568 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| SCI-2 | 7/29/2011 | 6208.15 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/28/2011 | 6208.23 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/27/2011 | 6208.22 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/26/2011 | 6208.16 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/25/2011 | 6208.08 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/24/2011 | 6208.14 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/23/2011 | 6208.23 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/22/2011 | 6208.24 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/21/2011 | 6208.2 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/20/2011 | 6208.15 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/19/2011 | 6208.09 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/18/2011 | 6208.07 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/17/2011 | 6208.17 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/16/2011 | 6208.3 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/15/2011 | 6208.31 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/14/2011 | 6208.27 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/13/2011 | 6208.23 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/12/2011 | 6208.21 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/11/2011 | 6208.21 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/10/2011 | 6208.23 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/9/2011 | 6208.27 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/8/2011 | 6208.22 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/7/2011 | 6208.17 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/6/2011 | 6208.17 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/5/2011 | 6208.19 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/4/2011 | 6208.22 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/3/2011 | 6208.21 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/2/2011 | 6208.29 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 7/1/2011 | 6208.35 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/30/2011 | 6208.37 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/29/2011 | 6208.32 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/28/2011 | 6208.33 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/27/2011 | 6208.5 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/26/2011 | 6208.52 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/25/2011 | 6208.55 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/24/2011 | 6208.57 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/23/2011 | 6208.52 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/22/2011 | 6208.55 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/21/2011 | 6208.64 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/20/2011 | 6208.74 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/19/2011 | 6208.62 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/18/2011 | 6208.53 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/17/2011 | 6208.62 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/16/2011 | 6208.57 | Transducer | 548 | 568 | Intermediate |

| Location | Date | Water Level (ft) | Method | Top Depth (ft) | Bottom Depth (ft) | Zone |
|---|---|---|---|---|---|---|
| SCI-2 | 6/15/2011 | 6208.41 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/14/2011 | 6208.47 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/13/2011 | 6208.5 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/12/2011 | 6208.55 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/11/2011 | 6208.48 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/10/2011 | 6208.5 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/9/2011 | 6208.52 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/8/2011 | 6208.46 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/7/2011 | 6208.46 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/6/2011 | 6208.32 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/5/2011 | 6208.27 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/4/2011 | 6208.46 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/3/2011 | 6208.55 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/2/2011 | 6208.58 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 6/1/2011 | 6208.47 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/31/2011 | 6208.57 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/30/2011 | 6208.98 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/29/2011 | 6208.91 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/28/2011 | 6208.78 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/27/2011 | 6208.73 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/26/2011 | 6208.6 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/25/2011 | 6208.7 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/24/2011 | 6208.85 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/23/2011 | 6208.75 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/22/2011 | 6208.73 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/21/2011 | 6208.76 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/20/2011 | 6208.83 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/19/2011 | 6208.92 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/18/2011 | 6208.82 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/17/2011 | 6208.69 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/16/2011 | 6208.53 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/15/2011 | 6208.56 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/14/2011 | 6208.48 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/13/2011 | 6208.52 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/12/2011 | 6208.71 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/11/2011 | 6208.9 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/10/2011 | 6208.79 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/9/2011 | 6208.72 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/8/2011 | 6208.56 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/7/2011 | 6208.48 | Transducer | 548 | 568 | Intermediate |
| SCI-2 | 5/6/2011 | 6208.35 | Transducer | 548 | 568 | Intermediate |

# Appendix C

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

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

## Acronyms and Abbreviations

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

## Acronyms and Abbreviations (continued)

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

## Acronyms and Abbreviations (continued)

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

## Acronyms and Abbreviations (continued)

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

## Acronyms and Abbreviations (continued)

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

## Analytical Laboratory Qualifier Codes

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

## Analytical Laboratory Qualifier Codes (continued)

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

## Analytical Laboratory Qualifier Codes (continued)

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

## Secondary Validation Flag Codes

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

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-45 S1 | 880 | 11/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium-53/52 | Cr-53/52 | Y | 1.11 | — | — | — | % | Y | — | NQ | 2013-383 | CAMO-13-24366 | UIL |
| R-45 S1 | 880 | 11/19/10 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium-53/52 | Cr-53/52 | Y | 1.17 | — | — | — | % | Y | — | NQ | 11-745 | CAMO-11-1280 | UIL |
| R-45 S1 | 880 | 01/27/10 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium-53/52 | Cr-53/52 | Y | 1.26 | — | — | — | % | Y | — | NQ | 10-3591 | CAMO-10-9734 | UIL |
| R-45 S1 | 880 | 11/16/09 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium-53/52 | Cr-53/52 | Y | 1.31 | — | — | — | % | Y | — | NQ | 10-1025 | CAMO-10-4769 | UIL |
| R-45 S1 | 880 | 08/19/09 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium-53/52 | Cr-53/52 | Y | 1.29 | — | — | — | % | Y | — | NQ | 09-3060 | CAMO-09-10252 | UIL |
| R-45 S2 | 974.9 | 11/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium-53/52 | Cr-53/52 | Y | 1.28 | — | — | — | % | Y | — | NQ | 2013-383 | CAMO-13-24367 | UIL |
| R-45 S2 | 974.9 | 11/19/10 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium-53/52 | Cr-53/52 | Y | 1.35 | — | — | — | % | Y | — | NQ | 11-745 | CAMO-11-1281 | UIL |
| R-45 S2 | 974.9 | 01/27/10 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium-53/52 | Cr-53/52 | Y | 1.49 | — | — | — | % | Y | — | NQ | 10-3591 | CAMO-10-9735 | UIL |
| R-45 S2 | 974.9 | 11/16/09 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium-53/52 | Cr-53/52 | Y | 1.58 | — | — | — | % | Y | — | NQ | 10-1025 | CAMO-10-4771 | UIL |
| R-45 S2 | 974.9 | 08/19/09 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium-53/52 | Cr-53/52 | Y | 1.65 | — | — | — | % | Y | — | NQ | 09-3060 | CAMO-09-10255 | UIL |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.56 | — | — | 0.01 | SU | Y | H | NQ | 2013-813 | CAMO-13-30588 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.59 | — | — | 0.01 | SU | Y | H | NQ | 2013-813 | CAMO-13-30563 | GELC |
| MCOI-5 | 689.04 | 10/30/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.44 | — | — | 0.01 | SU | Y | H | NQ | 2013-246 | CAMO-13-24255 | GELC |
| MCOI-5 | 689.04 | 06/04/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.46 | — | — | 0.01 | SU | Y | H | NQ | 12-1338 | CAMO-12-17129 | GELC |
| MCOI-5 | 689.04 | 11/08/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.14 | — | — | 0.01 | SU | Y | H | J- | 12-292 | CAMO-12-1466 | GELC |
| MCOI-5 | 689.04 | 08/10/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.23 | — | — | 0.01 | SU | Y | H | J- | 11-3146 | CAMO-11-24628 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3 | ALK-CO3 | Y | 5.08 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-813 | CAMO-13-30588 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3 | ALK-CO3 | Y | 2.03 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-813 | CAMO-13-30563 | GELC |
| MCOI-5 | 689.04 | 10/30/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3 | ALK-CO3 | N | 1 | — | — | 0.725 | mg/L | Y | U | U | 2013-246 | CAMO-13-24255 | GELC |
| MCOI-5 | 689.04 | 06/04/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3 | ALK-CO3 | N | 1 | — | — | 0.725 | mg/L | Y | U | U | 12-1338 | CAMO-12-17129 | GELC |
| MCOI-5 | 689.04 | 11/08/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3 | ALK-CO3 | N | 1 | — | — | 0.73 | mg/L | Y | U | U | 12-292 | CAMO-12-1466 | GELC |
| MCOI-5 | 689.04 | 08/10/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3 | ALK-CO3 | N | 1 | — | — | 0.73 | mg/L | Y | U | U | 11-3146 | CAMO-11-24628 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 52.8 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-813 | CAMO-13-30588 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 54.3 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-813 | CAMO-13-30563 | GELC |
| MCOI-5 | 689.04 | 10/30/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 53.1 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-246 | CAMO-13-24255 | GELC |
| MCOI-5 | 689.04 | 06/04/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 53.3 | — | — | 0.725 | mg/L | Y | — | NQ | 12-1338 | CAMO-12-17129 | GELC |
| MCOI-5 | 689.04 | 11/08/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 53.4 | — | — | 0.73 | mg/L | Y | — | NQ | 12-292 | CAMO-12-1466 | GELC |
| MCOI-5 | 689.04 | 08/10/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 50.6 | — | — | 0.73 | mg/L | Y | — | NQ | 11-3146 | CAMO-11-24628 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | NH3-N | Y | 0.0804 | — | — | 0.017 | mg/L | Y | — | NQ | 2013-813 | CAMO-13-30588 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | NH3-N | N | 0.05 | — | — | 0.017 | mg/L | Y | U | U | 2013-813 | CAMO-13-30563 | GELC |
| MCOI-5 | 689.04 | 10/30/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | NH3-N | N | 0.05 | — | — | 0.017 | mg/L | Y | U | U | 2013-246 | CAMO-13-24255 | GELC |
| MCOI-5 | 689.04 | 06/04/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | NH3-N | N | 0.05 | — | — | 0.017 | mg/L | Y | U | U | 12-1338 | CAMO-12-17129 | GELC |
| MCOI-5 | 689.04 | 11/08/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | NH3-N | N | 0.05 | — | — | 0.016 | mg/L | Y | U | UJ | 12-292 | CAMO-12-1466 | GELC |
| MCOI-5 | 689.04 | 08/10/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | NH3-N | Y | 0.0491 | — | — | 0.016 | mg/L | Y | J | J | 11-3146 | CAMO-11-24628 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 17 | — | — | 1 | µg/L | Y | — | NQ | 2013-813 | CAMO-13-30588 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Barium | Ba | Y | 16.2 | — | — | 1 | µg/L | Y | — | NQ | 2013-813 | CAMO-13-30563 | GELC |
| MCOI-5 | 689.04 | 10/30/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 16.1 | — | — | 1 | µg/L | Y | — | NQ | 2013-246 | CAMO-13-24255 | GELC |
| MCOI-5 | 689.04 | 06/04/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 15.5 | — | — | 1 | µg/L | Y | — | NQ | 12-1337 | CAMO-12-14075 | GELC |
| MCOI-5 | 689.04 | 11/08/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 15.6 | — | — | 1 | µg/L | Y | — | NQ | 12-292 | CAMO-12-1466 | GELC |
| MCOI-5 | 689.04 | 08/10/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 14.8 | — | — | 1 | µg/L | Y | — | NQ | 11-3146 | CAMO-11-24628 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 20 | — | — | 15 | µg/L | Y | J | J | 2013-813 | CAMO-13-30588 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Boron | B | Y | 17.5 | — | — | 15 | µg/L | Y | J | J | 2013-813 | CAMO-13-30563 | GELC |
| MCOI-5 | 689.04 | 10/30/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 20.8 | — | — | 15 | µg/L | Y | J | J | 2013-246 | CAMO-13-24255 | GELC |
| MCOI-5 | 689.04 | 06/04/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 24.5 | — | — | 15 | µg/L | Y | J | J | 12-1337 | CAMO-12-14075 | GELC |
| MCOI-5 | 689.04 | 11/08/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 21.2 | — | — | 15 | µg/L | Y | J | J | 12-292 | CAMO-12-1466 | GELC |
| MCOI-5 | 689.04 | 08/10/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 22.5 | — | — | 15 | µg/L | Y | J | J | 11-3146 | CAMO-11-24628 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.116 | — | — | 0.067 | mg/L | Y | J | J | 2013-813 | CAMO-13-30588 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.113 | — | — | 0.067 | mg/L | Y | J | J | 2013-813 | CAMO-13-30563 | GELC |
| MCOI-5 | 689.04 | 10/30/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.143 | — | — | 0.067 | mg/L | Y | J | J | 2013-246 | CAMO-13-24255 | GELC |
| MCOI-5 | 689.04 | 06/04/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.09 | — | — | 0.067 | mg/L | Y | J | J | 12-1338 | CAMO-12-17129 | GELC |
| MCOI-5 | 689.04 | 11/08/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.14 | — | — | 0.066 | mg/L | Y | J | J- | 12-292 | CAMO-12-1466 | GELC |
| MCOI-5 | 689.04 | 08/10/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.142 | — | — | 0.066 | mg/L | Y | J | J | 11-3146 | CAMO-11-24628 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 20.5 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-813 | CAMO-13-30588 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 20.1 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-813 | CAMO-13-30563 | GELC |
| MCOI-5 | 689.04 | 10/30/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 20.8 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-246 | CAMO-13-24255 | GELC |
| MCOI-5 | 689.04 | 06/04/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 19.5 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1337 | CAMO-12-14075 | GELC |
| MCOI-5 | 689.04 | 11/08/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 19 | — | — | 0.05 | mg/L | Y | — | NQ | 12-292 | CAMO-12-1466 | GELC |
| MCOI-5 | 689.04 | 08/10/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 18.7 | — | — | 0.05 | mg/L | Y | — | NQ | 11-3146 | CAMO-11-24628 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 8.22 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-813 | CAMO-13-30588 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 8.24 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-813 | CAMO-13-30563 | GELC |
| MCOI-5 | 689.04 | 10/30/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 7.86 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-246 | CAMO-13-24255 | GELC |
| MCOI-5 | 689.04 | 06/04/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 7.57 | — | — | 0.067 | mg/L | Y | — | NQ | 12-1338 | CAMO-12-17129 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCOI-5 | 689.04 | 11/08/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 6.73 | — | — | 0.066 | mg/L | Y | — | NQ | 12-292 | CAMO-12-1466 | GELC |
| MCOI-5 | 689.04 | 08/10/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 6.69 | — | — | 0.066 | mg/L | Y | — | NQ | 11-3146 | CAMO-11-24628 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 8.06 | — | — | 2 | µg/L | Y | J | J | 2013-813 | CAMO-13-30588 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 7.67 | — | — | 2 | µg/L | Y | J | J | 2013-813 | CAMO-13-30563 | GELC |
| MCOI-5 | 689.04 | 10/30/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 4.32 | — | — | 2 | µg/L | Y | J | J | 2013-246 | CAMO-13-24255 | GELC |
| MCOI-5 | 689.04 | 06/04/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 4.79 | — | — | 2 | µg/L | Y | J | J | 12-1337 | CAMO-12-14075 | GELC |
| MCOI-5 | 689.04 | 11/08/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 3.4 | — | — | 2 | µg/L | Y | J | J | 12-292 | CAMO-12-1466 | GELC |
| MCOI-5 | 689.04 | 08/10/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 5.59 | — | — | 2 | µg/L | Y | J | J | 11-3146 | CAMO-11-24628 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Copper | Cu | N | 10 | — | — | 3 | µg/L | Y | U | U | 2013-813 | CAMO-13-30588 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Copper | Cu | Y | 3.09 | — | — | 3 | µg/L | Y | J | J | 2013-813 | CAMO-13-30563 | GELC |
| MCOI-5 | 689.04 | 10/30/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Copper | Cu | N | 10 | — | — | 3 | µg/L | Y | U | U | 2013-246 | CAMO-13-24255 | GELC |
| MCOI-5 | 689.04 | 06/04/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Copper | Cu | N | 10 | — | — | 3 | µg/L | Y | U | U | 12-1337 | CAMO-12-14075 | GELC |
| MCOI-5 | 689.04 | 11/08/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Copper | Cu | N | 10 | — | — | 3 | µg/L | Y | U | U | 12-292 | CAMO-12-1466 | GELC |
| MCOI-5 | 689.04 | 08/10/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Copper | Cu | N | 10 | — | — | 3 | µg/L | Y | U | U | 11-3146 | CAMO-11-24628 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | UF | INIT | REG | SVOC | SW-846:8270C | Dioxane[1,4-] | 123-91-1 | Y | 5.08 | — | — | 3.16 | µg/L | Y | J | J | 2013-813 | CAMO-13-30572 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | UF | INIT | FD | SVOC | SW-846:8270C | Dioxane[1,4-] | 123-91-1 | Y | 5.61 | — | — | 3.23 | µg/L | Y | J | J | 2013-813 | CAMO-13-30561 | GELC |
| MCOI-5 | 689.04 | 10/30/12 | WG | UF | INIT | REG | SVOC | SW-846:8270C | Dioxane[1,4-] | 123-91-1 | Y | 5.28 | — | — | 3 | µg/L | Y | J | J | 2013-246 | CAMO-13-24238 | GELC |
| MCOI-5 | 689.04 | 06/04/12 | WG | UF | INIT | REG | SVOC | SW-846:8270C | Dioxane[1,4-] | 123-91-1 | Y | 4.41 | — | — | 3 | µg/L | N | J | J | 12-1337 | CAMO-12-14070 | GELC |
| MCOI-5 | 689.04 | 06/04/12 | WG | UF | RE | REG | SVOC | SW-846:8270C | Dioxane[1,4-] | 123-91-1 | Y | 4.45 | — | — | 3.13 | µg/L | Y | J | J | 12-1337 | CAMO-12-14070 | GELC |
| MCOI-5 | 689.04 | 11/08/11 | WG | UF | INIT | REG | SVOC | SW-846:8270C | Dioxane[1,4-] | 123-91-1 | Y | 5.19 | — | — | 3.3 | µg/L | Y | J | J | 12-292 | CAMO-12-1465 | GELC |
| MCOI-5 | 689.04 | 05/26/11 | WG | UF | INIT | REG | SVOC | SW-846:8270C | Dioxane[1,4-] | 123-91-1 | Y | 4.76 | — | — | 2 | µg/L | Y | J | J | 11-2561 | CAMO-11-10699 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.199 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-813 | CAMO-13-30588 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.196 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-813 | CAMO-13-30563 | GELC |
| MCOI-5 | 689.04 | 10/30/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.224 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-246 | CAMO-13-24255 | GELC |
| MCOI-5 | 689.04 | 06/04/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.23 | — | — | 0.033 | mg/L | Y | — | NQ | 12-1338 | CAMO-12-17129 | GELC |
| MCOI-5 | 689.04 | 11/08/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.207 | — | — | 0.033 | mg/L | Y | — | NQ | 12-292 | CAMO-12-1466 | GELC |
| MCOI-5 | 689.04 | 08/10/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.243 | — | — | 0.033 | mg/L | Y | — | NQ | 11-3146 | CAMO-11-24628 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 67.2 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-813 | CAMO-13-30588 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | FD | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 65.5 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-813 | CAMO-13-30563 | GELC |
| MCOI-5 | 689.04 | 10/30/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 68.1 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-246 | CAMO-13-24255 | GELC |
| MCOI-5 | 689.04 | 06/04/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 64.2 | — | — | 0.453 | mg/L | Y | — | NQ | 12-1337 | CAMO-12-14075 | GELC |
| MCOI-5 | 689.04 | 11/08/11 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 62.3 | — | — | 0.45 | mg/L | Y | — | NQ | 12-292 | CAMO-12-1466 | GELC |
| MCOI-5 | 689.04 | 08/10/11 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 60.8 | — | — | 0.45 | mg/L | Y | — | NQ | 11-3146 | CAMO-11-24628 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 3.88 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-813 | CAMO-13-30588 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 3.73 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-813 | CAMO-13-30563 | GELC |
| MCOI-5 | 689.04 | 10/30/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 3.96 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-246 | CAMO-13-24255 | GELC |
| MCOI-5 | 689.04 | 06/04/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 3.77 | — | — | 0.11 | mg/L | Y | — | NQ | 12-1337 | CAMO-12-14075 | GELC |
| MCOI-5 | 689.04 | 11/08/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 3.62 | — | — | 0.11 | mg/L | Y | — | NQ | 12-292 | CAMO-12-1466 | GELC |
| MCOI-5 | 689.04 | 08/10/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 3.43 | — | — | 0.11 | mg/L | Y | — | NQ | 11-3146 | CAMO-11-24628 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.56 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-813 | CAMO-13-30588 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.59 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-813 | CAMO-13-30563 | GELC |
| MCOI-5 | 689.04 | 10/30/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.79 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-246 | CAMO-13-24255 | GELC |
| MCOI-5 | 689.04 | 06/04/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.74 | — | — | 0.165 | µg/L | Y | — | NQ | 12-1337 | CAMO-12-14075 | GELC |
| MCOI-5 | 689.04 | 11/08/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.6 | — | — | 0.17 | µg/L | Y | — | NQ | 12-292 | CAMO-12-1466 | GELC |
| MCOI-5 | 689.04 | 08/10/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.54 | — | — | 0.17 | µg/L | Y | — | NQ | 11-3146 | CAMO-11-24628 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 0.993 | — | — | 0.5 | µg/L | Y | J | J | 2013-813 | CAMO-13-30588 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 2 | — | — | 0.5 | µg/L | Y | — | NQ | 2013-813 | CAMO-13-30563 | GELC |
| MCOI-5 | 689.04 | 10/30/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 0.78 | — | — | 0.5 | µg/L | Y | J | J | 2013-246 | CAMO-13-24255 | GELC |
| MCOI-5 | 689.04 | 06/04/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 1.18 | — | — | 0.5 | µg/L | Y | J | J | 12-1337 | CAMO-12-14075 | GELC |
| MCOI-5 | 689.04 | 11/08/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 0.776 | — | — | 0.5 | µg/L | Y | J | J | 12-292 | CAMO-12-1466 | GELC |
| MCOI-5 | 689.04 | 08/10/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 0.775 | — | — | 0.5 | µg/L | Y | J | J | 11-3146 | CAMO-11-24628 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 4.35 | — | — | 0.17 | mg/L | Y | — | NQ | 2013-813 | CAMO-13-30588 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 4.17 | — | — | 0.17 | mg/L | Y | — | NQ | 2013-813 | CAMO-13-30563 | GELC |
| MCOI-5 | 689.04 | 10/30/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 3.89 | — | — | 0.17 | mg/L | Y | — | NQ | 2013-246 | CAMO-13-24255 | GELC |
| MCOI-5 | 689.04 | 06/04/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 3.75 | — | — | 0.17 | mg/L | Y | — | NQ | 12-1338 | CAMO-12-17129 | GELC |
| MCOI-5 | 689.04 | 11/08/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 3.88 | — | — | 0.05 | mg/L | Y | — | NQ | 12-292 | CAMO-12-1466 | GELC |
| MCOI-5 | 689.04 | 08/10/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 4.04 | — | — | 0.05 | mg/L | Y | — | NQ | 11-3146 | CAMO-11-24628 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 79.1 | — | — | 5 | µg/L | Y | — | NQ | 2013-813 | CAMO-13-30588 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | FD | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 81.7 | — | — | 5 | µg/L | Y | — | NQ | 2013-813 | CAMO-13-30563 | GELC |
| MCOI-5 | 689.04 | 10/30/12 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 75 | — | — | 5 | µg/L | Y | — | NQ | 2013-246 | CAMO-13-24255 | GELC |
| MCOI-5 | 689.04 | 06/04/12 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 68.7 | — | — | 5 | µg/L | Y | — | NQ | 12-1338 | CAMO-12-17129 | GELC |
| MCOI-5 | 689.04 | 11/08/11 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 75.1 | — | — | 5 | µg/L | Y | — | NQ | 12-292 | CAMO-12-1466 | GELC |
| MCOI-5 | 689.04 | 08/10/11 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 82.8 | — | — | 5 | µg/L | Y | — | NQ | 11-3146 | CAMO-11-24628 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 0.94 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-813 | CAMO-13-30588 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Potassium | K | Y | 0.576 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-813 | CAMO-13-30563 | GELC |
| MCOI-5 | 689.04 | 10/30/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 0.984 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-246 | CAMO-13-24255 | GELC |
| MCOI-5 | 689.04 | 06/04/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 0.52 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1337 | CAMO-12-14075 | GELC |
| MCOI-5 | 689.04 | 11/08/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 0.46 | — | — | 0.05 | mg/L | Y | — | NQ | 12-292 | CAMO-12-1466 | GELC |
| MCOI-5 | 689.04 | 08/10/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 0.438 | — | — | 0.05 | mg/L | Y | — | NQ | 11-3146 | CAMO-11-24628 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 66.7 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-813 | CAMO-13-30588 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 64.6 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-813 | CAMO-13-30563 | GELC |
| MCOI-5 | 689.04 | 10/30/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 72.6 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-246 | CAMO-13-24255 | GELC |
| MCOI-5 | 689.04 | 06/04/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 65.1 | — | — | 0.053 | mg/L | Y | — | NQ | 12-1338 | CAMO-12-17129 | GELC |
| MCOI-5 | 689.04 | 11/08/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 70.2 | — | — | 0.053 | mg/L | Y | — | NQ | 12-292 | CAMO-12-1466 | GELC |
| MCOI-5 | 689.04 | 08/10/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 70 | — | — | 0.053 | mg/L | Y | — | NQ | 11-3146 | CAMO-11-24628 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 14.1 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-813 | CAMO-13-30588 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Sodium | Na | Y | 13.3 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-813 | CAMO-13-30563 | GELC |
| MCOI-5 | 689.04 | 10/30/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 14.9 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-246 | CAMO-13-24255 | GELC |
| MCOI-5 | 689.04 | 06/04/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 13.2 | — | — | 0.1 | mg/L | Y | — | NQ | 12-1337 | CAMO-12-14075 | GELC |
| MCOI-5 | 689.04 | 11/08/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 12.8 | — | — | 0.1 | mg/L | Y | — | J- | 12-292 | CAMO-12-1466 | GELC |
| MCOI-5 | 689.04 | 08/10/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 13 | — | — | 0.1 | mg/L | Y | — | NQ | 11-3146 | CAMO-11-24628 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 205 | — | — | 1 | µS/cm | Y | — | NQ | 2013-813 | CAMO-13-30588 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 202 | — | — | 1 | µS/cm | Y | — | NQ | 2013-813 | CAMO-13-30563 | GELC |
| MCOI-5 | 689.04 | 10/30/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 195 | — | — | 1 | µS/cm | Y | — | NQ | 2013-246 | CAMO-13-24255 | GELC |
| MCOI-5 | 689.04 | 06/04/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 190 | — | — | 1 | µS/cm | Y | — | NQ | 12-1338 | CAMO-12-17129 | GELC |
| MCOI-5 | 689.04 | 11/08/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 182 | — | — | 1 | µS/cm | Y | — | NQ | 12-292 | CAMO-12-1466 | GELC |
| MCOI-5 | 689.04 | 08/10/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 182 | — | — | 1 | µS/cm | Y | — | NQ | 11-3146 | CAMO-11-24628 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 94.4 | — | — | 1 | µg/L | Y | — | NQ | 2013-813 | CAMO-13-30588 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 96.7 | — | — | 1 | µg/L | Y | — | NQ | 2013-813 | CAMO-13-30563 | GELC |
| MCOI-5 | 689.04 | 10/30/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 93.8 | — | — | 1 | µg/L | Y | — | NQ | 2013-246 | CAMO-13-24255 | GELC |
| MCOI-5 | 689.04 | 06/04/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 89.6 | — | — | 1 | µg/L | Y | — | NQ | 12-1337 | CAMO-12-14075 | GELC |
| MCOI-5 | 689.04 | 11/08/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 86.4 | — | — | 1 | µg/L | Y | — | NQ | 12-292 | CAMO-12-1466 | GELC |
| MCOI-5 | 689.04 | 08/10/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 82.4 | — | — | 1 | µg/L | Y | — | NQ | 11-3146 | CAMO-11-24628 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 13.5 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-813 | CAMO-13-30588 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 13.5 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-813 | CAMO-13-30563 | GELC |
| MCOI-5 | 689.04 | 10/30/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 13.3 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-246 | CAMO-13-24255 | GELC |
| MCOI-5 | 689.04 | 06/04/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 12.8 | — | — | 0.133 | mg/L | Y | — | NQ | 12-1338 | CAMO-12-17129 | GELC |
| MCOI-5 | 689.04 | 11/08/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 12.1 | — | — | 0.1 | mg/L | Y | — | J+ | 12-292 | CAMO-12-1466 | GELC |
| MCOI-5 | 689.04 | 08/10/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 12.2 | — | — | 0.1 | mg/L | Y | — | NQ | 11-3146 | CAMO-11-24628 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 129 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-813 | CAMO-13-30588 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 147 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-813 | CAMO-13-30563 | GELC |
| MCOI-5 | 689.04 | 10/30/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 169 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-246 | CAMO-13-24255 | GELC |
| MCOI-5 | 689.04 | 06/04/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 156 | — | — | 3.4 | mg/L | Y | — | NQ | 12-1338 | CAMO-12-17129 | GELC |
| MCOI-5 | 689.04 | 11/08/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 170 | — | — | 3.4 | mg/L | Y | — | NQ | 12-292 | CAMO-12-1466 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCOI-5 | 689.04 | 08/10/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 157 | — | — | 3.4 | mg/L | Y | — | NQ | 11-3146 | CAMO-11-24628 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | EPA:351.2 | Total Kjeldahl Nitrogen | TKN | Y | 0.0679 | — | — | 0.033 | mg/L | Y | J | J | 2013-813 | CAMO-13-30572 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | UF | INIT | FD | GENERAL CHEMISTRY | EPA:351.2 | Total Kjeldahl Nitrogen | TKN | N | 0.1 | — | — | 0.033 | mg/L | Y | U | U | 2013-813 | CAMO-13-30561 | GELC |
| MCOI-5 | 689.04 | 10/30/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | EPA:351.2 | Total Kjeldahl Nitrogen | TKN | N | 0.0596 | — | — | 0.035 | mg/L | Y | J | U | 2013-246 | CAMO-13-24238 | GELC |
| MCOI-5 | 689.04 | 06/04/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | EPA:351.2 | Total Kjeldahl Nitrogen | TKN | Y | 0.0526 | — | — | 0.035 | mg/L | Y | J | J | 12-1338 | CAMO-12-17124 | GELC |
| MCOI-5 | 689.04 | 11/08/11 | WG | UF | INIT | REG | GENERAL CHEMISTRY | EPA:351.2 | Total Kjeldahl Nitrogen | TKN | N | 0.1 | — | — | 0.035 | mg/L | Y | U | U | 12-292 | CAMO-12-1465 | GELC |
| MCOI-5 | 689.04 | 08/10/11 | WG | UF | INIT | REG | GENERAL CHEMISTRY | EPA:351.2 | Total Kjeldahl Nitrogen | TKN | N | 0.1 | — | — | 0.035 | mg/L | Y | U | UJ | 11-3146 | CAMO-11-24627 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.631 | — | — | 0.33 | mg/L | Y | J | J | 2013-813 | CAMO-13-30572 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | UF | INIT | FD | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.638 | — | — | 0.33 | mg/L | Y | J | J | 2013-813 | CAMO-13-30561 | GELC |
| MCOI-5 | 689.04 | 10/30/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.879 | — | — | 0.33 | mg/L | Y | J | J | 2013-246 | CAMO-13-24238 | GELC |
| MCOI-5 | 689.04 | 06/04/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.947 | — | — | 0.33 | mg/L | Y | J | J | 12-1338 | CAMO-12-17124 | GELC |
| MCOI-5 | 689.04 | 11/08/11 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.333 | — | — | 0.33 | mg/L | Y | J | J | 12-292 | CAMO-12-1465 | GELC |
| MCOI-5 | 689.04 | 08/10/11 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | N | 1 | — | — | 0.33 | mg/L | Y | U | U | 11-3146 | CAMO-11-24627 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 0.106 | — | — | 0.017 | mg/L | Y | — | NQ | 2013-813 | CAMO-13-30588 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 0.0948 | — | — | 0.017 | mg/L | Y | — | NQ | 2013-813 | CAMO-13-30563 | GELC |
| MCOI-5 | 689.04 | 10/30/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 0.327 | — | — | 0.017 | mg/L | Y | — | NQ | 2013-246 | CAMO-13-24255 | GELC |
| MCOI-5 | 689.04 | 06/04/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 0.031 | — | — | 0.017 | mg/L | Y | J | J | 12-1338 | CAMO-12-17129 | GELC |
| MCOI-5 | 689.04 | 11/08/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 0.0428 | — | — | 0.015 | mg/L | Y | J | J | 12-292 | CAMO-12-1466 | GELC |
| MCOI-5 | 689.04 | 08/10/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 0.136 | — | — | 0.015 | mg/L | Y | — | NQ | 11-3146 | CAMO-11-24628 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.155 | — | — | 0.067 | µg/L | Y | J | J | 2013-813 | CAMO-13-30588 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.147 | — | — | 0.067 | µg/L | Y | J | J | 2013-813 | CAMO-13-30563 | GELC |
| MCOI-5 | 689.04 | 10/30/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.13 | — | — | 0.067 | µg/L | Y | J | J | 2013-246 | CAMO-13-24255 | GELC |
| MCOI-5 | 689.04 | 06/04/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.165 | — | — | 0.067 | µg/L | Y | J | J | 12-1337 | CAMO-12-14075 | GELC |
| MCOI-5 | 689.04 | 11/08/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.106 | — | — | 0.067 | µg/L | Y | J | J | 12-292 | CAMO-12-1466 | GELC |
| MCOI-5 | 689.04 | 08/10/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | N | 0.2 | — | — | 0.067 | µg/L | Y | U | U | 11-3146 | CAMO-11-24628 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 2.25 | — | — | 1 | µg/L | Y | J | J | 2013-813 | CAMO-13-30588 | GELC |
| MCOI-5 | 689.04 | 05/07/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Vanadium | V | Y | 1.99 | — | — | 1 | µg/L | Y | J | J | 2013-813 | CAMO-13-30563 | GELC |
| MCOI-5 | 689.04 | 10/30/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 2.27 | — | — | 1 | µg/L | Y | J | J | 2013-246 | CAMO-13-24255 | GELC |
| MCOI-5 | 689.04 | 06/04/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 2.13 | — | — | 1 | µg/L | Y | J | J | 12-1337 | CAMO-12-14075 | GELC |
| MCOI-5 | 689.04 | 11/08/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 1.41 | — | — | 1 | µg/L | Y | J | J | 12-292 | CAMO-12-1466 | GELC |
| MCOI-5 | 689.04 | 08/10/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 1.34 | — | — | 1 | µg/L | Y | J | J | 11-3146 | CAMO-11-24628 | GELC |
| MCOI-6 | 686 | 05/08/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.63 | — | — | 0.01 | SU | Y | H | NQ | 2013-823 | CAMO-13-30589 | GELC |
| MCOI-6 | 686 | 02/05/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.32 | — | — | 0.01 | SU | Y | H | NQ | 2013-511 | CAMO-13-28415 | GELC |
| MCOI-6 | 686 | 11/02/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.38 | — | — | 0.01 | SU | Y | H | NQ | 2013-267 | CAMO-13-24256 | GELC |
| MCOI-6 | 686 | 08/17/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.33 | — | — | 0.01 | SU | Y | H | NQ | 12-1509 | CAMO-12-21742 | GELC |
| MCOI-6 | 686 | 06/04/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.26 | — | — | 0.01 | SU | Y | H | NQ | 12-1339 | CAMO-12-14021 | GELC |
| MCOI-6 | 686 | 05/08/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 94.9 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-823 | CAMO-13-30589 | GELC |
| MCOI-6 | 686 | 02/05/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 97.8 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-511 | CAMO-13-28415 | GELC |
| MCOI-6 | 686 | 11/02/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 96 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-267 | CAMO-13-24256 | GELC |
| MCOI-6 | 686 | 08/17/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 97 | — | — | 0.725 | mg/L | Y | — | NQ | 12-1509 | CAMO-12-21742 | GELC |
| MCOI-6 | 686 | 06/04/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 98.4 | — | — | 0.725 | mg/L | Y | — | NQ | 12-1339 | CAMO-12-14021 | GELC |
| MCOI-6 | 686 | 05/08/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 41.1 | — | — | 1 | µg/L | Y | — | NQ | 2013-823 | CAMO-13-30589 | GELC |
| MCOI-6 | 686 | 02/05/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 43.4 | — | — | 1 | µg/L | Y | — | NQ | 2013-511 | CAMO-13-28415 | GELC |
| MCOI-6 | 686 | 11/02/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 46.9 | — | — | 1 | µg/L | Y | — | NQ | 2013-267 | CAMO-13-24256 | GELC |
| MCOI-6 | 686 | 08/17/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 44.8 | — | — | 1 | µg/L | Y | — | NQ | 12-1509 | CAMO-12-21742 | GELC |
| MCOI-6 | 686 | 06/04/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 45.9 | — | — | 1 | µg/L | Y | — | NQ | 12-1339 | CAMO-12-14021 | GELC |
| MCOI-6 | 686 | 05/08/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 42.3 | — | — | 15 | µg/L | Y | J | J | 2013-823 | CAMO-13-30589 | GELC |
| MCOI-6 | 686 | 02/05/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 50 | — | — | 15 | µg/L | Y | — | NQ | 2013-511 | CAMO-13-28415 | GELC |
| MCOI-6 | 686 | 11/02/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 50.4 | — | — | 15 | µg/L | Y | — | NQ | 2013-267 | CAMO-13-24256 | GELC |
| MCOI-6 | 686 | 08/17/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 50.8 | — | — | 15 | µg/L | Y | — | NQ | 12-1509 | CAMO-12-21742 | GELC |
| MCOI-6 | 686 | 06/04/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 49.9 | — | — | 15 | µg/L | Y | J | J | 12-1339 | CAMO-12-14021 | GELC |
| MCOI-6 | 686 | 05/08/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.587 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-823 | CAMO-13-30589 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCOI-6 | 686 | 02/05/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.604 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-511 | CAMO-13-28415 | GELC |
| MCOI-6 | 686 | 11/02/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.702 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-267 | CAMO-13-24256 | GELC |
| MCOI-6 | 686 | 08/17/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.633 | — | — | 0.067 | mg/L | Y | — | NQ | 12-1509 | CAMO-12-21742 | GELC |
| MCOI-6 | 686 | 06/04/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.646 | — | — | 0.067 | mg/L | Y | — | NQ | 12-1339 | CAMO-12-14021 | GELC |
| MCOI-6 | 686 | 05/08/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 63.9 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-823 | CAMO-13-30589 | GELC |
| MCOI-6 | 686 | 02/05/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 67.9 | — | — | 0.05 | mg/L | Y | — | J- | 2013-511 | CAMO-13-28415 | GELC |
| MCOI-6 | 686 | 11/02/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 71.6 | — | — | 0.05 | mg/L | Y | — | J- | 2013-267 | CAMO-13-24256 | GELC |
| MCOI-6 | 686 | 08/17/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 67 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1509 | CAMO-12-21742 | GELC |
| MCOI-6 | 686 | 06/04/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 67.8 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1339 | CAMO-12-14021 | GELC |
| MCOI-6 | 686 | 05/08/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 58.2 | — | — | 0.67 | mg/L | Y | — | NQ | 2013-823 | CAMO-13-30589 | GELC |
| MCOI-6 | 686 | 02/05/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 60.1 | — | — | 0.335 | mg/L | Y | — | NQ | 2013-511 | CAMO-13-28415 | GELC |
| MCOI-6 | 686 | 11/02/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 58.6 | — | — | 0.67 | mg/L | Y | — | NQ | 2013-267 | CAMO-13-24256 | GELC |
| MCOI-6 | 686 | 08/17/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 54.8 | — | — | 0.67 | mg/L | Y | — | NQ | 12-1509 | CAMO-12-21742 | GELC |
| MCOI-6 | 686 | 06/04/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 60.3 | — | — | 0.67 | mg/L | Y | — | NQ | 12-1339 | CAMO-12-14021 | GELC |
| MCOI-6 | 686 | 05/08/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 73.2 | — | — | 2 | µg/L | Y | — | NQ | 2013-823 | CAMO-13-30589 | GELC |
| MCOI-6 | 686 | 02/05/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 66.1 | — | — | 2 | µg/L | Y | — | NQ | 2013-511 | CAMO-13-28415 | GELC |
| MCOI-6 | 686 | 11/02/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 61.6 | — | — | 2 | µg/L | Y | — | NQ | 2013-267 | CAMO-13-24256 | GELC |
| MCOI-6 | 686 | 08/17/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 64.6 | — | — | 2 | µg/L | Y | — | NQ | 12-1509 | CAMO-12-21742 | GELC |
| MCOI-6 | 686 | 06/04/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 58.4 | — | — | 2 | µg/L | Y | — | NQ | 12-1339 | CAMO-12-14021 | GELC |
| MCOI-6 | 686 | 05/08/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Copper | Cu | Y | 6.12 | — | — | 3 | µg/L | Y | J | J | 2013-823 | CAMO-13-30589 | GELC |
| MCOI-6 | 686 | 02/05/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Copper | Cu | Y | 7.18 | — | — | 3 | µg/L | Y | J | J | 2013-511 | CAMO-13-28415 | GELC |
| MCOI-6 | 686 | 11/02/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Copper | Cu | Y | 13.1 | — | — | 3 | µg/L | Y | — | NQ | 2013-267 | CAMO-13-24256 | GELC |
| MCOI-6 | 686 | 08/17/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Copper | Cu | Y | 5.52 | — | — | 3 | µg/L | Y | J | J | 12-1509 | CAMO-12-21742 | GELC |
| MCOI-6 | 686 | 06/04/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Copper | Cu | Y | 12.1 | — | — | 3 | µg/L | Y | — | NQ | 12-1339 | CAMO-12-14021 | GELC |
| MCOI-6 | 686 | 05/08/13 | WG | UF | INIT | REG | SVOC | SW-846:8270C | Dioxane[1,4-] | 123-91-1 | Y | 7.57 | — | — | 3.16 | µg/L | Y | J | J | 2013-823 | CAMO-13-30573 | GELC |
| MCOI-6 | 686 | 11/02/12 | WG | UF | INIT | REG | SVOC | SW-846:8270C | Dioxane[1,4-] | 123-91-1 | Y | 9.69 | — | — | 3.06 | µg/L | Y | J | J | 2013-267 | CAMO-13-24239 | GELC |
| MCOI-6 | 686 | 06/04/12 | WG | UF | INIT | REG | SVOC | SW-846:8270C | Dioxane[1,4-] | 123-91-1 | Y | 9.26 | — | — | 3.13 | µg/L | N | J | J | 12-1340 | CAMO-12-14071 | GELC |
| MCOI-6 | 686 | 06/04/12 | WG | UF | RE | REG | SVOC | SW-846:8270C | Dioxane[1,4-] | 123-91-1 | Y | 11.2 | — | — | 3.13 | µg/L | Y | — | NQ | 12-1340 | CAMO-12-14071 | GELC |
| MCOI-6 | 686 | 11/09/11 | WG | UF | INIT | REG | SVOC | SW-846:8270C | Dioxane[1,4-] | 123-91-1 | Y | 12.1 | — | — | 3.1 | µg/L | Y | — | NQ | 12-313 | CAMO-12-1468 | GELC |
| MCOI-6 | 686 | 11/09/11 | WG | UF | INIT | FD | SVOC | SW-846:8270C | Dioxane[1,4-] | 123-91-1 | Y | 12.1 | — | — | 3.2 | µg/L | Y | — | NQ | 12-313 | CAMO-12-1471 | GELC |
| MCOI-6 | 686 | 05/31/11 | WG | UF | INIT | REG | SVOC | SW-846:8270C | Dioxane[1,4-] | 123-91-1 | Y | 9.83 | — | — | 2 | µg/L | N | J | J- | 11-2587 | CAMO-11-10700 | GELC |
| MCOI-6 | 686 | 05/31/11 | WG | UF | RE | REG | SVOC | SW-846:8270C | Dioxane[1,4-] | 123-91-1 | Y | 10.8 | — | — | 2.2 | µg/L | Y | J | J | 11-2587 | CAMO-11-10700 | GELC |
| MCOI-6 | 686 | 05/08/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.475 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-823 | CAMO-13-30589 | GELC |
| MCOI-6 | 686 | 02/05/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.499 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-511 | CAMO-13-28415 | GELC |
| MCOI-6 | 686 | 11/02/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.563 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-267 | CAMO-13-24256 | GELC |
| MCOI-6 | 686 | 08/17/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.503 | — | — | 0.033 | mg/L | Y | — | NQ | 12-1509 | CAMO-12-21742 | GELC |
| MCOI-6 | 686 | 06/04/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.558 | — | — | 0.033 | mg/L | Y | — | NQ | 12-1339 | CAMO-12-14021 | GELC |
| MCOI-6 | 686 | 05/08/13 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 213 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-823 | CAMO-13-30589 | GELC |
| MCOI-6 | 686 | 02/05/13 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 228 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-511 | CAMO-13-28415 | GELC |
| MCOI-6 | 686 | 11/02/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 240 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-267 | CAMO-13-24256 | GELC |
| MCOI-6 | 686 | 08/17/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 223 | — | — | 0.453 | mg/L | Y | — | NQ | 12-1509 | CAMO-12-21742 | GELC |
| MCOI-6 | 686 | 06/04/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 228 | — | — | 0.453 | mg/L | Y | — | NQ | 12-1339 | CAMO-12-14021 | GELC |
| MCOI-6 | 686 | 05/08/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 13 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-823 | CAMO-13-30589 | GELC |
| MCOI-6 | 686 | 02/05/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 14.2 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-511 | CAMO-13-28415 | GELC |
| MCOI-6 | 686 | 11/02/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 15 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-267 | CAMO-13-24256 | GELC |
| MCOI-6 | 686 | 08/17/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 13.5 | — | — | 0.11 | mg/L | Y | — | NQ | 12-1509 | CAMO-12-21742 | GELC |
| MCOI-6 | 686 | 06/04/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 14.3 | — | — | 0.11 | mg/L | Y | — | NQ | 12-1339 | CAMO-12-14021 | GELC |
| MCOI-6 | 686 | 05/08/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Manganese | Mn | Y | 2.92 | — | — | 2 | µg/L | Y | J | J | 2013-823 | CAMO-13-30589 | GELC |
| MCOI-6 | 686 | 02/05/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Manganese | Mn | Y | 3.08 | — | — | 2 | µg/L | Y | J | J | 2013-511 | CAMO-13-28415 | GELC |
| MCOI-6 | 686 | 11/02/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Manganese | Mn | Y | 3.88 | — | — | 2 | µg/L | Y | J | J | 2013-267 | CAMO-13-24256 | GELC |
| MCOI-6 | 686 | 08/17/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Manganese | Mn | Y | 3.59 | — | — | 2 | µg/L | Y | J | J | 12-1509 | CAMO-12-21742 | GELC |
| MCOI-6 | 686 | 06/04/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Manganese | Mn | Y | 5.63 | — | — | 2 | µg/L | Y | J | J | 12-1339 | CAMO-12-14021 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCOI-6 | 686 | 05/08/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.45 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-823 | CAMO-13-30589 | GELC |
| MCOI-6 | 686 | 02/05/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.49 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-511 | CAMO-13-28415 | GELC |
| MCOI-6 | 686 | 11/02/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.55 | — | — | 0.165 | µg/L | Y | — | J | 2013-267 | CAMO-13-24256 | GELC |
| MCOI-6 | 686 | 08/17/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.44 | — | — | 0.165 | µg/L | Y | — | NQ | 12-1509 | CAMO-12-21742 | GELC |
| MCOI-6 | 686 | 06/04/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.69 | — | — | 0.165 | µg/L | Y | — | NQ | 12-1339 | CAMO-12-14021 | GELC |
| MCOI-6 | 686 | 05/08/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 41.3 | — | — | 0.5 | µg/L | Y | N | J+ | 2013-823 | CAMO-13-30589 | GELC |
| MCOI-6 | 686 | 02/05/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 36.5 | — | — | 0.5 | µg/L | Y | — | NQ | 2013-511 | CAMO-13-28415 | GELC |
| MCOI-6 | 686 | 11/02/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 38.1 | — | — | 0.5 | µg/L | Y | — | NQ | 2013-267 | CAMO-13-24256 | GELC |
| MCOI-6 | 686 | 08/17/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 40.1 | — | — | 0.5 | µg/L | Y | — | NQ | 12-1509 | CAMO-12-21742 | GELC |
| MCOI-6 | 686 | 06/04/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 40.8 | — | — | 0.5 | µg/L | Y | — | NQ | 12-1339 | CAMO-12-14021 | GELC |
| MCOI-6 | 686 | 05/08/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 8.19 | — | — | 0.17 | mg/L | Y | — | NQ | 2013-823 | CAMO-13-30589 | GELC |
| MCOI-6 | 686 | 02/05/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 7.62 | — | — | 0.17 | mg/L | Y | — | NQ | 2013-511 | CAMO-13-28415 | GELC |
| MCOI-6 | 686 | 11/02/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 8.5 | — | — | 0.425 | mg/L | Y | — | NQ | 2013-267 | CAMO-13-24256 | GELC |
| MCOI-6 | 686 | 08/17/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 7.96 | — | — | 0.17 | mg/L | Y | — | NQ | 12-1509 | CAMO-12-21742 | GELC |
| MCOI-6 | 686 | 06/04/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 8.33 | — | — | 0.17 | mg/L | Y | — | NQ | 12-1339 | CAMO-12-14021 | GELC |
| MCOI-6 | 686 | 05/08/13 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 63.3 | — | — | 5 | µg/L | Y | — | NQ | 2013-823 | CAMO-13-30589 | GELC |
| MCOI-6 | 686 | 02/05/13 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 56.3 | — | — | 5 | µg/L | Y | — | NQ | 2013-511 | CAMO-13-28415 | GELC |
| MCOI-6 | 686 | 11/02/12 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 63.5 | — | — | 5 | µg/L | Y | — | NQ | 2013-267 | CAMO-13-24256 | GELC |
| MCOI-6 | 686 | 08/17/12 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 60.6 | — | — | 5 | µg/L | Y | — | NQ | 12-1509 | CAMO-12-21742 | GELC |
| MCOI-6 | 686 | 06/04/12 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 59.4 | — | — | 5 | µg/L | Y | — | NQ | 12-1339 | CAMO-12-14021 | GELC |
| MCOI-6 | 686 | 05/08/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 0.881 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-823 | CAMO-13-30589 | GELC |
| MCOI-6 | 686 | 02/05/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 0.906 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-511 | CAMO-13-28415 | GELC |
| MCOI-6 | 686 | 11/02/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.06 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-267 | CAMO-13-24256 | GELC |
| MCOI-6 | 686 | 08/17/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 0.882 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1509 | CAMO-12-21742 | GELC |
| MCOI-6 | 686 | 06/04/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 0.908 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1339 | CAMO-12-14021 | GELC |
| MCOI-6 | 686 | 05/08/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 65.3 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-823 | CAMO-13-30589 | GELC |
| MCOI-6 | 686 | 02/05/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 69.2 | — | — | 0.053 | mg/L | Y | — | J- | 2013-511 | CAMO-13-28415 | GELC |
| MCOI-6 | 686 | 11/02/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 74.9 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-267 | CAMO-13-24256 | GELC |
| MCOI-6 | 686 | 08/17/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 64.9 | — | — | 0.053 | mg/L | Y | — | NQ | 12-1509 | CAMO-12-21742 | GELC |
| MCOI-6 | 686 | 06/04/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 71.1 | — | — | 0.053 | mg/L | Y | — | NQ | 12-1339 | CAMO-12-14021 | GELC |
| MCOI-6 | 686 | 05/08/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 25.5 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-823 | CAMO-13-30589 | GELC |
| MCOI-6 | 686 | 02/05/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 27.8 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-511 | CAMO-13-28415 | GELC |
| MCOI-6 | 686 | 11/02/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 28.8 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-267 | CAMO-13-24256 | GELC |
| MCOI-6 | 686 | 08/17/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 27.4 | — | — | 0.1 | mg/L | Y | — | NQ | 12-1509 | CAMO-12-21742 | GELC |
| MCOI-6 | 686 | 06/04/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 26.1 | — | — | 0.1 | mg/L | Y | — | NQ | 12-1339 | CAMO-12-14021 | GELC |
| MCOI-6 | 686 | 05/08/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 611 | — | — | 1 | µS/cm | Y | — | NQ | 2013-823 | CAMO-13-30589 | GELC |
| MCOI-6 | 686 | 02/05/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 579 | — | — | 1 | µS/cm | Y | — | NQ | 2013-511 | CAMO-13-28415 | GELC |
| MCOI-6 | 686 | 11/02/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 591 | — | — | 1 | µS/cm | Y | — | NQ | 2013-267 | CAMO-13-24256 | GELC |
| MCOI-6 | 686 | 08/17/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 600 | — | — | 1 | µS/cm | Y | — | NQ | 12-1509 | CAMO-12-21742 | GELC |
| MCOI-6 | 686 | 06/04/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 601 | — | — | 1 | µS/cm | Y | — | NQ | 12-1339 | CAMO-12-14021 | GELC |
| MCOI-6 | 686 | 05/08/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 305 | — | — | 1 | µg/L | Y | — | NQ | 2013-823 | CAMO-13-30589 | GELC |
| MCOI-6 | 686 | 02/05/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 312 | — | — | 1 | µg/L | Y | — | NQ | 2013-511 | CAMO-13-28415 | GELC |
| MCOI-6 | 686 | 11/02/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 325 | — | — | 1 | µg/L | Y | — | NQ | 2013-267 | CAMO-13-24256 | GELC |
| MCOI-6 | 686 | 08/17/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 322 | — | — | 1 | µg/L | Y | — | NQ | 12-1509 | CAMO-12-21742 | GELC |
| MCOI-6 | 686 | 06/04/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 315 | — | — | 1 | µg/L | Y | — | NQ | 12-1339 | CAMO-12-14021 | GELC |
| MCOI-6 | 686 | 05/08/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 61 | — | — | 1.33 | mg/L | Y | — | NQ | 2013-823 | CAMO-13-30589 | GELC |
| MCOI-6 | 686 | 02/05/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 62.6 | — | — | 0.665 | mg/L | Y | — | NQ | 2013-511 | CAMO-13-28415 | GELC |
| MCOI-6 | 686 | 11/02/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 66.1 | — | — | 1.33 | mg/L | Y | — | NQ | 2013-267 | CAMO-13-24256 | GELC |
| MCOI-6 | 686 | 08/17/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 60.6 | — | — | 1.33 | mg/L | Y | — | NQ | 12-1509 | CAMO-12-21742 | GELC |
| MCOI-6 | 686 | 06/04/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 66.8 | — | — | 1.33 | mg/L | Y | — | NQ | 12-1339 | CAMO-12-14021 | GELC |
| MCOI-6 | 686 | 05/08/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 404 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-823 | CAMO-13-30589 | GELC |
| MCOI-6 | 686 | 02/05/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 417 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-511 | CAMO-13-28415 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCOI-6 | 686 | 11/02/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 390 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-267 | CAMO-13-24256 | GELC |
| MCOI-6 | 686 | 08/17/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 419 | — | — | 3.4 | mg/L | Y | — | J | 12-1509 | CAMO-12-21742 | GELC |
| MCOI-6 | 686 | 06/04/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 420 | — | — | 3.4 | mg/L | Y | — | NQ | 12-1339 | CAMO-12-14021 | GELC |
| MCOI-6 | 686 | 05/08/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | EPA:351.2 | Total Kjeldahl Nitrogen | TKN | Y | 0.116 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-823 | CAMO-13-30573 | GELC |
| MCOI-6 | 686 | 02/05/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | EPA:351.2 | Total Kjeldahl Nitrogen | TKN | N | 0.0797 | — | — | 0.033 | mg/L | Y | J | U | 2013-511 | CAMO-13-28407 | GELC |
| MCOI-6 | 686 | 11/02/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | EPA:351.2 | Total Kjeldahl Nitrogen | TKN | Y | 0.163 | — | — | 0.035 | mg/L | Y | — | J- | 2013-267 | CAMO-13-24239 | GELC |
| MCOI-6 | 686 | 08/17/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | EPA:351.2 | Total Kjeldahl Nitrogen | TKN | Y | 0.0945 | — | — | 0.035 | mg/L | Y | J | J- | 12-1509 | CAMO-12-21734 | GELC |
| MCOI-6 | 686 | 06/04/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | EPA:351.2 | Total Kjeldahl Nitrogen | TKN | Y | 0.146 | — | — | 0.035 | mg/L | Y | — | NQ | 12-1339 | CAMO-12-14006 | GELC |
| MCOI-6 | 686 | 05/08/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 1.31 | — | — | 0.33 | mg/L | Y | — | NQ | 2013-823 | CAMO-13-30573 | GELC |
| MCOI-6 | 686 | 02/05/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 1.21 | — | — | 0.33 | mg/L | Y | — | NQ | 2013-511 | CAMO-13-28407 | GELC |
| MCOI-6 | 686 | 11/02/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | N | 1.09 | — | — | 0.33 | mg/L | Y | — | U | 2013-267 | CAMO-13-24239 | GELC |
| MCOI-6 | 686 | 08/17/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 1.29 | — | — | 0.33 | mg/L | Y | — | NQ | 12-1509 | CAMO-12-21734 | GELC |
| MCOI-6 | 686 | 06/04/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 1.6 | — | — | 0.33 | mg/L | Y | — | NQ | 12-1339 | CAMO-12-14006 | GELC |
| MCOI-6 | 686 | 05/08/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 0.371 | — | — | 0.017 | mg/L | Y | — | NQ | 2013-823 | CAMO-13-30589 | GELC |
| MCOI-6 | 686 | 02/05/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | N | 0.0785 | — | — | 0.017 | mg/L | Y | — | U | 2013-511 | CAMO-13-28415 | GELC |
| MCOI-6 | 686 | 11/02/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 0.0976 | — | — | 0.017 | mg/L | Y | — | NQ | 2013-267 | CAMO-13-24256 | GELC |
| MCOI-6 | 686 | 08/17/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | N | 0.0859 | — | — | 0.017 | mg/L | Y | — | U | 12-1509 | CAMO-12-21742 | GELC |
| MCOI-6 | 686 | 06/04/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 0.0634 | — | — | 0.017 | mg/L | Y | — | NQ | 12-1339 | CAMO-12-14021 | GELC |
| MCOI-6 | 686 | 05/08/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 1.27 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-823 | CAMO-13-30589 | GELC |
| MCOI-6 | 686 | 02/05/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 1.18 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-511 | CAMO-13-28415 | GELC |
| MCOI-6 | 686 | 11/02/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 1.26 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-267 | CAMO-13-24256 | GELC |
| MCOI-6 | 686 | 08/17/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 1.31 | — | — | 0.067 | µg/L | Y | — | NQ | 12-1509 | CAMO-12-21742 | GELC |
| MCOI-6 | 686 | 06/04/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 1.41 | — | — | 0.067 | µg/L | Y | — | NQ | 12-1339 | CAMO-12-14021 | GELC |
| MCOI-6 | 686 | 05/08/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 15.9 | — | — | 3.3 | µg/L | Y | — | NQ | 2013-823 | CAMO-13-30589 | GELC |
| MCOI-6 | 686 | 02/05/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 17.9 | — | — | 3.3 | µg/L | Y | — | NQ | 2013-511 | CAMO-13-28415 | GELC |
| MCOI-6 | 686 | 11/02/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 24.8 | — | — | 3.3 | µg/L | Y | — | NQ | 2013-267 | CAMO-13-24256 | GELC |
| MCOI-6 | 686 | 08/17/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 30.2 | — | — | 3.3 | µg/L | Y | — | NQ | 12-1509 | CAMO-12-21742 | GELC |
| MCOI-6 | 686 | 06/04/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 33.4 | — | — | 3.3 | µg/L | Y | — | NQ | 12-1339 | CAMO-12-14021 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.98 | — | — | 0.01 | SU | Y | H | NQ | 2013-840 | CASA-13-30550 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.98 | — | — | 0.01 | SU | Y | H | NQ | 2013-840 | CASA-13-30541 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.05 | — | — | 0.01 | SU | Y | H | NQ | 2013-507 | CASA-13-28361 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.05 | — | — | 0.01 | SU | Y | H | NQ | 2013-507 | CASA-13-28356 | GELC |
| R-11 | 855 | 11/05/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.09 | — | — | 0.01 | SU | Y | H | NQ | 2013-270 | CASA-13-24217 | GELC |
| R-11 | 855 | 08/17/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.11 | — | — | 0.01 | SU | Y | H | NQ | 12-1508 | CASA-12-21647 | GELC |
| R-11 | 855 | 05/21/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.98 | — | — | 0.01 | SU | Y | H | NQ | 12-1311 | CASA-12-14062 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 68 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-840 | CASA-13-30550 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 68 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-840 | CASA-13-30541 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 71.1 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-507 | CASA-13-28361 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 70 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-507 | CASA-13-28356 | GELC |
| R-11 | 855 | 11/05/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 69.2 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-270 | CASA-13-24217 | GELC |
| R-11 | 855 | 08/17/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 69.7 | — | — | 0.725 | mg/L | Y | — | NQ | 12-1508 | CASA-12-21647 | GELC |
| R-11 | 855 | 05/21/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 70.4 | — | — | 0.725 | mg/L | Y | — | NQ | 12-1311 | CASA-12-14062 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 43.9 | — | — | 1 | µg/L | Y | — | NQ | 2013-840 | CASA-13-30550 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Barium | Ba | Y | 43.2 | — | — | 1 | µg/L | Y | — | NQ | 2013-840 | CASA-13-30541 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 40.9 | — | — | 1 | µg/L | Y | — | NQ | 2013-507 | CASA-13-28361 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Barium | Ba | Y | 39.7 | — | — | 1 | µg/L | Y | — | NQ | 2013-507 | CASA-13-28356 | GELC |
| R-11 | 855 | 11/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 40.4 | — | — | 1 | µg/L | Y | — | NQ | 2013-270 | CASA-13-24217 | GELC |
| R-11 | 855 | 08/17/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 39.8 | — | — | 1 | µg/L | Y | — | NQ | 12-1508 | CASA-12-21647 | GELC |
| R-11 | 855 | 05/21/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 36.9 | — | — | 1 | µg/L | Y | — | NQ | 12-1311 | CASA-12-14062 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 19.6 | — | — | 15 | µg/L | Y | J | J | 2013-840 | CASA-13-30550 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Boron | B | Y | 19 | — | — | 15 | µg/L | Y | J | J | 2013-840 | CASA-13-30541 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 28.1 | — | — | 15 | µg/L | Y | J | J | 2013-507 | CASA-13-28361 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-11 | 855 | 02/04/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Boron | B | Y | 26.7 | — | — | 15 | µg/L | Y | J | J | 2013-507 | CASA-13-28356 | GELC |
| R-11 | 855 | 11/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 28.3 | — | — | 15 | µg/L | Y | J | J | 2013-270 | CASA-13-24217 | GELC |
| R-11 | 855 | 08/17/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 28.9 | — | — | 15 | µg/L | Y | J | J | 12-1508 | CASA-12-21647 | GELC |
| R-11 | 855 | 05/21/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 28.7 | — | — | 15 | µg/L | Y | J | J | 12-1311 | CASA-12-14062 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.102 | — | — | 0.067 | mg/L | Y | J | J | 2013-840 | CASA-13-30550 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.0967 | — | — | 0.067 | mg/L | Y | J | J | 2013-840 | CASA-13-30541 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | N | 0.2 | — | — | 0.067 | mg/L | Y | U | U | 2013-507 | CASA-13-28361 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | N | 0.2 | — | — | 0.067 | mg/L | Y | U | U | 2013-507 | CASA-13-28356 | GELC |
| R-11 | 855 | 11/05/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.126 | — | — | 0.067 | mg/L | Y | J | J | 2013-270 | CASA-13-24217 | GELC |
| R-11 | 855 | 08/17/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.0882 | — | — | 0.067 | mg/L | Y | J | J | 12-1508 | CASA-12-21647 | GELC |
| R-11 | 855 | 05/21/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | N | 0.2 | — | — | 0.067 | mg/L | Y | U | U | 12-1311 | CASA-12-14062 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 24.6 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-840 | CASA-13-30550 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 24.1 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-840 | CASA-13-30541 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 23.3 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-507 | CASA-13-28361 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 22.9 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-507 | CASA-13-28356 | GELC |
| R-11 | 855 | 11/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 24.4 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-270 | CASA-13-24217 | GELC |
| R-11 | 855 | 08/17/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 22.7 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1508 | CASA-12-21647 | GELC |
| R-11 | 855 | 05/21/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 21.7 | — | — | 0.05 | mg/L | Y | — | J+ | 12-1311 | CASA-12-14062 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 6.31 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-840 | CASA-13-30550 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 6.59 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-840 | CASA-13-30541 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 5.37 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-507 | CASA-13-28361 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 5.49 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-507 | CASA-13-28356 | GELC |
| R-11 | 855 | 11/05/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 5.26 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-270 | CASA-13-24217 | GELC |
| R-11 | 855 | 08/17/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 4.83 | — | — | 0.067 | mg/L | Y | — | NQ | 12-1508 | CASA-12-21647 | GELC |
| R-11 | 855 | 05/21/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 4.94 | — | — | 0.067 | mg/L | Y | — | NQ | 12-1311 | CASA-12-14062 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 31.9 | — | — | 2 | µg/L | Y | — | NQ | 2013-840 | CASA-13-30550 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 31.5 | — | — | 2 | µg/L | Y | — | NQ | 2013-840 | CASA-13-30541 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 28.6 | — | — | 2 | µg/L | Y | — | NQ | 2013-507 | CASA-13-28361 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 26.8 | — | — | 2 | µg/L | Y | — | NQ | 2013-507 | CASA-13-28356 | GELC |
| R-11 | 855 | 11/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 23.7 | — | — | 2 | µg/L | Y | — | NQ | 2013-270 | CASA-13-24217 | GELC |
| R-11 | 855 | 08/17/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 20.3 | — | — | 2 | µg/L | Y | — | NQ | 12-1508 | CASA-12-21647 | GELC |
| R-11 | 855 | 05/21/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 20.5 | — | — | 2 | µg/L | Y | — | NQ | 12-1311 | CASA-12-14062 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Copper | Cu | Y | 34.9 | — | — | 3 | µg/L | Y | — | NQ | 2013-840 | CASA-13-30550 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Copper | Cu | N | 10 | — | — | 3 | µg/L | Y | U | U | 2013-840 | CASA-13-30541 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Copper | Cu | N | 10 | — | — | 3 | µg/L | Y | U | U | 2013-507 | CASA-13-28361 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Copper | Cu | N | 10 | — | — | 3 | µg/L | Y | U | U | 2013-507 | CASA-13-28356 | GELC |
| R-11 | 855 | 11/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Copper | Cu | Y | 3.05 | — | — | 3 | µg/L | Y | J | J | 2013-270 | CASA-13-24217 | GELC |
| R-11 | 855 | 08/17/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Copper | Cu | N | 10 | — | — | 3 | µg/L | Y | U | U | 12-1508 | CASA-12-21647 | GELC |
| R-11 | 855 | 05/21/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Copper | Cu | N | 10 | — | — | 3 | µg/L | Y | U | U | 12-1311 | CASA-12-14062 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.418 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-840 | CASA-13-30550 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.45 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-840 | CASA-13-30541 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.357 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-507 | CASA-13-28361 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.356 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-507 | CASA-13-28356 | GELC |
| R-11 | 855 | 11/05/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.421 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-270 | CASA-13-24217 | GELC |
| R-11 | 855 | 08/17/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.378 | — | — | 0.033 | mg/L | Y | — | NQ | 12-1508 | CASA-12-21647 | GELC |
| R-11 | 855 | 05/21/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.411 | — | — | 0.033 | mg/L | Y | — | NQ | 12-1311 | CASA-12-14062 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 89 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-840 | CASA-13-30550 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | FD | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 86.5 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-840 | CASA-13-30541 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 85.3 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-507 | CASA-13-28361 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | FD | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 83.8 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-507 | CASA-13-28356 | GELC |
| R-11 | 855 | 11/05/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 88.9 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-270 | CASA-13-24217 | GELC |
| R-11 | 855 | 08/17/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 81.8 | — | — | 0.453 | mg/L | Y | — | NQ | 12-1508 | CASA-12-21647 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-11 | 855 | 05/21/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 79 | — | — | 0.453 | mg/L | Y | — | NQ | 12-1311 | CASA-12-14062 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 6.7 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-840 | CASA-13-30550 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 6.4 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-840 | CASA-13-30541 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 6.6 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-507 | CASA-13-28361 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 6.44 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-507 | CASA-13-28356 | GELC |
| R-11 | 855 | 11/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 6.77 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-270 | CASA-13-24217 | GELC |
| R-11 | 855 | 08/17/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 6.08 | — | — | 0.11 | mg/L | Y | — | NQ | 12-1508 | CASA-12-21647 | GELC |
| R-11 | 855 | 05/21/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 6.05 | — | — | 0.11 | mg/L | Y | — | NQ | 12-1311 | CASA-12-14062 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.55 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-840 | CASA-13-30550 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.43 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-840 | CASA-13-30541 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.52 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-507 | CASA-13-28361 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.45 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-507 | CASA-13-28356 | GELC |
| R-11 | 855 | 11/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.51 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-270 | CASA-13-24217 | GELC |
| R-11 | 855 | 08/17/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.46 | — | — | 0.165 | µg/L | Y | — | NQ | 12-1508 | CASA-12-21647 | GELC |
| R-11 | 855 | 05/21/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.56 | — | — | 0.165 | µg/L | Y | — | NQ | 12-1311 | CASA-12-14062 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 1.1 | — | — | 0.5 | µg/L | Y | J | J | 2013-840 | CASA-13-30550 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 1.08 | — | — | 0.5 | µg/L | Y | J | J | 2013-840 | CASA-13-30541 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 1.38 | — | — | 0.5 | µg/L | Y | J | J | 2013-507 | CASA-13-28361 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 1.34 | — | — | 0.5 | µg/L | Y | J | J | 2013-507 | CASA-13-28356 | GELC |
| R-11 | 855 | 11/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 0.619 | — | — | 0.5 | µg/L | Y | J | J | 2013-270 | CASA-13-24217 | GELC |
| R-11 | 855 | 08/17/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 0.617 | — | — | 0.5 | µg/L | Y | J | J | 12-1508 | CASA-12-21647 | GELC |
| R-11 | 855 | 05/21/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 0.709 | — | — | 0.5 | µg/L | Y | J | J | 12-1311 | CASA-12-14062 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 5.15 | — | — | 0.085 | mg/L | Y | — | NQ | 2013-840 | CASA-13-30550 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 5.05 | — | — | 0.085 | mg/L | Y | — | NQ | 2013-840 | CASA-13-30541 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 5.56 | — | — | 0.17 | mg/L | Y | — | NQ | 2013-507 | CASA-13-28361 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 5.49 | — | — | 0.17 | mg/L | Y | — | NQ | 2013-507 | CASA-13-28356 | GELC |
| R-11 | 855 | 11/05/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 5.93 | — | — | 0.425 | mg/L | Y | — | NQ | 2013-270 | CASA-13-24217 | GELC |
| R-11 | 855 | 08/17/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 5.26 | — | — | 0.17 | mg/L | Y | — | NQ | 12-1508 | CASA-12-21647 | GELC |
| R-11 | 855 | 05/21/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 5.85 | — | — | 0.17 | mg/L | Y | — | NQ | 12-1311 | CASA-12-14062 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.886 | — | — | 0.05 | µg/L | Y | — | NQ | 2013-840 | CASA-13-30550 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | FD | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.884 | — | — | 0.05 | µg/L | Y | — | NQ | 2013-840 | CASA-13-30541 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.915 | — | — | 0.05 | µg/L | Y | — | NQ | 2013-507 | CASA-13-28361 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | FD | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.935 | — | — | 0.05 | µg/L | Y | — | NQ | 2013-507 | CASA-13-28356 | GELC |
| R-11 | 855 | 11/05/12 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.86 | — | — | 0.05 | µg/L | Y | — | NQ | 2013-270 | CASA-13-24217 | GELC |
| R-11 | 855 | 08/17/12 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.899 | — | — | 0.05 | µg/L | Y | — | NQ | 12-1508 | CASA-12-21647 | GELC |
| R-11 | 855 | 05/21/12 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.92 | — | — | 0.05 | µg/L | Y | — | NQ | 12-1311 | CASA-12-14062 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.78 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-840 | CASA-13-30550 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.63 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-840 | CASA-13-30541 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.53 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-507 | CASA-13-28361 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.55 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-507 | CASA-13-28356 | GELC |
| R-11 | 855 | 11/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.65 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-270 | CASA-13-24217 | GELC |
| R-11 | 855 | 08/17/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.54 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1508 | CASA-12-21647 | GELC |
| R-11 | 855 | 05/21/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.47 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1311 | CASA-12-14062 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Selenium | Se | Y | 2.35 | — | — | 1.5 | µg/L | Y | J | J | 2013-840 | CASA-13-30550 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Selenium | Se | Y | 2.36 | — | — | 1.5 | µg/L | Y | J | J | 2013-840 | CASA-13-30541 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Selenium | Se | Y | 1.86 | — | — | 1.5 | µg/L | Y | J | J | 2013-507 | CASA-13-28361 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Selenium | Se | Y | 1.73 | — | — | 1.5 | µg/L | Y | J | J | 2013-507 | CASA-13-28356 | GELC |
| R-11 | 855 | 11/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Selenium | Se | Y | 1.88 | — | — | 1.5 | µg/L | Y | J | J | 2013-270 | CASA-13-24217 | GELC |
| R-11 | 855 | 08/17/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Selenium | Se | Y | 1.76 | — | — | 1.5 | µg/L | Y | J | J | 12-1508 | CASA-12-21647 | GELC |
| R-11 | 855 | 05/21/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Selenium | Se | Y | 1.66 | — | — | 1.5 | µg/L | Y | J | J | 12-1311 | CASA-12-14062 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 80 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-840 | CASA-13-30550 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 77.6 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-840 | CASA-13-30541 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-11 | 855 | 02/04/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 74 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-507 | CASA-13-28361 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 72.7 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-507 | CASA-13-28356 | GELC |
| R-11 | 855 | 11/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 80.4 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-270 | CASA-13-24217 | GELC |
| R-11 | 855 | 08/17/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 70.8 | — | — | 0.053 | mg/L | Y | — | NQ | 12-1508 | CASA-12-21647 | GELC |
| R-11 | 855 | 05/21/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 72.3 | — | — | 0.053 | mg/L | Y | — | NQ | 12-1311 | CASA-12-14062 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 12.8 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-840 | CASA-13-30550 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Sodium | Na | Y | 12.3 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-840 | CASA-13-30541 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 13 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-507 | CASA-13-28361 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Sodium | Na | Y | 12.8 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-507 | CASA-13-28356 | GELC |
| R-11 | 855 | 11/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 13.5 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-270 | CASA-13-24217 | GELC |
| R-11 | 855 | 08/17/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 12.9 | — | — | 0.1 | mg/L | Y | — | NQ | 12-1508 | CASA-12-21647 | GELC |
| R-11 | 855 | 05/21/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 11.8 | — | — | 0.1 | mg/L | Y | — | NQ | 12-1311 | CASA-12-14062 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 242 | — | — | 1 | µS/cm | Y | — | NQ | 2013-840 | CASA-13-30550 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 241 | — | — | 1 | µS/cm | Y | — | NQ | 2013-840 | CASA-13-30541 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 226 | — | — | 1 | µS/cm | Y | — | NQ | 2013-507 | CASA-13-28361 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 228 | — | — | 1 | µS/cm | Y | — | NQ | 2013-507 | CASA-13-28356 | GELC |
| R-11 | 855 | 11/05/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 234 | — | — | 1 | µS/cm | Y | — | NQ | 2013-270 | CASA-13-24217 | GELC |
| R-11 | 855 | 08/17/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 228 | — | — | 1 | µS/cm | Y | — | NQ | 12-1508 | CASA-12-21647 | GELC |
| R-11 | 855 | 05/21/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 228 | — | — | 1 | µS/cm | Y | — | NQ | 12-1311 | CASA-12-14062 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 99.3 | — | — | 1 | µg/L | Y | — | NQ | 2013-840 | CASA-13-30550 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 97.3 | — | — | 1 | µg/L | Y | — | NQ | 2013-840 | CASA-13-30541 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 93.6 | — | — | 1 | µg/L | Y | — | NQ | 2013-507 | CASA-13-28361 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 92 | — | — | 1 | µg/L | Y | — | NQ | 2013-507 | CASA-13-28356 | GELC |
| R-11 | 855 | 11/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 96.3 | — | — | 1 | µg/L | Y | — | NQ | 2013-270 | CASA-13-24217 | GELC |
| R-11 | 855 | 08/17/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 96.6 | — | — | 1 | µg/L | Y | — | NQ | 12-1508 | CASA-12-21647 | GELC |
| R-11 | 855 | 05/21/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 87.5 | — | — | 1 | µg/L | Y | — | NQ | 12-1311 | CASA-12-14062 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 15.4 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-840 | CASA-13-30550 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 15.2 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-840 | CASA-13-30541 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 13.1 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-507 | CASA-13-28361 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 13.5 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-507 | CASA-13-28356 | GELC |
| R-11 | 855 | 11/05/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 13.4 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-270 | CASA-13-24217 | GELC |
| R-11 | 855 | 08/17/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 12 | — | — | 0.133 | mg/L | Y | — | NQ | 12-1508 | CASA-12-21647 | GELC |
| R-11 | 855 | 05/21/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 12.2 | — | — | 0.133 | mg/L | Y | — | NQ | 12-1311 | CASA-12-14062 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 177 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-840 | CASA-13-30550 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 204 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-840 | CASA-13-30541 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 187 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-507 | CASA-13-28361 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 194 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-507 | CASA-13-28356 | GELC |
| R-11 | 855 | 11/05/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 214 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-270 | CASA-13-24217 | GELC |
| R-11 | 855 | 08/17/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 177 | — | — | 3.4 | mg/L | Y | — | NQ | 12-1508 | CASA-12-21647 | GELC |
| R-11 | 855 | 05/21/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 210 | — | — | 3.4 | mg/L | Y | — | NQ | 12-1311 | CASA-12-14062 | GELC |
| R-11 | 855 | 05/13/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.612 | — | — | 0.33 | mg/L | Y | J | J | 2013-840 | CASA-13-30542 | GELC |
| R-11 | 855 | 05/13/13 | WG | UF | INIT | FD | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.681 | — | — | 0.33 | mg/L | Y | J | J | 2013-840 | CASA-13-30540 | GELC |
| R-11 | 855 | 02/04/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.984 | — | — | 0.33 | mg/L | Y | J | J | 2013-507 | CASA-13-28357 | GELC |
| R-11 | 855 | 02/04/13 | WG | UF | INIT | FD | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.897 | — | — | 0.33 | mg/L | Y | J | J | 2013-507 | CASA-13-28355 | GELC |
| R-11 | 855 | 11/05/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | N | 1 | — | — | 0.33 | mg/L | Y | U | U | 2013-270 | CASA-13-24209 | GELC |
| R-11 | 855 | 08/17/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.496 | — | — | 0.33 | mg/L | Y | J | J | 12-1508 | CASA-12-21643 | GELC |
| R-11 | 855 | 05/21/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | N | 1 | — | — | 0.33 | mg/L | Y | U | U | 12-1311 | CASA-12-14057 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 0.0492 | — | — | 0.017 | mg/L | Y | J | J | 2013-840 | CASA-13-30550 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | N | 0.05 | — | — | 0.017 | mg/L | Y | U | U | 2013-840 | CASA-13-30541 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | N | 0.0323 | — | — | 0.017 | mg/L | Y | J | U | 2013-507 | CASA-13-28361 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | N | 0.0252 | — | — | 0.017 | mg/L | Y | J | U | 2013-507 | CASA-13-28356 | GELC |
| R-11 | 855 | 11/05/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 0.0308 | — | — | 0.017 | mg/L | Y | J | J | 2013-270 | CASA-13-24217 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-11 | 855 | 08/17/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | N | 0.0349 | — | — | 0.017 | mg/L | Y | J | U | 12-1508 | CASA-12-21647 | GELC |
| R-11 | 855 | 05/21/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 0.0595 | — | — | 0.017 | mg/L | Y | — | NQ | 12-1311 | CASA-12-14062 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.696 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-840 | CASA-13-30550 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.654 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-840 | CASA-13-30541 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.679 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-507 | CASA-13-28361 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.678 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-507 | CASA-13-28356 | GELC |
| R-11 | 855 | 11/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.758 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-270 | CASA-13-24217 | GELC |
| R-11 | 855 | 08/17/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.714 | — | — | 0.067 | µg/L | Y | — | NQ | 12-1508 | CASA-12-21647 | GELC |
| R-11 | 855 | 05/21/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.782 | — | — | 0.067 | µg/L | Y | — | NQ | 12-1311 | CASA-12-14062 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 7.83 | — | — | 1 | µg/L | Y | — | NQ | 2013-840 | CASA-13-30550 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Vanadium | V | Y | 7.75 | — | — | 1 | µg/L | Y | — | NQ | 2013-840 | CASA-13-30541 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 7.32 | — | — | 1 | µg/L | Y | — | NQ | 2013-507 | CASA-13-28361 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Vanadium | V | Y | 7.13 | — | — | 1 | µg/L | Y | — | NQ | 2013-507 | CASA-13-28356 | GELC |
| R-11 | 855 | 11/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 7.53 | — | — | 1 | µg/L | Y | — | NQ | 2013-270 | CASA-13-24217 | GELC |
| R-11 | 855 | 08/17/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 6.54 | — | — | 1 | µg/L | Y | — | NQ | 12-1508 | CASA-12-21647 | GELC |
| R-11 | 855 | 05/21/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 6.38 | — | — | 1 | µg/L | Y | — | NQ | 12-1311 | CASA-12-14062 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 17.2 | — | — | 3.3 | µg/L | Y | — | NQ | 2013-840 | CASA-13-30550 | GELC |
| R-11 | 855 | 05/13/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 9.98 | — | — | 3.3 | µg/L | Y | J | J | 2013-840 | CASA-13-30541 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 6.35 | — | — | 3.3 | µg/L | Y | J | J | 2013-507 | CASA-13-28361 | GELC |
| R-11 | 855 | 02/04/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 6.43 | — | — | 3.3 | µg/L | Y | J | J | 2013-507 | CASA-13-28356 | GELC |
| R-11 | 855 | 11/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 5.94 | — | — | 3.3 | µg/L | Y | J | J | 2013-270 | CASA-13-24217 | GELC |
| R-11 | 855 | 08/17/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 9.79 | — | — | 3.3 | µg/L | Y | J | J | 12-1508 | CASA-12-21647 | GELC |
| R-11 | 855 | 05/21/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | N | 9.94 | — | — | 3.3 | µg/L | Y | J | U | 12-1311 | CASA-12-14062 | GELC |
| R-13 | 958.33 | 05/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.26 | — | — | 0.01 | SU | Y | H | NQ | 2013-808 | CAMO-13-30590 | GELC |
| R-13 | 958.33 | 10/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.06 | — | — | 0.01 | SU | Y | H | NQ | 2013-258 | CAMO-13-24258 | GELC |
| R-13 | 958.33 | 06/05/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.9 | — | — | 0.01 | SU | Y | H | NQ | 12-1344 | CAMO-12-17131 | GELC |
| R-13 | 958.33 | 11/22/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.32 | — | — | 0.01 | SU | Y | H | J- | 12-421 | CAMO-12-1482 | GELC |
| R-13 | 958.33 | 08/01/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.28 | — | — | 0.01 | SU | Y | H | J- | 11-2987 | CAMO-11-24634 | GELC |
| R-13 | 958.33 | 05/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 59.4 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-808 | CAMO-13-30590 | GELC |
| R-13 | 958.33 | 10/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 62.2 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-258 | CAMO-13-24258 | GELC |
| R-13 | 958.33 | 06/05/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 61.7 | — | — | 0.725 | mg/L | Y | — | NQ | 12-1344 | CAMO-12-17131 | GELC |
| R-13 | 958.33 | 11/22/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 59.5 | — | — | 0.73 | mg/L | Y | — | NQ | 12-421 | CAMO-12-1482 | GELC |
| R-13 | 958.33 | 08/01/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 62.2 | — | — | 0.73 | mg/L | Y | — | NQ | 11-2987 | CAMO-11-24634 | GELC |
| R-13 | 958.33 | 05/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | NH3-N | Y | 0.0655 | — | — | 0.017 | mg/L | Y | — | NQ | 2013-808 | CAMO-13-30590 | GELC |
| R-13 | 958.33 | 10/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | NH3-N | Y | 0.031 | — | — | 0.017 | mg/L | Y | J | J | 2013-258 | CAMO-13-24258 | GELC |
| R-13 | 958.33 | 06/05/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | NH3-N | N | 0.05 | — | — | 0.017 | mg/L | Y | U | U | 12-1344 | CAMO-12-17131 | GELC |
| R-13 | 958.33 | 11/22/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | NH3-N | N | 0.05 | — | — | 0.016 | mg/L | Y | U | UJ | 12-421 | CAMO-12-1482 | GELC |
| R-13 | 958.33 | 08/01/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | NH3-N | N | 0.05 | — | — | 0.016 | mg/L | Y | U | U | 11-2987 | CAMO-11-24634 | GELC |
| R-13 | 958.33 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 24.9 | — | — | 1 | µg/L | Y | — | NQ | 2013-808 | CAMO-13-30590 | GELC |
| R-13 | 958.33 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 25.1 | — | — | 1 | µg/L | Y | — | NQ | 2013-258 | CAMO-13-24258 | GELC |
| R-13 | 958.33 | 06/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 26.3 | — | — | 1 | µg/L | Y | — | NQ | 12-1344 | CAMO-12-17131 | GELC |
| R-13 | 958.33 | 11/22/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 25.5 | — | — | 1 | µg/L | Y | — | NQ | 12-421 | CAMO-12-1482 | GELC |
| R-13 | 958.33 | 08/01/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 26 | — | — | 1 | µg/L | Y | — | NQ | 11-2987 | CAMO-11-24634 | GELC |
| R-13 | 958.33 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 13.6 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-808 | CAMO-13-30590 | GELC |
| R-13 | 958.33 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 13.6 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-258 | CAMO-13-24258 | GELC |
| R-13 | 958.33 | 06/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 14.1 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1344 | CAMO-12-17131 | GELC |
| R-13 | 958.33 | 11/22/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 14.4 | — | — | 0.05 | mg/L | Y | — | NQ | 12-421 | CAMO-12-1482 | GELC |
| R-13 | 958.33 | 08/01/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 13.9 | — | — | 0.05 | mg/L | Y | — | NQ | 11-2987 | CAMO-11-24634 | GELC |
| R-13 | 958.33 | 05/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 2.33 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-808 | CAMO-13-30590 | GELC |
| R-13 | 958.33 | 10/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 2.41 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-258 | CAMO-13-24258 | GELC |
| R-13 | 958.33 | 06/05/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 2.39 | — | — | 0.067 | mg/L | Y | — | NQ | 12-1344 | CAMO-12-17131 | GELC |
| R-13 | 958.33 | 11/22/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 2.34 | — | — | 0.066 | mg/L | Y | — | NQ | 12-421 | CAMO-12-1482 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-13 | 958.33 | 08/01/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 2.33 | — | — | 0.066 | mg/L | Y | — | NQ | 11-2987 | CAMO-11-24634 | GELC |
| R-13 | 958.33 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 5.49 | — | — | 2 | µg/L | Y | J | J | 2013-808 | CAMO-13-30590 | GELC |
| R-13 | 958.33 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 4.91 | — | — | 2 | µg/L | Y | J | J | 2013-258 | CAMO-13-24258 | GELC |
| R-13 | 958.33 | 06/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 3.39 | — | — | 2 | µg/L | Y | J | J | 12-1344 | CAMO-12-17131 | GELC |
| R-13 | 958.33 | 11/22/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 5.98 | — | — | 2 | µg/L | Y | J | J | 12-421 | CAMO-12-1482 | GELC |
| R-13 | 958.33 | 08/01/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 3.24 | — | — | 2 | µg/L | Y | J | J | 11-2987 | CAMO-11-24634 | GELC |
| R-13 | 958.33 | 05/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.251 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-808 | CAMO-13-30590 | GELC |
| R-13 | 958.33 | 10/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.301 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-258 | CAMO-13-24258 | GELC |
| R-13 | 958.33 | 06/05/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.306 | — | — | 0.033 | mg/L | Y | — | NQ | 12-1344 | CAMO-12-17131 | GELC |
| R-13 | 958.33 | 11/22/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.275 | — | — | 0.033 | mg/L | Y | — | NQ | 12-421 | CAMO-12-1482 | GELC |
| R-13 | 958.33 | 08/01/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.274 | — | — | 0.033 | mg/L | Y | — | NQ | 11-2987 | CAMO-11-24634 | GELC |
| R-13 | 958.33 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 47.8 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-808 | CAMO-13-30590 | GELC |
| R-13 | 958.33 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 48.2 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-258 | CAMO-13-24258 | GELC |
| R-13 | 958.33 | 06/05/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 50.1 | — | — | 0.453 | mg/L | Y | — | NQ | 12-1344 | CAMO-12-17131 | GELC |
| R-13 | 958.33 | 11/22/11 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 50.2 | — | — | 0.45 | mg/L | Y | — | NQ | 12-421 | CAMO-12-1482 | GELC |
| R-13 | 958.33 | 08/01/11 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 48.6 | — | — | 0.45 | mg/L | Y | — | NQ | 11-2987 | CAMO-11-24634 | GELC |
| R-13 | 958.33 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 3.36 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-808 | CAMO-13-30590 | GELC |
| R-13 | 958.33 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 3.48 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-258 | CAMO-13-24258 | GELC |
| R-13 | 958.33 | 06/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 3.6 | — | — | 0.11 | mg/L | Y | — | NQ | 12-1344 | CAMO-12-17131 | GELC |
| R-13 | 958.33 | 11/22/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 3.46 | — | — | 0.11 | mg/L | Y | — | J | 12-421 | CAMO-12-1482 | GELC |
| R-13 | 958.33 | 08/01/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 3.39 | — | — | 0.11 | mg/L | Y | — | NQ | 11-2987 | CAMO-11-24634 | GELC |
| R-13 | 958.33 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.19 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-808 | CAMO-13-30590 | GELC |
| R-13 | 958.33 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.05 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-258 | CAMO-13-24258 | GELC |
| R-13 | 958.33 | 06/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.14 | — | — | 0.165 | µg/L | Y | — | NQ | 12-1344 | CAMO-12-17131 | GELC |
| R-13 | 958.33 | 11/22/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.2 | — | — | 0.17 | µg/L | Y | — | NQ | 12-421 | CAMO-12-1482 | GELC |
| R-13 | 958.33 | 08/01/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 0.939 | — | — | 0.17 | µg/L | Y | — | NQ | 11-2987 | CAMO-11-24634 | GELC |
| R-13 | 958.33 | 05/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 0.71 | — | — | 0.017 | mg/L | Y | — | NQ | 2013-808 | CAMO-13-30590 | GELC |
| R-13 | 958.33 | 10/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 0.682 | — | — | 0.017 | mg/L | Y | — | NQ | 2013-258 | CAMO-13-24258 | GELC |
| R-13 | 958.33 | 06/05/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 0.71 | — | — | 0.085 | mg/L | Y | — | NQ | 12-1344 | CAMO-12-17131 | GELC |
| R-13 | 958.33 | 11/22/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 0.755 | — | — | 0.05 | mg/L | Y | — | NQ | 12-421 | CAMO-12-1482 | GELC |
| R-13 | 958.33 | 08/01/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 0.053 | — | — | 0.01 | mg/L | Y | — | NQ | 11-2987 | CAMO-11-24634 | GELC |
| R-13 | 958.33 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.33 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-808 | CAMO-13-30590 | GELC |
| R-13 | 958.33 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.24 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-258 | CAMO-13-24258 | GELC |
| R-13 | 958.33 | 06/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.48 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1344 | CAMO-12-17131 | GELC |
| R-13 | 958.33 | 11/22/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.4 | — | — | 0.05 | mg/L | Y | — | NQ | 12-421 | CAMO-12-1482 | GELC |
| R-13 | 958.33 | 08/01/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.45 | — | — | 0.05 | mg/L | Y | — | NQ | 11-2987 | CAMO-11-24634 | GELC |
| R-13 | 958.33 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 69.1 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-808 | CAMO-13-30590 | GELC |
| R-13 | 958.33 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 71.1 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-258 | CAMO-13-24258 | GELC |
| R-13 | 958.33 | 06/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 74.8 | — | — | 0.053 | mg/L | Y | — | NQ | 12-1344 | CAMO-12-17131 | GELC |
| R-13 | 958.33 | 11/22/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 71.2 | — | — | 0.053 | mg/L | Y | — | NQ | 12-421 | CAMO-12-1482 | GELC |
| R-13 | 958.33 | 08/01/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 71.6 | — | — | 0.053 | mg/L | Y | — | NQ | 11-2987 | CAMO-11-24634 | GELC |
| R-13 | 958.33 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 9.93 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-808 | CAMO-13-30590 | GELC |
| R-13 | 958.33 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 9.81 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-258 | CAMO-13-24258 | GELC |
| R-13 | 958.33 | 06/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 10.3 | — | — | 0.1 | mg/L | Y | — | NQ | 12-1344 | CAMO-12-17131 | GELC |
| R-13 | 958.33 | 11/22/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 10 | — | — | 0.1 | mg/L | Y | — | NQ | 12-421 | CAMO-12-1482 | GELC |
| R-13 | 958.33 | 08/01/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 10 | — | — | 0.1 | mg/L | Y | — | NQ | 11-2987 | CAMO-11-24634 | GELC |
| R-13 | 958.33 | 05/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 144 | — | — | 1 | µS/cm | Y | — | NQ | 2013-808 | CAMO-13-30590 | GELC |
| R-13 | 958.33 | 10/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 141 | — | — | 1 | µS/cm | Y | — | NQ | 2013-258 | CAMO-13-24258 | GELC |
| R-13 | 958.33 | 06/05/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 138 | — | — | 1 | µS/cm | Y | — | NQ | 12-1344 | CAMO-12-17131 | GELC |
| R-13 | 958.33 | 11/22/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 140 | — | — | 1 | µS/cm | Y | — | NQ | 12-421 | CAMO-12-1482 | GELC |
| R-13 | 958.33 | 08/01/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 135 | — | — | 1 | µS/cm | Y | — | NQ | 11-2987 | CAMO-11-24634 | GELC |
| R-13 | 958.33 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 54.5 | — | — | 1 | µg/L | Y | — | NQ | 2013-808 | CAMO-13-30590 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-13 | 958.33 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 51 | — | — | 1 | µg/L | Y | — | NQ | 2013-258 | CAMO-13-24258 | GELC |
| R-13 | 958.33 | 06/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 53.2 | — | — | 1 | µg/L | Y | — | NQ | 12-1344 | CAMO-12-17131 | GELC |
| R-13 | 958.33 | 11/22/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 53 | — | — | 1 | µg/L | Y | — | NQ | 12-421 | CAMO-12-1482 | GELC |
| R-13 | 958.33 | 08/01/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 51.8 | — | — | 1 | µg/L | Y | — | NQ | 11-2987 | CAMO-11-24634 | GELC |
| R-13 | 958.33 | 05/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 3.08 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-808 | CAMO-13-30590 | GELC |
| R-13 | 958.33 | 10/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 3.14 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-258 | CAMO-13-24258 | GELC |
| R-13 | 958.33 | 06/05/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 3.2 | — | — | 0.133 | mg/L | Y | — | NQ | 12-1344 | CAMO-12-17131 | GELC |
| R-13 | 958.33 | 11/22/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 3.18 | — | — | 0.1 | mg/L | Y | — | NQ | 12-421 | CAMO-12-1482 | GELC |
| R-13 | 958.33 | 08/01/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 2.98 | — | — | 0.1 | mg/L | Y | — | NQ | 11-2987 | CAMO-11-24634 | GELC |
| R-13 | 958.33 | 05/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 129 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-808 | CAMO-13-30590 | GELC |
| R-13 | 958.33 | 10/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 133 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-258 | CAMO-13-24258 | GELC |
| R-13 | 958.33 | 06/05/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 124 | — | — | 3.4 | mg/L | Y | — | NQ | 12-1344 | CAMO-12-17131 | GELC |
| R-13 | 958.33 | 11/22/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 124 | — | — | 3.4 | mg/L | Y | — | NQ | 12-421 | CAMO-12-1482 | GELC |
| R-13 | 958.33 | 08/01/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 131 | — | — | 3.4 | mg/L | Y | — | NQ | 11-2987 | CAMO-11-24634 | GELC |
| R-13 | 958.33 | 05/06/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.549 | — | — | 0.33 | mg/L | Y | J | J | 2013-808 | CAMO-13-30574 | GELC |
| R-13 | 958.33 | 10/31/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | N | 0.68 | — | — | 0.33 | mg/L | Y | J | U | 2013-258 | CAMO-13-24241 | GELC |
| R-13 | 958.33 | 06/05/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.814 | — | — | 0.33 | mg/L | Y | J | J | 12-1344 | CAMO-12-17126 | GELC |
| R-13 | 958.33 | 11/22/11 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | N | 1 | — | — | 0.33 | mg/L | Y | U | U | 12-421 | CAMO-12-1480 | GELC |
| R-13 | 958.33 | 08/01/11 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | N | 1 | — | — | 0.33 | mg/L | Y | U | U | 11-2987 | CAMO-11-24633 | GELC |
| R-13 | 958.33 | 05/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 0.0705 | — | — | 0.017 | mg/L | Y | — | NQ | 2013-808 | CAMO-13-30590 | GELC |
| R-13 | 958.33 | 10/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | N | 0.0418 | — | — | 0.017 | mg/L | Y | J | U | 2013-258 | CAMO-13-24258 | GELC |
| R-13 | 958.33 | 06/05/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 0.0429 | — | — | 0.017 | mg/L | Y | J | J | 12-1344 | CAMO-12-17131 | GELC |
| R-13 | 958.33 | 11/22/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 0.0217 | — | — | 0.015 | mg/L | Y | J | J | 12-421 | CAMO-12-1482 | GELC |
| R-13 | 958.33 | 08/01/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 0.171 | — | — | 0.015 | mg/L | Y | — | J | 11-2987 | CAMO-11-24634 | GELC |
| R-13 | 958.33 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.477 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-808 | CAMO-13-30590 | GELC |
| R-13 | 958.33 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.435 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-258 | CAMO-13-24258 | GELC |
| R-13 | 958.33 | 06/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.478 | — | — | 0.067 | µg/L | Y | — | NQ | 12-1344 | CAMO-12-17131 | GELC |
| R-13 | 958.33 | 11/22/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.436 | — | — | 0.067 | µg/L | Y | — | NQ | 12-421 | CAMO-12-1482 | GELC |
| R-13 | 958.33 | 08/01/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.436 | — | — | 0.067 | µg/L | Y | — | J | 11-2987 | CAMO-11-24634 | GELC |
| R-13 | 958.33 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 4.64 | — | — | 1 | µg/L | Y | J | J | 2013-808 | CAMO-13-30590 | GELC |
| R-13 | 958.33 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 5.58 | — | — | 1 | µg/L | Y | — | NQ | 2013-258 | CAMO-13-24258 | GELC |
| R-13 | 958.33 | 06/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 5.19 | — | — | 1 | µg/L | Y | — | NQ | 12-1344 | CAMO-12-17131 | GELC |
| R-13 | 958.33 | 11/22/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 4.6 | — | — | 1 | µg/L | Y | J | J | 12-421 | CAMO-12-1482 | GELC |
| R-13 | 958.33 | 08/01/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 5.11 | — | — | 1 | µg/L | Y | — | NQ | 11-2987 | CAMO-11-24634 | GELC |
| R-15 | 958.6 | 05/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.27 | — | — | 0.01 | SU | Y | H | NQ | 2013-809 | CAMO-13-30591 | GELC |
| R-15 | 958.6 | 10/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.08 | — | — | 0.01 | SU | Y | H | NQ | 2013-259 | CAMO-13-24259 | GELC |
| R-15 | 958.6 | 05/29/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.75 | — | — | 0.01 | SU | Y | H | NQ | 12-1324 | CAMO-12-14022 | GELC |
| R-15 | 958.6 | 11/10/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.18 | — | — | 0.01 | SU | Y | H | J- | 12-323 | CAMO-12-1483 | GELC |
| R-15 | 958.6 | 08/15/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.54 | — | — | 0.01 | SU | Y | H | J- | 11-3208 | CAMO-11-24635 | GELC |
| R-15 | 958.6 | 05/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 54.8 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-809 | CAMO-13-30591 | GELC |
| R-15 | 958.6 | 10/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 54.7 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-259 | CAMO-13-24259 | GELC |
| R-15 | 958.6 | 05/29/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 53.8 | — | — | 0.725 | mg/L | Y | — | NQ | 12-1324 | CAMO-12-14022 | GELC |
| R-15 | 958.6 | 11/10/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 53.9 | — | — | 0.73 | mg/L | Y | — | NQ | 12-323 | CAMO-12-1483 | GELC |
| R-15 | 958.6 | 08/15/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 56.4 | — | — | 0.73 | mg/L | Y | — | NQ | 11-3208 | CAMO-11-24635 | GELC |
| R-15 | 958.6 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 28.1 | — | — | 1 | µg/L | Y | — | NQ | 2013-809 | CAMO-13-30591 | GELC |
| R-15 | 958.6 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 28 | — | — | 1 | µg/L | Y | — | NQ | 2013-259 | CAMO-13-24259 | GELC |
| R-15 | 958.6 | 05/29/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 28.8 | — | — | 1 | µg/L | Y | — | NQ | 12-1324 | CAMO-12-14022 | GELC |
| R-15 | 958.6 | 11/10/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 29.8 | — | — | 1 | µg/L | Y | — | NQ | 12-323 | CAMO-12-1483 | GELC |
| R-15 | 958.6 | 08/15/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 30.6 | — | — | 1 | µg/L | Y | — | NQ | 11-3208 | CAMO-11-24635 | GELC |
| R-15 | 958.6 | 05/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.0817 | — | — | 0.067 | mg/L | Y | J | J | 2013-809 | CAMO-13-30591 | GELC |
| R-15 | 958.6 | 10/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.087 | — | — | 0.067 | mg/L | Y | J | J | 2013-259 | CAMO-13-24259 | GELC |
| R-15 | 958.6 | 05/29/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | N | 0.2 | — | — | 0.067 | mg/L | Y | U | U | 12-1324 | CAMO-12-14022 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-15 | 958.6 | 11/10/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.0817 | — | — | 0.066 | mg/L | Y | J | J | 12-323 | CAMO-12-1483 | GELC |
| R-15 | 958.6 | 08/15/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.0811 | — | — | 0.066 | mg/L | Y | J | J | 11-3208 | CAMO-11-24635 | GELC |
| R-15 | 958.6 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 14 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-809 | CAMO-13-30591 | GELC |
| R-15 | 958.6 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 13.6 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-259 | CAMO-13-24259 | GELC |
| R-15 | 958.6 | 05/29/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 14.1 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1324 | CAMO-12-14022 | GELC |
| R-15 | 958.6 | 11/10/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 14.5 | — | — | 0.05 | mg/L | Y | — | NQ | 12-323 | CAMO-12-1483 | GELC |
| R-15 | 958.6 | 08/15/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 15 | — | — | 0.05 | mg/L | Y | — | NQ | 11-3208 | CAMO-11-24635 | GELC |
| R-15 | 958.6 | 05/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 4.25 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-809 | CAMO-13-30591 | GELC |
| R-15 | 958.6 | 10/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 4.17 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-259 | CAMO-13-24259 | GELC |
| R-15 | 958.6 | 05/29/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 4.19 | — | — | 0.067 | mg/L | Y | — | NQ | 12-1324 | CAMO-12-14022 | GELC |
| R-15 | 958.6 | 11/10/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 4.06 | — | — | 0.066 | mg/L | Y | — | NQ | 12-323 | CAMO-12-1483 | GELC |
| R-15 | 958.6 | 08/15/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 4.13 | — | — | 0.066 | mg/L | Y | — | NQ | 11-3208 | CAMO-11-24635 | GELC |
| R-15 | 958.6 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 12.5 | — | — | 2 | µg/L | Y | — | NQ | 2013-809 | CAMO-13-30591 | GELC |
| R-15 | 958.6 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 10.5 | — | — | 2 | µg/L | Y | — | NQ | 2013-259 | CAMO-13-24259 | GELC |
| R-15 | 958.6 | 05/29/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 10.5 | — | — | 2 | µg/L | Y | — | NQ | 12-1324 | CAMO-12-14022 | GELC |
| R-15 | 958.6 | 11/10/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 9.59 | — | — | 2 | µg/L | Y | J | J | 12-323 | CAMO-12-1483 | GELC |
| R-15 | 958.6 | 08/15/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 14.8 | — | — | 2 | µg/L | Y | — | NQ | 11-3208 | CAMO-11-24635 | GELC |
| R-15 | 958.6 | 05/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.164 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-809 | CAMO-13-30591 | GELC |
| R-15 | 958.6 | 10/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.193 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-259 | CAMO-13-24259 | GELC |
| R-15 | 958.6 | 05/29/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.193 | — | — | 0.033 | mg/L | Y | — | NQ | 12-1324 | CAMO-12-14022 | GELC |
| R-15 | 958.6 | 11/10/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.189 | — | — | 0.033 | mg/L | Y | — | NQ | 12-323 | CAMO-12-1483 | GELC |
| R-15 | 958.6 | 08/15/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.172 | — | — | 0.033 | mg/L | Y | — | NQ | 11-3208 | CAMO-11-24635 | GELC |
| R-15 | 958.6 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 50.6 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-809 | CAMO-13-30591 | GELC |
| R-15 | 958.6 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 49.6 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-259 | CAMO-13-24259 | GELC |
| R-15 | 958.6 | 05/29/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 51.4 | — | — | 0.453 | mg/L | Y | — | NQ | 12-1324 | CAMO-12-14022 | GELC |
| R-15 | 958.6 | 11/10/11 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 52.6 | — | — | 0.45 | mg/L | Y | — | NQ | 12-323 | CAMO-12-1483 | GELC |
| R-15 | 958.6 | 08/15/11 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 53.4 | — | — | 0.45 | mg/L | Y | — | NQ | 11-3208 | CAMO-11-24635 | GELC |
| R-15 | 958.6 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 3.82 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-809 | CAMO-13-30591 | GELC |
| R-15 | 958.6 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 3.81 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-259 | CAMO-13-24259 | GELC |
| R-15 | 958.6 | 05/29/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 3.96 | — | — | 0.11 | mg/L | Y | — | NQ | 12-1324 | CAMO-12-14022 | GELC |
| R-15 | 958.6 | 11/10/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 3.97 | — | — | 0.11 | mg/L | Y | — | NQ | 12-323 | CAMO-12-1483 | GELC |
| R-15 | 958.6 | 08/15/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 3.85 | — | — | 0.11 | mg/L | Y | — | NQ | 11-3208 | CAMO-11-24635 | GELC |
| R-15 | 958.6 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-809 | CAMO-13-30591 | GELC |
| R-15 | 958.6 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.13 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-259 | CAMO-13-24259 | GELC |
| R-15 | 958.6 | 05/29/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 0.885 | — | — | 0.165 | µg/L | Y | — | NQ | 12-1324 | CAMO-12-14022 | GELC |
| R-15 | 958.6 | 11/10/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 0.998 | — | — | 0.17 | µg/L | Y | — | NQ | 12-323 | CAMO-12-1483 | GELC |
| R-15 | 958.6 | 08/15/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1 | — | — | 0.17 | µg/L | Y | — | NQ | 11-3208 | CAMO-11-24635 | GELC |
| R-15 | 958.6 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 0.97 | — | — | 0.5 | µg/L | Y | J | J | 2013-809 | CAMO-13-30591 | GELC |
| R-15 | 958.6 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 0.88 | — | — | 0.5 | µg/L | Y | J | J | 2013-259 | CAMO-13-24259 | GELC |
| R-15 | 958.6 | 05/29/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 0.655 | — | — | 0.5 | µg/L | Y | J | J | 12-1324 | CAMO-12-14022 | GELC |
| R-15 | 958.6 | 11/10/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 0.8 | — | — | 0.5 | µg/L | Y | J | J | 12-323 | CAMO-12-1483 | GELC |
| R-15 | 958.6 | 08/15/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 1.24 | — | — | 0.5 | µg/L | Y | J | J | 11-3208 | CAMO-11-24635 | GELC |
| R-15 | 958.6 | 05/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 2.12 | — | — | 0.085 | mg/L | Y | — | NQ | 2013-809 | CAMO-13-30591 | GELC |
| R-15 | 958.6 | 10/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 2.02 | — | — | 0.17 | mg/L | Y | — | NQ | 2013-259 | CAMO-13-24259 | GELC |
| R-15 | 958.6 | 05/29/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 2.06 | — | — | 0.085 | mg/L | Y | — | NQ | 12-1324 | CAMO-12-14022 | GELC |
| R-15 | 958.6 | 11/10/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 1.35 | — | — | 0.01 | mg/L | Y | — | NQ | 12-323 | CAMO-12-1483 | GELC |
| R-15 | 958.6 | 08/15/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 2.78 | — | — | 0.1 | mg/L | Y | — | NQ | 11-3208 | CAMO-11-24635 | GELC |
| R-15 | 958.6 | 05/06/13 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 8.42 | — | — | 0.5 | µg/L | Y | — | NQ | 2013-809 | CAMO-13-30591 | GELC |
| R-15 | 958.6 | 10/31/12 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 7.86 | — | — | 0.5 | µg/L | Y | — | J | 2013-259 | CAMO-13-24259 | GELC |
| R-15 | 958.6 | 05/29/12 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 7.76 | — | — | 0.5 | µg/L | Y | — | NQ | 12-1324 | CAMO-12-14022 | GELC |
| R-15 | 958.6 | 11/10/11 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 8.14 | — | — | 1 | µg/L | Y | — | NQ | 12-323 | CAMO-12-1483 | GELC |
| R-15 | 958.6 | 08/15/11 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 7.86 | — | — | 1 | µg/L | Y | — | NQ | 11-3208 | CAMO-11-24635 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-15 | 958.6 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.83 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-809 | CAMO-13-30591 | GELC |
| R-15 | 958.6 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.69 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-259 | CAMO-13-24259 | GELC |
| R-15 | 958.6 | 05/29/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.79 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1324 | CAMO-12-14022 | GELC |
| R-15 | 958.6 | 11/10/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.66 | — | — | 0.05 | mg/L | Y | — | NQ | 12-323 | CAMO-12-1483 | GELC |
| R-15 | 958.6 | 08/15/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.84 | — | — | 0.05 | mg/L | Y | — | NQ | 11-3208 | CAMO-11-24635 | GELC |
| R-15 | 958.6 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 70.1 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-809 | CAMO-13-30591 | GELC |
| R-15 | 958.6 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 71.5 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-259 | CAMO-13-24259 | GELC |
| R-15 | 958.6 | 05/29/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 75.7 | — | — | 0.053 | mg/L | Y | — | NQ | 12-1324 | CAMO-12-14022 | GELC |
| R-15 | 958.6 | 11/10/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 76.6 | — | — | 0.053 | mg/L | Y | — | NQ | 12-323 | CAMO-12-1483 | GELC |
| R-15 | 958.6 | 08/15/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 73.1 | — | — | 0.053 | mg/L | Y | — | NQ | 11-3208 | CAMO-11-24635 | GELC |
| R-15 | 958.6 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 10.5 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-809 | CAMO-13-30591 | GELC |
| R-15 | 958.6 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 10.4 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-259 | CAMO-13-24259 | GELC |
| R-15 | 958.6 | 05/29/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 10.7 | — | — | 0.1 | mg/L | Y | — | NQ | 12-1324 | CAMO-12-14022 | GELC |
| R-15 | 958.6 | 11/10/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 10.8 | — | — | 0.1 | mg/L | Y | — | NQ | 12-323 | CAMO-12-1483 | GELC |
| R-15 | 958.6 | 08/15/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 10.5 | — | — | 0.1 | mg/L | Y | — | NQ | 11-3208 | CAMO-11-24635 | GELC |
| R-15 | 958.6 | 05/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 159 | — | — | 1 | µS/cm | Y | — | NQ | 2013-809 | CAMO-13-30591 | GELC |
| R-15 | 958.6 | 10/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 153 | — | — | 1 | µS/cm | Y | — | NQ | 2013-259 | CAMO-13-24259 | GELC |
| R-15 | 958.6 | 05/29/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 153 | — | — | 1 | µS/cm | Y | — | NQ | 12-1324 | CAMO-12-14022 | GELC |
| R-15 | 958.6 | 11/10/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 156 | — | — | 1 | µS/cm | Y | — | NQ | 12-323 | CAMO-12-1483 | GELC |
| R-15 | 958.6 | 08/15/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 156 | — | — | 1 | µS/cm | Y | — | NQ | 11-3208 | CAMO-11-24635 | GELC |
| R-15 | 958.6 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 64.7 | — | — | 1 | µg/L | Y | — | NQ | 2013-809 | CAMO-13-30591 | GELC |
| R-15 | 958.6 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 59.9 | — | — | 1 | µg/L | Y | — | NQ | 2013-259 | CAMO-13-24259 | GELC |
| R-15 | 958.6 | 05/29/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 60.7 | — | — | 1 | µg/L | Y | — | NQ | 12-1324 | CAMO-12-14022 | GELC |
| R-15 | 958.6 | 11/10/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 64.2 | — | — | 1 | µg/L | Y | — | NQ | 12-323 | CAMO-12-1483 | GELC |
| R-15 | 958.6 | 08/15/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 67.2 | — | — | 1 | µg/L | Y | — | NQ | 11-3208 | CAMO-11-24635 | GELC |
| R-15 | 958.6 | 05/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 6.47 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-809 | CAMO-13-30591 | GELC |
| R-15 | 958.6 | 10/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 6.48 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-259 | CAMO-13-24259 | GELC |
| R-15 | 958.6 | 05/29/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 6.56 | — | — | 0.133 | mg/L | Y | — | NQ | 12-1324 | CAMO-12-14022 | GELC |
| R-15 | 958.6 | 11/10/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 6.47 | — | — | 0.1 | mg/L | Y | — | NQ | 12-323 | CAMO-12-1483 | GELC |
| R-15 | 958.6 | 08/15/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 6.17 | — | — | 0.1 | mg/L | Y | — | NQ | 11-3208 | CAMO-11-24635 | GELC |
| R-15 | 958.6 | 05/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 149 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-809 | CAMO-13-30591 | GELC |
| R-15 | 958.6 | 10/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 150 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-259 | CAMO-13-24259 | GELC |
| R-15 | 958.6 | 05/29/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 160 | — | — | 3.4 | mg/L | Y | — | NQ | 12-1324 | CAMO-12-14022 | GELC |
| R-15 | 958.6 | 11/10/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 151 | — | — | 3.4 | mg/L | Y | — | NQ | 12-323 | CAMO-12-1483 | GELC |
| R-15 | 958.6 | 08/15/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 154 | — | — | 3.4 | mg/L | Y | — | NQ | 11-3208 | CAMO-11-24635 | GELC |
| R-15 | 958.6 | 05/06/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.477 | — | — | 0.33 | mg/L | Y | J | J | 2013-809 | CAMO-13-30575 | GELC |
| R-15 | 958.6 | 10/31/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | N | 1.01 | — | — | 0.33 | mg/L | Y | — | U | 2013-259 | CAMO-13-24242 | GELC |
| R-15 | 958.6 | 05/29/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | N | 1 | — | — | 0.33 | mg/L | Y | U | U | 12-1324 | CAMO-12-14007 | GELC |
| R-15 | 958.6 | 11/10/11 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.491 | — | — | 0.33 | mg/L | Y | J | J | 12-323 | CAMO-12-1485 | GELC |
| R-15 | 958.6 | 08/15/11 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.474 | — | — | 0.33 | mg/L | Y | J | J | 11-3208 | CAMO-11-24636 | GELC |
| R-15 | 958.6 | 05/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 0.0646 | — | — | 0.017 | mg/L | Y | — | NQ | 2013-809 | CAMO-13-30591 | GELC |
| R-15 | 958.6 | 10/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | N | 0.0481 | — | — | 0.017 | mg/L | Y | J | U | 2013-259 | CAMO-13-24259 | GELC |
| R-15 | 958.6 | 05/29/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 0.0182 | — | — | 0.017 | mg/L | Y | J | J | 12-1324 | CAMO-12-14022 | GELC |
| R-15 | 958.6 | 11/10/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 0.0161 | — | — | 0.015 | mg/L | Y | J | J | 12-323 | CAMO-12-1483 | GELC |
| R-15 | 958.6 | 08/15/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 0.119 | — | — | 0.015 | mg/L | Y | — | NQ | 11-3208 | CAMO-11-24635 | GELC |
| R-15 | 958.6 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.44 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-809 | CAMO-13-30591 | GELC |
| R-15 | 958.6 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.443 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-259 | CAMO-13-24259 | GELC |
| R-15 | 958.6 | 05/29/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.38 | — | — | 0.067 | µg/L | Y | — | NQ | 12-1324 | CAMO-12-14022 | GELC |
| R-15 | 958.6 | 11/10/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.361 | — | — | 0.067 | µg/L | Y | — | NQ | 12-323 | CAMO-12-1483 | GELC |
| R-15 | 958.6 | 08/15/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.411 | — | — | 0.067 | µg/L | Y | — | NQ | 11-3208 | CAMO-11-24635 | GELC |
| R-15 | 958.6 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 5.94 | — | — | 1 | µg/L | Y | — | NQ | 2013-809 | CAMO-13-30591 | GELC |
| R-15 | 958.6 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 6.86 | — | — | 1 | µg/L | Y | — | NQ | 2013-259 | CAMO-13-24259 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-15 | 958.6 | 05/29/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 6.97 | — | — | 1 | µg/L | Y | — | NQ | 12-1324 | CAMO-12-14022 | GELC |
| R-15 | 958.6 | 11/10/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 6.51 | — | — | 1 | µg/L | Y | — | NQ | 12-323 | CAMO-12-1483 | GELC |
| R-15 | 958.6 | 08/15/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 6.42 | — | — | 1 | µg/L | Y | — | NQ | 11-3208 | CAMO-11-24635 | GELC |
| R-28 | 934.3 | 05/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.78 | — | — | 0.01 | SU | Y | H | NQ | 2013-809 | CAMO-13-30592 | GELC |
| R-28 | 934.3 | 02/01/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.77 | — | — | 0.01 | SU | Y | H | NQ | 2013-503 | CAMO-13-28416 | GELC |
| R-28 | 934.3 | 10/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.94 | — | — | 0.01 | SU | Y | H | NQ | 2013-258 | CAMO-13-24260 | GELC |
| R-28 | 934.3 | 08/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.77 | — | — | 0.01 | SU | Y | H | NQ | 12-1481 | CAMO-12-21743 | GELC |
| R-28 | 934.3 | 05/24/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.82 | — | — | 0.01 | SU | Y | H | NQ | 12-1321 | CAMO-12-14023 | GELC |
| R-28 | 934.3 | 05/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 76.6 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-809 | CAMO-13-30592 | GELC |
| R-28 | 934.3 | 02/01/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 77.4 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-503 | CAMO-13-28416 | GELC |
| R-28 | 934.3 | 10/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 77.2 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-258 | CAMO-13-24260 | GELC |
| R-28 | 934.3 | 08/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 78.3 | — | — | 0.725 | mg/L | Y | — | NQ | 12-1481 | CAMO-12-21743 | GELC |
| R-28 | 934.3 | 05/24/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 77.1 | — | — | 0.725 | mg/L | Y | — | NQ | 12-1321 | CAMO-12-14023 | GELC |
| R-28 | 934.3 | 05/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | NH3-N | Y | 0.0283 | — | — | 0.017 | mg/L | Y | J | J | 2013-809 | CAMO-13-30592 | GELC |
| R-28 | 934.3 | 02/01/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | NH3-N | N | 0.05 | — | — | 0.017 | mg/L | Y | U | U | 2013-503 | CAMO-13-28416 | GELC |
| R-28 | 934.3 | 10/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | NH3-N | Y | 0.0573 | — | — | 0.017 | mg/L | Y | — | NQ | 2013-258 | CAMO-13-24260 | GELC |
| R-28 | 934.3 | 08/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | NH3-N | Y | 0.144 | — | — | 0.017 | mg/L | Y | — | J | 12-1481 | CAMO-12-21743 | GELC |
| R-28 | 934.3 | 05/24/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | NH3-N | N | 0.0262 | — | — | 0.017 | mg/L | Y | J | U | 12-1321 | CAMO-12-14023 | GELC |
| R-28 | 934.3 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 65.1 | — | — | 1 | µg/L | Y | — | NQ | 2013-809 | CAMO-13-30592 | GELC |
| R-28 | 934.3 | 02/01/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 68.1 | — | — | 1 | µg/L | Y | — | NQ | 2013-503 | CAMO-13-28416 | GELC |
| R-28 | 934.3 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 66.3 | — | — | 1 | µg/L | Y | — | NQ | 2013-258 | CAMO-13-24260 | GELC |
| R-28 | 934.3 | 08/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 70.9 | — | — | 1 | µg/L | Y | — | NQ | 12-1481 | CAMO-12-21743 | GELC |
| R-28 | 934.3 | 05/24/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 70.6 | — | — | 1 | µg/L | Y | — | NQ | 12-1321 | CAMO-12-14023 | GELC |
| R-28 | 934.3 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 20 | — | — | 15 | µg/L | Y | J | J | 2013-809 | CAMO-13-30592 | GELC |
| R-28 | 934.3 | 02/01/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 25.1 | — | — | 15 | µg/L | Y | J | J | 2013-503 | CAMO-13-28416 | GELC |
| R-28 | 934.3 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 23.7 | — | — | 15 | µg/L | Y | J | J | 2013-258 | CAMO-13-24260 | GELC |
| R-28 | 934.3 | 08/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 26.7 | — | — | 15 | µg/L | Y | J | J | 12-1481 | CAMO-12-21743 | GELC |
| R-28 | 934.3 | 05/24/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 23.6 | — | — | 15 | µg/L | Y | J | J | 12-1321 | CAMO-12-14023 | GELC |
| R-28 | 934.3 | 05/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.232 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-809 | CAMO-13-30592 | GELC |
| R-28 | 934.3 | 02/01/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.241 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-503 | CAMO-13-28416 | GELC |
| R-28 | 934.3 | 10/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.278 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-258 | CAMO-13-24260 | GELC |
| R-28 | 934.3 | 08/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.295 | — | — | 0.067 | mg/L | Y | — | J | 12-1481 | CAMO-12-21743 | GELC |
| R-28 | 934.3 | 05/24/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.231 | — | — | 0.067 | mg/L | Y | — | NQ | 12-1321 | CAMO-12-14023 | GELC |
| R-28 | 934.3 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 44.5 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-809 | CAMO-13-30592 | GELC |
| R-28 | 934.3 | 02/01/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 45.5 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-503 | CAMO-13-28416 | GELC |
| R-28 | 934.3 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 45.2 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-258 | CAMO-13-24260 | GELC |
| R-28 | 934.3 | 08/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 46.2 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1481 | CAMO-12-21743 | GELC |
| R-28 | 934.3 | 05/24/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 46.3 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1321 | CAMO-12-14023 | GELC |
| R-28 | 934.3 | 05/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 34.3 | — | — | 0.67 | mg/L | Y | — | NQ | 2013-809 | CAMO-13-30592 | GELC |
| R-28 | 934.3 | 02/01/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 34.3 | — | — | 0.335 | mg/L | Y | — | NQ | 2013-503 | CAMO-13-28416 | GELC |
| R-28 | 934.3 | 10/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 35.8 | — | — | 0.335 | mg/L | Y | — | NQ | 2013-258 | CAMO-13-24260 | GELC |
| R-28 | 934.3 | 08/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 32.9 | — | — | 0.67 | mg/L | Y | — | NQ | 12-1481 | CAMO-12-21743 | GELC |
| R-28 | 934.3 | 05/24/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 34.1 | — | — | 0.335 | mg/L | Y | — | NQ | 12-1321 | CAMO-12-14023 | GELC |
| R-28 | 934.3 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 404 | — | — | 2 | µg/L | Y | — | NQ | 2013-809 | CAMO-13-30592 | GELC |
| R-28 | 934.3 | 02/01/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 433 | — | — | 10 | µg/L | Y | — | NQ | 2013-503 | CAMO-13-28416 | GELC |
| R-28 | 934.3 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 415 | — | — | 20 | µg/L | Y | — | NQ | 2013-258 | CAMO-13-24260 | GELC |
| R-28 | 934.3 | 08/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 450 | — | — | 2 | µg/L | Y | — | NQ | 12-1481 | CAMO-12-21743 | GELC |
| R-28 | 934.3 | 05/24/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 351 | — | — | 2 | µg/L | Y | — | J+ | 12-1321 | CAMO-12-14023 | GELC |
| R-28 | 934.3 | 05/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.264 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-809 | CAMO-13-30592 | GELC |
| R-28 | 934.3 | 02/01/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.257 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-503 | CAMO-13-28416 | GELC |
| R-28 | 934.3 | 10/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.308 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-258 | CAMO-13-24260 | GELC |
| R-28 | 934.3 | 08/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.271 | — | — | 0.033 | mg/L | Y | — | NQ | 12-1481 | CAMO-12-21743 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-28 | 934.3 | 05/24/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.328 | — | — | 0.033 | mg/L | Y | — | NQ | 12-1321 | CAMO-12-14023 | GELC |
| R-28 | 934.3 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 157 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-809 | CAMO-13-30592 | GELC |
| R-28 | 934.3 | 02/01/13 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 161 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-503 | CAMO-13-28416 | GELC |
| R-28 | 934.3 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 161 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-258 | CAMO-13-24260 | GELC |
| R-28 | 934.3 | 08/08/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 164 | — | — | 0.453 | mg/L | Y | — | NQ | 12-1481 | CAMO-12-21743 | GELC |
| R-28 | 934.3 | 05/24/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 163 | — | — | 0.453 | mg/L | Y | — | NQ | 12-1321 | CAMO-12-14023 | GELC |
| R-28 | 934.3 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 11.1 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-809 | CAMO-13-30592 | GELC |
| R-28 | 934.3 | 02/01/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 11.5 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-503 | CAMO-13-28416 | GELC |
| R-28 | 934.3 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 11.7 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-258 | CAMO-13-24260 | GELC |
| R-28 | 934.3 | 08/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 11.7 | — | — | 0.11 | mg/L | Y | — | NQ | 12-1481 | CAMO-12-21743 | GELC |
| R-28 | 934.3 | 05/24/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 11.6 | — | — | 0.11 | mg/L | Y | — | NQ | 12-1321 | CAMO-12-14023 | GELC |
| R-28 | 934.3 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 0.877 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-809 | CAMO-13-30592 | GELC |
| R-28 | 934.3 | 02/01/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 0.845 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-503 | CAMO-13-28416 | GELC |
| R-28 | 934.3 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 0.822 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-258 | CAMO-13-24260 | GELC |
| R-28 | 934.3 | 08/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | N | 0.889 | — | — | 0.165 | µg/L | Y | — | U | 12-1481 | CAMO-12-21743 | GELC |
| R-28 | 934.3 | 05/24/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 0.847 | — | — | 0.165 | µg/L | Y | — | NQ | 12-1321 | CAMO-12-14023 | GELC |
| R-28 | 934.3 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 23.3 | — | — | 0.5 | µg/L | Y | — | NQ | 2013-809 | CAMO-13-30592 | GELC |
| R-28 | 934.3 | 02/01/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 21.9 | — | — | 0.5 | µg/L | Y | — | NQ | 2013-503 | CAMO-13-28416 | GELC |
| R-28 | 934.3 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 21.1 | — | — | 0.5 | µg/L | Y | — | NQ | 2013-258 | CAMO-13-24260 | GELC |
| R-28 | 934.3 | 08/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 17.8 | — | — | 0.5 | µg/L | Y | — | NQ | 12-1481 | CAMO-12-21743 | GELC |
| R-28 | 934.3 | 05/24/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 14.4 | — | — | 0.5 | µg/L | Y | — | NQ | 12-1321 | CAMO-12-14023 | GELC |
| R-28 | 934.3 | 05/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 3.83 | — | — | 0.17 | mg/L | Y | — | NQ | 2013-809 | CAMO-13-30592 | GELC |
| R-28 | 934.3 | 02/01/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 3.98 | — | — | 0.17 | mg/L | Y | — | NQ | 2013-503 | CAMO-13-28416 | GELC |
| R-28 | 934.3 | 10/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 3.63 | — | — | 0.085 | mg/L | Y | — | NQ | 2013-258 | CAMO-13-24260 | GELC |
| R-28 | 934.3 | 08/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 3.74 | — | — | 0.085 | mg/L | Y | — | NQ | 12-1481 | CAMO-12-21743 | GELC |
| R-28 | 934.3 | 05/24/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 3.74 | — | — | 0.17 | mg/L | Y | — | NQ | 12-1321 | CAMO-12-14023 | GELC |
| R-28 | 934.3 | 05/06/13 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.931 | — | — | 0.1 | µg/L | Y | — | NQ | 2013-809 | CAMO-13-30592 | GELC |
| R-28 | 934.3 | 02/01/13 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.975 | — | — | 0.1 | µg/L | Y | — | NQ | 2013-503 | CAMO-13-28416 | GELC |
| R-28 | 934.3 | 10/31/12 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.93 | — | — | 0.05 | µg/L | Y | — | NQ | 2013-258 | CAMO-13-24260 | GELC |
| R-28 | 934.3 | 08/08/12 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 1.02 | — | — | 0.1 | µg/L | Y | — | NQ | 12-1481 | CAMO-12-21743 | GELC |
| R-28 | 934.3 | 05/24/12 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.987 | — | — | 0.1 | µg/L | Y | — | NQ | 12-1321 | CAMO-12-14023 | GELC |
| R-28 | 934.3 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.83 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-809 | CAMO-13-30592 | GELC |
| R-28 | 934.3 | 02/01/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.93 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-503 | CAMO-13-28416 | GELC |
| R-28 | 934.3 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.7 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-258 | CAMO-13-24260 | GELC |
| R-28 | 934.3 | 08/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.9 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1481 | CAMO-12-21743 | GELC |
| R-28 | 934.3 | 05/24/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.81 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1321 | CAMO-12-14023 | GELC |
| R-28 | 934.3 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 72.1 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-809 | CAMO-13-30592 | GELC |
| R-28 | 934.3 | 02/01/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 74.4 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-503 | CAMO-13-28416 | GELC |
| R-28 | 934.3 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 74.4 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-258 | CAMO-13-24260 | GELC |
| R-28 | 934.3 | 08/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 0.0782 | — | — | 0.053 | mg/L | Y | — | NQ | 12-1481 | CAMO-12-21743 | GELC |
| R-28 | 934.3 | 05/24/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 73.4 | — | — | 0.053 | mg/L | Y | — | NQ | 12-1321 | CAMO-12-14023 | GELC |
| R-28 | 934.3 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 15.3 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-809 | CAMO-13-30592 | GELC |
| R-28 | 934.3 | 02/01/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 16 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-503 | CAMO-13-28416 | GELC |
| R-28 | 934.3 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 15.3 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-258 | CAMO-13-24260 | GELC |
| R-28 | 934.3 | 08/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 15.9 | — | — | 0.1 | mg/L | Y | — | NQ | 12-1481 | CAMO-12-21743 | GELC |
| R-28 | 934.3 | 05/24/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 16.2 | — | — | 0.1 | mg/L | Y | — | NQ | 12-1321 | CAMO-12-14023 | GELC |
| R-28 | 934.3 | 05/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 424 | — | — | 1 | µS/cm | Y | — | NQ | 2013-809 | CAMO-13-30592 | GELC |
| R-28 | 934.3 | 02/01/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 422 | — | — | 1 | µS/cm | Y | — | NQ | 2013-503 | CAMO-13-28416 | GELC |
| R-28 | 934.3 | 10/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 415 | — | — | 1 | µS/cm | Y | — | NQ | 2013-258 | CAMO-13-24260 | GELC |
| R-28 | 934.3 | 08/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 415 | — | — | 1 | µS/cm | Y | — | NQ | 12-1481 | CAMO-12-21743 | GELC |
| R-28 | 934.3 | 05/24/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 411 | — | — | 1 | µS/cm | Y | — | NQ | 12-1321 | CAMO-12-14023 | GELC |
| R-28 | 934.3 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 178 | — | — | 1 | µg/L | Y | — | NQ | 2013-809 | CAMO-13-30592 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-28 | 934.3 | 02/01/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 177 | — | — | 1 | µg/L | Y | — | NQ | 2013-503 | CAMO-13-28416 | GELC |
| R-28 | 934.3 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 172 | — | — | 1 | µg/L | Y | — | NQ | 2013-258 | CAMO-13-24260 | GELC |
| R-28 | 934.3 | 08/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 181 | — | — | 1 | µg/L | Y | — | NQ | 12-1481 | CAMO-12-21743 | GELC |
| R-28 | 934.3 | 05/24/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 175 | — | — | 1 | µg/L | Y | — | NQ | 12-1321 | CAMO-12-14023 | GELC |
| R-28 | 934.3 | 05/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 48 | — | — | 1.33 | mg/L | Y | — | NQ | 2013-809 | CAMO-13-30592 | GELC |
| R-28 | 934.3 | 02/01/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 49 | — | — | 0.665 | mg/L | Y | — | NQ | 2013-503 | CAMO-13-28416 | GELC |
| R-28 | 934.3 | 10/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 51.3 | — | — | 0.665 | mg/L | Y | — | NQ | 2013-258 | CAMO-13-24260 | GELC |
| R-28 | 934.3 | 08/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 47.3 | — | — | 1.33 | mg/L | Y | — | NQ | 12-1481 | CAMO-12-21743 | GELC |
| R-28 | 934.3 | 05/24/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 47.9 | — | — | 0.665 | mg/L | Y | — | NQ | 12-1321 | CAMO-12-14023 | GELC |
| R-28 | 934.3 | 05/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 261 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-809 | CAMO-13-30592 | GELC |
| R-28 | 934.3 | 02/01/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 290 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-503 | CAMO-13-28416 | GELC |
| R-28 | 934.3 | 10/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 303 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-258 | CAMO-13-24260 | GELC |
| R-28 | 934.3 | 08/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 287 | — | — | 3.4 | mg/L | Y | — | NQ | 12-1481 | CAMO-12-21743 | GELC |
| R-28 | 934.3 | 05/24/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 273 | — | — | 3.4 | mg/L | Y | — | NQ | 12-1321 | CAMO-12-14023 | GELC |
| R-28 | 934.3 | 05/06/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | EPA:351.2 | Total Kjeldahl Nitrogen | TKN | Y | 0.116 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-809 | CAMO-13-30576 | GELC |
| R-28 | 934.3 | 02/01/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | EPA:351.2 | Total Kjeldahl Nitrogen | TKN | N | 0.1 | — | — | 0.033 | mg/L | Y | U | U | 2013-503 | CAMO-13-28408 | GELC |
| R-28 | 934.3 | 10/31/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | EPA:351.2 | Total Kjeldahl Nitrogen | TKN | N | 0.19 | — | — | 0.035 | mg/L | Y | — | U | 2013-258 | CAMO-13-24243 | GELC |
| R-28 | 934.3 | 08/08/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | EPA:351.2 | Total Kjeldahl Nitrogen | TKN | N | 0.1 | — | — | 0.035 | mg/L | Y | U | U | 12-1481 | CAMO-12-21735 | GELC |
| R-28 | 934.3 | 05/24/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | EPA:351.2 | Total Kjeldahl Nitrogen | TKN | Y | 0.0509 | — | — | 0.035 | mg/L | Y | J | J | 12-1321 | CAMO-12-14008 | GELC |
| R-28 | 934.3 | 05/06/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.901 | — | — | 0.33 | mg/L | Y | J | J | 2013-809 | CAMO-13-30576 | GELC |
| R-28 | 934.3 | 02/01/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.843 | — | — | 0.33 | mg/L | Y | J | J | 2013-503 | CAMO-13-28408 | GELC |
| R-28 | 934.3 | 10/31/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | N | 1.28 | — | — | 0.33 | mg/L | Y | — | U | 2013-258 | CAMO-13-24243 | GELC |
| R-28 | 934.3 | 08/08/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 1.1 | — | — | 0.33 | mg/L | Y | — | NQ | 12-1481 | CAMO-12-21735 | GELC |
| R-28 | 934.3 | 05/24/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.883 | — | — | 0.33 | mg/L | Y | J | J | 12-1321 | CAMO-12-14008 | GELC |
| R-28 | 934.3 | 05/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 0.0175 | — | — | 0.017 | mg/L | Y | J | J | 2013-809 | CAMO-13-30592 | GELC |
| R-28 | 934.3 | 02/01/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | N | 0.074 | — | — | 0.017 | mg/L | Y | — | U | 2013-503 | CAMO-13-28416 | GELC |
| R-28 | 934.3 | 10/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | N | 0.019 | — | — | 0.017 | mg/L | Y | J | U | 2013-258 | CAMO-13-24260 | GELC |
| R-28 | 934.3 | 08/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | N | 0.0443 | — | — | 0.017 | mg/L | Y | J | U | 12-1481 | CAMO-12-21743 | GELC |
| R-28 | 934.3 | 05/24/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | N | 0.05 | — | — | 0.017 | mg/L | Y | U | U | 12-1321 | CAMO-12-14023 | GELC |
| R-28 | 934.3 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 1.67 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-809 | CAMO-13-30592 | GELC |
| R-28 | 934.3 | 02/01/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 1.52 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-503 | CAMO-13-28416 | GELC |
| R-28 | 934.3 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 1.54 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-258 | CAMO-13-24260 | GELC |
| R-28 | 934.3 | 08/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 1.5 | — | — | 0.067 | µg/L | Y | — | NQ | 12-1481 | CAMO-12-21743 | GELC |
| R-28 | 934.3 | 05/24/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 1.7 | — | — | 0.067 | µg/L | Y | — | NQ | 12-1321 | CAMO-12-14023 | GELC |
| R-28 | 934.3 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 4.93 | — | — | 1 | µg/L | Y | J | J | 2013-809 | CAMO-13-30592 | GELC |
| R-28 | 934.3 | 02/01/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 7.8 | — | — | 1 | µg/L | Y | — | NQ | 2013-503 | CAMO-13-28416 | GELC |
| R-28 | 934.3 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 5.93 | — | — | 1 | µg/L | Y | — | NQ | 2013-258 | CAMO-13-24260 | GELC |
| R-28 | 934.3 | 08/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 5.31 | — | — | 1 | µg/L | Y | — | NQ | 12-1481 | CAMO-12-21743 | GELC |
| R-28 | 934.3 | 05/24/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 6.3 | — | — | 1 | µg/L | Y | — | NQ | 12-1321 | CAMO-12-14023 | GELC |
| R-28 | 934.3 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 4.63 | — | — | 3.3 | µg/L | Y | J | J | 2013-809 | CAMO-13-30592 | GELC |
| R-28 | 934.3 | 02/01/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 5.39 | — | — | 3.3 | µg/L | Y | J | J | 2013-503 | CAMO-13-28416 | GELC |
| R-28 | 934.3 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 3.67 | — | — | 3.3 | µg/L | Y | J | J | 2013-258 | CAMO-13-24260 | GELC |
| R-28 | 934.3 | 08/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 7.55 | — | — | 3.3 | µg/L | Y | J | J | 12-1481 | CAMO-12-21743 | GELC |
| R-28 | 934.3 | 05/24/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 11.2 | — | — | 3.3 | µg/L | Y | — | NQ | 12-1321 | CAMO-12-14023 | GELC |
| R-35a | 1013.1 | 05/17/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.08 | — | — | 0.01 | SU | Y | H | NQ | 2013-865 | CASA-13-30551 | GELC |
| R-35a | 1013.1 | 11/13/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.19 | — | — | 0.01 | SU | Y | H | NQ | 2013-312 | CASA-13-24218 | GELC |
| R-35a | 1013.1 | 06/05/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.16 | — | — | 0.01 | SU | Y | H | NQ | 12-1345 | CASA-12-17136 | GELC |
| R-35a | 1013.1 | 11/17/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.08 | — | — | 0.01 | SU | Y | H | J- | 12-374 | CASA-12-1384 | GELC |
| R-35a | 1013.1 | 08/17/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.07 | — | — | 0.01 | SU | Y | H | J- | 11-3246 | CASA-11-24780 | GELC |
| R-35a | 1013.1 | 05/17/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 104 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-865 | CASA-13-30551 | GELC |
| R-35a | 1013.1 | 11/13/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 105 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-312 | CASA-13-24218 | GELC |
| R-35a | 1013.1 | 06/05/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 106 | — | — | 0.725 | mg/L | Y | — | NQ | 12-1345 | CASA-12-17136 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-35a | 1013.1 | 11/17/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 102 | — | — | 0.73 | mg/L | Y | — | NQ | 12-374 | CASA-12-1384 | GELC |
| R-35a | 1013.1 | 08/17/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 106 | — | — | 0.73 | mg/L | Y | — | NQ | 11-3246 | CASA-11-24780 | GELC |
| R-35a | 1013.1 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 389 | — | — | 1 | µg/L | Y | — | NQ | 2013-865 | CASA-13-30551 | GELC |
| R-35a | 1013.1 | 11/13/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 361 | — | — | 1 | µg/L | Y | — | NQ | 2013-312 | CASA-13-24218 | GELC |
| R-35a | 1013.1 | 06/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 369 | — | — | 1 | µg/L | Y | — | NQ | 12-1345 | CASA-12-17136 | GELC |
| R-35a | 1013.1 | 11/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 372 | — | — | 1 | µg/L | Y | — | NQ | 12-374 | CASA-12-1384 | GELC |
| R-35a | 1013.1 | 08/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 380 | — | — | 1 | µg/L | Y | — | NQ | 11-3246 | CASA-11-24780 | GELC |
| R-35a | 1013.1 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 29.4 | — | — | 15 | µg/L | Y | J | J | 2013-865 | CASA-13-30551 | GELC |
| R-35a | 1013.1 | 11/13/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 39.7 | — | — | 15 | µg/L | Y | J | J | 2013-312 | CASA-13-24218 | GELC |
| R-35a | 1013.1 | 06/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 41.3 | — | — | 15 | µg/L | Y | J | J | 12-1345 | CASA-12-17136 | GELC |
| R-35a | 1013.1 | 11/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 42.1 | — | — | 15 | µg/L | Y | J | J | 12-374 | CASA-12-1384 | GELC |
| R-35a | 1013.1 | 08/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 43.1 | — | — | 15 | µg/L | Y | J | J | 11-3246 | CASA-11-24780 | GELC |
| R-35a | 1013.1 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 24.1 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-865 | CASA-13-30551 | GELC |
| R-35a | 1013.1 | 11/13/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 22.3 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-312 | CASA-13-24218 | GELC |
| R-35a | 1013.1 | 06/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 22.3 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1345 | CASA-12-17136 | GELC |
| R-35a | 1013.1 | 11/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 23.4 | — | — | 0.05 | mg/L | Y | — | NQ | 12-374 | CASA-12-1384 | GELC |
| R-35a | 1013.1 | 08/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 24.5 | — | — | 0.05 | mg/L | Y | — | NQ | 11-3246 | CASA-11-24780 | GELC |
| R-35a | 1013.1 | 05/17/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 6.79 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-865 | CASA-13-30551 | GELC |
| R-35a | 1013.1 | 11/13/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 6.27 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-312 | CASA-13-24218 | GELC |
| R-35a | 1013.1 | 06/05/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 6.37 | — | — | 0.067 | mg/L | Y | — | NQ | 12-1345 | CASA-12-17136 | GELC |
| R-35a | 1013.1 | 11/17/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 5.98 | — | — | 0.066 | mg/L | Y | — | NQ | 12-374 | CASA-12-1384 | GELC |
| R-35a | 1013.1 | 08/17/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 6.25 | — | — | 0.066 | mg/L | Y | — | NQ | 11-3246 | CASA-11-24780 | GELC |
| R-35a | 1013.1 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 4.57 | — | — | 2 | µg/L | Y | J | J | 2013-865 | CASA-13-30551 | GELC |
| R-35a | 1013.1 | 11/13/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 6.25 | — | — | 2 | µg/L | Y | J | J | 2013-312 | CASA-13-24218 | GELC |
| R-35a | 1013.1 | 06/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 4.07 | — | — | 2 | µg/L | Y | J | J | 12-1345 | CASA-12-17136 | GELC |
| R-35a | 1013.1 | 11/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 5.04 | — | — | 2 | µg/L | Y | J | J | 12-374 | CASA-12-1384 | GELC |
| R-35a | 1013.1 | 08/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 7.63 | — | — | 2 | µg/L | Y | J | J | 11-3246 | CASA-11-24780 | GELC |
| R-35a | 1013.1 | 05/17/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.318 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-865 | CASA-13-30551 | GELC |
| R-35a | 1013.1 | 11/13/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.332 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-312 | CASA-13-24218 | GELC |
| R-35a | 1013.1 | 06/05/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.32 | — | — | 0.033 | mg/L | Y | — | NQ | 12-1345 | CASA-12-17136 | GELC |
| R-35a | 1013.1 | 11/17/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.298 | — | — | 0.033 | mg/L | Y | — | NQ | 12-374 | CASA-12-1384 | GELC |
| R-35a | 1013.1 | 08/17/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.326 | — | — | 0.033 | mg/L | Y | — | NQ | 11-3246 | CASA-11-24780 | GELC |
| R-35a | 1013.1 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 86 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-865 | CASA-13-30551 | GELC |
| R-35a | 1013.1 | 11/13/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 80.6 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-312 | CASA-13-24218 | GELC |
| R-35a | 1013.1 | 06/05/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 80.3 | — | — | 0.453 | mg/L | Y | — | NQ | 12-1345 | CASA-12-17136 | GELC |
| R-35a | 1013.1 | 11/17/11 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 83.3 | — | — | 0.45 | mg/L | Y | — | NQ | 12-374 | CASA-12-1384 | GELC |
| R-35a | 1013.1 | 08/17/11 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 86.5 | — | — | 0.45 | mg/L | Y | — | NQ | 11-3246 | CASA-11-24780 | GELC |
| R-35a | 1013.1 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 6.28 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-865 | CASA-13-30551 | GELC |
| R-35a | 1013.1 | 11/13/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 6.08 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-312 | CASA-13-24218 | GELC |
| R-35a | 1013.1 | 06/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 5.99 | — | — | 0.11 | mg/L | Y | — | NQ | 12-1345 | CASA-12-17136 | GELC |
| R-35a | 1013.1 | 11/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 6.04 | — | — | 0.11 | mg/L | Y | — | NQ | 12-374 | CASA-12-1384 | GELC |
| R-35a | 1013.1 | 08/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 6.18 | — | — | 0.11 | mg/L | Y | — | NQ | 11-3246 | CASA-11-24780 | GELC |
| R-35a | 1013.1 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-865 | CASA-13-30551 | GELC |
| R-35a | 1013.1 | 11/13/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.36 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-312 | CASA-13-24218 | GELC |
| R-35a | 1013.1 | 06/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.27 | — | — | 0.165 | µg/L | Y | — | NQ | 12-1345 | CASA-12-17136 | GELC |
| R-35a | 1013.1 | 11/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | N | 1.23 | — | — | 0.17 | µg/L | Y | — | U | 12-374 | CASA-12-1384 | GELC |
| R-35a | 1013.1 | 08/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.07 | — | — | 0.17 | µg/L | Y | — | NQ | 11-3246 | CASA-11-24780 | GELC |
| R-35a | 1013.1 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 9.17 | — | — | 0.5 | µg/L | Y | — | NQ | 2013-865 | CASA-13-30551 | GELC |
| R-35a | 1013.1 | 11/13/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 14.9 | — | — | 0.5 | µg/L | Y | — | NQ | 2013-312 | CASA-13-24218 | GELC |
| R-35a | 1013.1 | 06/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 8.09 | — | — | 0.5 | µg/L | Y | — | NQ | 12-1345 | CASA-12-17136 | GELC |
| R-35a | 1013.1 | 11/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 9.13 | — | — | 0.5 | µg/L | Y | — | NQ | 12-374 | CASA-12-1384 | GELC |
| R-35a | 1013.1 | 08/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 11 | — | — | 0.5 | µg/L | Y | — | NQ | 11-3246 | CASA-11-24780 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-35a | 1013.1 | 05/17/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 0.444 | — | — | 0.017 | mg/L | Y | — | NQ | 2013-865 | CASA-13-30551 | GELC |
| R-35a | 1013.1 | 11/13/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 0.451 | — | — | 0.017 | mg/L | Y | — | NQ | 2013-312 | CASA-13-24218 | GELC |
| R-35a | 1013.1 | 06/05/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 0.423 | — | — | 0.085 | mg/L | Y | — | NQ | 12-1345 | CASA-12-17136 | GELC |
| R-35a | 1013.1 | 11/17/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 0.114 | — | — | 0.01 | mg/L | Y | — | NQ | 12-374 | CASA-12-1384 | GELC |
| R-35a | 1013.1 | 08/17/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 0.206 | — | — | 0.01 | mg/L | Y | — | NQ | 11-3246 | CASA-11-24780 | GELC |
| R-35a | 1013.1 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 4.24 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-865 | CASA-13-30551 | GELC |
| R-35a | 1013.1 | 11/13/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 4.03 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-312 | CASA-13-24218 | GELC |
| R-35a | 1013.1 | 06/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 4.06 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1345 | CASA-12-17136 | GELC |
| R-35a | 1013.1 | 11/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 4.02 | — | — | 0.05 | mg/L | Y | — | J | 12-374 | CASA-12-1384 | GELC |
| R-35a | 1013.1 | 08/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 4.17 | — | — | 0.05 | mg/L | Y | — | NQ | 11-3246 | CASA-11-24780 | GELC |
| R-35a | 1013.1 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 89.5 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-865 | CASA-13-30551 | GELC |
| R-35a | 1013.1 | 11/13/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 81.9 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-312 | CASA-13-24218 | GELC |
| R-35a | 1013.1 | 06/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 84.1 | — | — | 0.053 | mg/L | Y | — | NQ | 12-1345 | CASA-12-17136 | GELC |
| R-35a | 1013.1 | 11/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 88.6 | — | — | 0.053 | mg/L | Y | — | NQ | 12-374 | CASA-12-1384 | GELC |
| R-35a | 1013.1 | 08/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 87.1 | — | — | 0.053 | mg/L | Y | — | NQ | 11-3246 | CASA-11-24780 | GELC |
| R-35a | 1013.1 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 18 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-865 | CASA-13-30551 | GELC |
| R-35a | 1013.1 | 11/13/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 18.8 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-312 | CASA-13-24218 | GELC |
| R-35a | 1013.1 | 06/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 16.9 | — | — | 0.1 | mg/L | Y | — | NQ | 12-1345 | CASA-12-17136 | GELC |
| R-35a | 1013.1 | 11/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 17.4 | — | — | 0.1 | mg/L | Y | — | NQ | 12-374 | CASA-12-1384 | GELC |
| R-35a | 1013.1 | 08/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 18.4 | — | — | 0.1 | mg/L | Y | — | NQ | 11-3246 | CASA-11-24780 | GELC |
| R-35a | 1013.1 | 05/17/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 242 | — | — | 1 | µS/cm | Y | — | NQ | 2013-865 | CASA-13-30551 | GELC |
| R-35a | 1013.1 | 11/13/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 244 | — | — | 1 | µS/cm | Y | — | NQ | 2013-312 | CASA-13-24218 | GELC |
| R-35a | 1013.1 | 06/05/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 236 | — | — | 1 | µS/cm | Y | — | NQ | 12-1345 | CASA-12-17136 | GELC |
| R-35a | 1013.1 | 11/17/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 241 | — | — | 1 | µS/cm | Y | — | NQ | 12-374 | CASA-12-1384 | GELC |
| R-35a | 1013.1 | 08/17/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 241 | — | — | 1 | µS/cm | Y | — | NQ | 11-3246 | CASA-11-24780 | GELC |
| R-35a | 1013.1 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 192 | — | — | 1 | µg/L | Y | — | NQ | 2013-865 | CASA-13-30551 | GELC |
| R-35a | 1013.1 | 11/13/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 181 | — | — | 1 | µg/L | Y | — | NQ | 2013-312 | CASA-13-24218 | GELC |
| R-35a | 1013.1 | 06/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 176 | — | — | 1 | µg/L | Y | — | NQ | 12-1345 | CASA-12-17136 | GELC |
| R-35a | 1013.1 | 11/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 181 | — | — | 1 | µg/L | Y | — | NQ | 12-374 | CASA-12-1384 | GELC |
| R-35a | 1013.1 | 08/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 186 | — | — | 1 | µg/L | Y | — | NQ | 11-3246 | CASA-11-24780 | GELC |
| R-35a | 1013.1 | 05/17/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 5.72 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-865 | CASA-13-30551 | GELC |
| R-35a | 1013.1 | 11/13/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 5.52 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-312 | CASA-13-24218 | GELC |
| R-35a | 1013.1 | 06/05/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 5.53 | — | — | 0.133 | mg/L | Y | — | NQ | 12-1345 | CASA-12-17136 | GELC |
| R-35a | 1013.1 | 11/17/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 5.29 | — | — | 0.1 | mg/L | Y | — | NQ | 12-374 | CASA-12-1384 | GELC |
| R-35a | 1013.1 | 08/17/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 5.47 | — | — | 0.1 | mg/L | Y | — | NQ | 11-3246 | CASA-11-24780 | GELC |
| R-35a | 1013.1 | 05/17/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 184 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-865 | CASA-13-30551 | GELC |
| R-35a | 1013.1 | 11/13/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 204 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-312 | CASA-13-24218 | GELC |
| R-35a | 1013.1 | 06/05/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 201 | — | — | 3.4 | mg/L | Y | — | NQ | 12-1345 | CASA-12-17136 | GELC |
| R-35a | 1013.1 | 11/17/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 196 | — | — | 3.4 | mg/L | Y | — | NQ | 12-374 | CASA-12-1384 | GELC |
| R-35a | 1013.1 | 08/17/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 216 | — | — | 3.4 | mg/L | Y | — | NQ | 11-3246 | CASA-11-24780 | GELC |
| R-35a | 1013.1 | 05/17/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 1.09 | — | — | 0.33 | mg/L | Y | — | NQ | 2013-865 | CASA-13-30543 | GELC |
| R-35a | 1013.1 | 11/13/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 1.02 | — | — | 0.33 | mg/L | Y | — | NQ | 2013-312 | CASA-13-24210 | GELC |
| R-35a | 1013.1 | 06/05/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 1.31 | — | — | 0.33 | mg/L | Y | — | NQ | 12-1345 | CASA-12-17133 | GELC |
| R-35a | 1013.1 | 11/17/11 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | N | 0.369 | — | — | 0.33 | mg/L | Y | J | U | 12-374 | CASA-12-1383 | GELC |
| R-35a | 1013.1 | 08/17/11 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | N | 1 | — | — | 0.33 | mg/L | Y | U | U | 11-3246 | CASA-11-24781 | GELC |
| R-35a | 1013.1 | 05/17/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 0.03 | — | — | 0.017 | mg/L | Y | J | J | 2013-865 | CASA-13-30551 | GELC |
| R-35a | 1013.1 | 11/13/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | N | 0.05 | — | — | 0.017 | mg/L | Y | U | U | 2013-312 | CASA-13-24218 | GELC |
| R-35a | 1013.1 | 06/05/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | N | 0.05 | — | — | 0.017 | mg/L | Y | U | U | 12-1345 | CASA-12-17136 | GELC |
| R-35a | 1013.1 | 11/17/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 0.03 | — | — | 0.015 | mg/L | Y | J | J | 12-374 | CASA-12-1384 | GELC |
| R-35a | 1013.1 | 08/17/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | N | 0.0746 | — | — | 0.015 | mg/L | Y | — | U | 11-3246 | CASA-11-24780 | GELC |
| R-35a | 1013.1 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.607 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-865 | CASA-13-30551 | GELC |
| R-35a | 1013.1 | 11/13/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.693 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-312 | CASA-13-24218 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-35a | 1013.1 | 06/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.701 | — | — | 0.067 | µg/L | Y | — | NQ | 12-1345 | CASA-12-17136 | GELC |
| R-35a | 1013.1 | 11/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.626 | — | — | 0.067 | µg/L | Y | — | NQ | 12-374 | CASA-12-1384 | GELC |
| R-35a | 1013.1 | 08/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.658 | — | — | 0.067 | µg/L | Y | — | NQ | 11-3246 | CASA-11-24780 | GELC |
| R-35a | 1013.1 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 18.1 | — | — | 1 | µg/L | Y | — | NQ | 2013-865 | CASA-13-30551 | GELC |
| R-35a | 1013.1 | 11/13/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 17.5 | — | — | 1 | µg/L | Y | — | NQ | 2013-312 | CASA-13-24218 | GELC |
| R-35a | 1013.1 | 06/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 17.1 | — | — | 1 | µg/L | Y | — | NQ | 12-1345 | CASA-12-17136 | GELC |
| R-35a | 1013.1 | 11/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 17.6 | — | — | 1 | µg/L | Y | — | J | 12-374 | CASA-12-1384 | GELC |
| R-35a | 1013.1 | 08/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 17.5 | — | — | 1 | µg/L | Y | — | NQ | 11-3246 | CASA-11-24780 | GELC |
| R-35b | 825.4 | 05/10/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.7 | — | — | 0.01 | SU | Y | H | NQ | 2013-831 | CASA-13-30552 | GELC |
| R-35b | 825.4 | 11/14/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.85 | — | — | 0.01 | SU | Y | H | NQ | 2013-321 | CASA-13-24219 | GELC |
| R-35b | 825.4 | 06/06/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.85 | — | — | 0.01 | SU | Y | H | NQ | 12-1347 | CASA-12-17137 | GELC |
| R-35b | 825.4 | 11/09/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.77 | — | — | 0.01 | SU | Y | H | J- | 12-317 | CASA-12-1386 | GELC |
| R-35b | 825.4 | 08/12/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.85 | — | — | 0.01 | SU | Y | H | J- | 11-3193 | CASA-11-24782 | GELC |
| R-35b | 825.4 | 05/10/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 71.6 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-831 | CASA-13-30552 | GELC |
| R-35b | 825.4 | 11/14/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 73.1 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-321 | CASA-13-24219 | GELC |
| R-35b | 825.4 | 06/06/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 72.6 | — | — | 0.725 | mg/L | Y | — | NQ | 12-1347 | CASA-12-17137 | GELC |
| R-35b | 825.4 | 11/09/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 72.6 | — | — | 0.73 | mg/L | Y | — | NQ | 12-317 | CASA-12-1386 | GELC |
| R-35b | 825.4 | 08/12/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 81.2 | — | — | 0.73 | mg/L | Y | — | NQ | 11-3193 | CASA-11-24782 | GELC |
| R-35b | 825.4 | 05/10/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Arsenic | As | Y | 1.86 | — | — | 1.7 | µg/L | Y | J | J | 2013-831 | CASA-13-30552 | GELC |
| R-35b | 825.4 | 11/14/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Arsenic | As | N | 5 | — | — | 1.7 | µg/L | Y | U | U | 2013-321 | CASA-13-24219 | GELC |
| R-35b | 825.4 | 06/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Arsenic | As | Y | 2.6 | — | — | 1.7 | µg/L | Y | J | J | 12-1347 | CASA-12-17137 | GELC |
| R-35b | 825.4 | 11/09/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Arsenic | As | N | 5 | — | — | 1.7 | µg/L | Y | U | U | 12-317 | CASA-12-1386 | GELC |
| R-35b | 825.4 | 08/12/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Arsenic | As | N | 5 | — | — | 1.7 | µg/L | Y | U | U | 11-3193 | CASA-11-24782 | GELC |
| R-35b | 825.4 | 05/10/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 41.9 | — | — | 1 | µg/L | Y | — | NQ | 2013-831 | CASA-13-30552 | GELC |
| R-35b | 825.4 | 11/14/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 37.7 | — | — | 1 | µg/L | Y | — | NQ | 2013-321 | CASA-13-24219 | GELC |
| R-35b | 825.4 | 06/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 38.2 | — | — | 1 | µg/L | Y | — | NQ | 12-1347 | CASA-12-17137 | GELC |
| R-35b | 825.4 | 11/09/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 41.3 | — | — | 1 | µg/L | Y | — | NQ | 12-317 | CASA-12-1386 | GELC |
| R-35b | 825.4 | 08/12/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 40.1 | — | — | 1 | µg/L | Y | — | NQ | 11-3193 | CASA-11-24782 | GELC |
| R-35b | 825.4 | 05/10/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 16.5 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-831 | CASA-13-30552 | GELC |
| R-35b | 825.4 | 11/14/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 15.2 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-321 | CASA-13-24219 | GELC |
| R-35b | 825.4 | 06/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 15.3 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1347 | CASA-12-17137 | GELC |
| R-35b | 825.4 | 11/09/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 16.8 | — | — | 0.05 | mg/L | Y | — | NQ | 12-317 | CASA-12-1386 | GELC |
| R-35b | 825.4 | 08/12/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 16.2 | — | — | 0.05 | mg/L | Y | — | NQ | 11-3193 | CASA-11-24782 | GELC |
| R-35b | 825.4 | 05/10/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 2.83 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-831 | CASA-13-30552 | GELC |
| R-35b | 825.4 | 11/14/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 2.84 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-321 | CASA-13-24219 | GELC |
| R-35b | 825.4 | 06/06/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 2.88 | — | — | 0.067 | mg/L | Y | — | NQ | 12-1347 | CASA-12-17137 | GELC |
| R-35b | 825.4 | 11/09/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 2.69 | — | — | 0.066 | mg/L | Y | — | NQ | 12-317 | CASA-12-1386 | GELC |
| R-35b | 825.4 | 08/12/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 2.81 | — | — | 0.066 | mg/L | Y | — | NQ | 11-3193 | CASA-11-24782 | GELC |
| R-35b | 825.4 | 05/10/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 5.31 | — | — | 2 | µg/L | Y | J | J | 2013-831 | CASA-13-30552 | GELC |
| R-35b | 825.4 | 11/14/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 5 | — | — | 2 | µg/L | Y | J | J | 2013-321 | CASA-13-24219 | GELC |
| R-35b | 825.4 | 06/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 4.34 | — | — | 2 | µg/L | Y | J | J | 12-1347 | CASA-12-17137 | GELC |
| R-35b | 825.4 | 11/09/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 6.4 | — | — | 2 | µg/L | Y | J | J | 12-317 | CASA-12-1386 | GELC |
| R-35b | 825.4 | 08/12/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 6.42 | — | — | 2 | µg/L | Y | J | J | 11-3193 | CASA-11-24782 | GELC |
| R-35b | 825.4 | 05/10/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.449 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-831 | CASA-13-30552 | GELC |
| R-35b | 825.4 | 11/14/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.498 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-321 | CASA-13-24219 | GELC |
| R-35b | 825.4 | 06/06/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.501 | — | — | 0.033 | mg/L | Y | — | NQ | 12-1347 | CASA-12-17137 | GELC |
| R-35b | 825.4 | 11/09/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.473 | — | — | 0.033 | mg/L | Y | — | NQ | 12-317 | CASA-12-1386 | GELC |
| R-35b | 825.4 | 08/12/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.464 | — | — | 0.033 | mg/L | Y | — | NQ | 11-3193 | CASA-11-24782 | GELC |
| R-35b | 825.4 | 05/10/13 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 64.3 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-831 | CASA-13-30552 | GELC |
| R-35b | 825.4 | 11/14/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 59.1 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-321 | CASA-13-24219 | GELC |
| R-35b | 825.4 | 06/06/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 59.2 | — | — | 0.453 | mg/L | Y | — | NQ | 12-1347 | CASA-12-17137 | GELC |
| R-35b | 825.4 | 11/09/11 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 63.5 | — | — | 0.45 | mg/L | Y | — | NQ | 12-317 | CASA-12-1386 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-35b | 825.4 | 08/12/11 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 61 | — | — | 0.45 | mg/L | Y | — | NQ | 11-3193 | CASA-11-24782 | GELC |
| R-35b | 825.4 | 05/10/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 5.29 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-831 | CASA-13-30552 | GELC |
| R-35b | 825.4 | 11/14/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 5.13 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-321 | CASA-13-24219 | GELC |
| R-35b | 825.4 | 06/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 5.08 | — | — | 0.11 | mg/L | Y | — | NQ | 12-1347 | CASA-12-17137 | GELC |
| R-35b | 825.4 | 11/09/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 5.26 | — | — | 0.11 | mg/L | Y | — | NQ | 12-317 | CASA-12-1386 | GELC |
| R-35b | 825.4 | 08/12/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 4.98 | — | — | 0.11 | mg/L | Y | — | NQ | 11-3193 | CASA-11-24782 | GELC |
| R-35b | 825.4 | 05/10/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.3 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-831 | CASA-13-30552 | GELC |
| R-35b | 825.4 | 11/14/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.21 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-321 | CASA-13-24219 | GELC |
| R-35b | 825.4 | 06/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.39 | — | — | 0.165 | µg/L | Y | — | NQ | 12-1347 | CASA-12-17137 | GELC |
| R-35b | 825.4 | 11/09/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.33 | — | — | 0.17 | µg/L | Y | — | NQ | 12-317 | CASA-12-1386 | GELC |
| R-35b | 825.4 | 08/12/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.3 | — | — | 0.17 | µg/L | Y | — | NQ | 11-3193 | CASA-11-24782 | GELC |
| R-35b | 825.4 | 05/10/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 2.05 | — | — | 0.5 | µg/L | Y | — | NQ | 2013-831 | CASA-13-30552 | GELC |
| R-35b | 825.4 | 11/14/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 1.77 | — | — | 0.5 | µg/L | Y | J | J | 2013-321 | CASA-13-24219 | GELC |
| R-35b | 825.4 | 06/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 1.74 | — | — | 0.5 | µg/L | Y | J | J | 12-1347 | CASA-12-17137 | GELC |
| R-35b | 825.4 | 11/09/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 1.56 | — | — | 0.5 | µg/L | Y | J | J | 12-317 | CASA-12-1386 | GELC |
| R-35b | 825.4 | 08/12/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 1.05 | — | — | 0.5 | µg/L | Y | J | J | 11-3193 | CASA-11-24782 | GELC |
| R-35b | 825.4 | 05/10/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 1.02 | — | — | 0.017 | mg/L | Y | — | NQ | 2013-831 | CASA-13-30552 | GELC |
| R-35b | 825.4 | 11/14/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 1.17 | — | — | 0.085 | mg/L | Y | — | NQ | 2013-321 | CASA-13-24219 | GELC |
| R-35b | 825.4 | 06/06/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 1.2 | — | — | 0.085 | mg/L | Y | — | NQ | 12-1347 | CASA-12-17137 | GELC |
| R-35b | 825.4 | 11/09/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 1.21 | — | — | 0.05 | mg/L | Y | — | NQ | 12-317 | CASA-12-1386 | GELC |
| R-35b | 825.4 | 08/12/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 1.18 | — | — | 0.1 | mg/L | Y | — | NQ | 11-3193 | CASA-11-24782 | GELC |
| R-35b | 825.4 | 05/10/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 2.15 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-831 | CASA-13-30552 | GELC |
| R-35b | 825.4 | 11/14/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.98 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-321 | CASA-13-24219 | GELC |
| R-35b | 825.4 | 06/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 2.02 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1347 | CASA-12-17137 | GELC |
| R-35b | 825.4 | 11/09/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 2.25 | — | — | 0.05 | mg/L | Y | — | NQ | 12-317 | CASA-12-1386 | GELC |
| R-35b | 825.4 | 08/12/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 2.06 | — | — | 0.05 | mg/L | Y | — | NQ | 11-3193 | CASA-11-24782 | GELC |
| R-35b | 825.4 | 05/10/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 83.1 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-831 | CASA-13-30552 | GELC |
| R-35b | 825.4 | 11/14/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 75.6 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-321 | CASA-13-24219 | GELC |
| R-35b | 825.4 | 06/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 76.8 | — | — | 0.053 | mg/L | Y | — | NQ | 12-1347 | CASA-12-17137 | GELC |
| R-35b | 825.4 | 11/09/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 83.2 | — | — | 0.053 | mg/L | Y | — | NQ | 12-317 | CASA-12-1386 | GELC |
| R-35b | 825.4 | 08/12/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 77.9 | — | — | 0.053 | mg/L | Y | — | NQ | 11-3193 | CASA-11-24782 | GELC |
| R-35b | 825.4 | 05/10/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 11.7 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-831 | CASA-13-30552 | GELC |
| R-35b | 825.4 | 11/14/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 11.9 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-321 | CASA-13-24219 | GELC |
| R-35b | 825.4 | 06/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 10.7 | — | — | 0.1 | mg/L | Y | — | NQ | 12-1347 | CASA-12-17137 | GELC |
| R-35b | 825.4 | 11/09/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 11.9 | — | — | 0.1 | mg/L | Y | — | NQ | 12-317 | CASA-12-1386 | GELC |
| R-35b | 825.4 | 08/12/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 11.2 | — | — | 0.1 | mg/L | Y | — | NQ | 11-3193 | CASA-11-24782 | GELC |
| R-35b | 825.4 | 05/10/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 170 | — | — | 1 | µS/cm | Y | — | NQ | 2013-831 | CASA-13-30552 | GELC |
| R-35b | 825.4 | 11/14/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 171 | — | — | 1 | µS/cm | Y | — | NQ | 2013-321 | CASA-13-24219 | GELC |
| R-35b | 825.4 | 06/06/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 168 | — | — | 1 | µS/cm | Y | — | NQ | 12-1347 | CASA-12-17137 | GELC |
| R-35b | 825.4 | 11/09/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 168 | — | — | 1 | µS/cm | Y | — | NQ | 12-317 | CASA-12-1386 | GELC |
| R-35b | 825.4 | 08/12/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 165 | — | — | 1 | µS/cm | Y | — | NQ | 11-3193 | CASA-11-24782 | GELC |
| R-35b | 825.4 | 05/10/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 70.9 | — | — | 1 | µg/L | Y | — | NQ | 2013-831 | CASA-13-30552 | GELC |
| R-35b | 825.4 | 11/14/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 67 | — | — | 1 | µg/L | Y | — | NQ | 2013-321 | CASA-13-24219 | GELC |
| R-35b | 825.4 | 06/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 64 | — | — | 1 | µg/L | Y | — | NQ | 12-1347 | CASA-12-17137 | GELC |
| R-35b | 825.4 | 11/09/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 72.7 | — | — | 1 | µg/L | Y | — | NQ | 12-317 | CASA-12-1386 | GELC |
| R-35b | 825.4 | 08/12/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 67.1 | — | — | 1 | µg/L | Y | — | NQ | 11-3193 | CASA-11-24782 | GELC |
| R-35b | 825.4 | 05/10/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 3.38 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-831 | CASA-13-30552 | GELC |
| R-35b | 825.4 | 11/14/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 3.63 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-321 | CASA-13-24219 | GELC |
| R-35b | 825.4 | 06/06/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 3.64 | — | — | 0.133 | mg/L | Y | — | NQ | 12-1347 | CASA-12-17137 | GELC |
| R-35b | 825.4 | 11/09/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 3.49 | — | — | 0.1 | mg/L | Y | — | NQ | 12-317 | CASA-12-1386 | GELC |
| R-35b | 825.4 | 08/12/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 3.43 | — | — | 0.1 | mg/L | Y | — | NQ | 11-3193 | CASA-11-24782 | GELC |
| R-35b | 825.4 | 05/10/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 137 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-831 | CASA-13-30552 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-35b | 825.4 | 11/14/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 149 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-321 | CASA-13-24219 | GELC |
| R-35b | 825.4 | 06/06/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 140 | — | — | 3.4 | mg/L | Y | — | NQ | 12-1347 | CASA-12-17137 | GELC |
| R-35b | 825.4 | 11/09/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 119 | — | — | 3.4 | mg/L | Y | — | NQ | 12-317 | CASA-12-1386 | GELC |
| R-35b | 825.4 | 08/12/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 146 | — | — | 3.4 | mg/L | Y | — | NQ | 11-3193 | CASA-11-24782 | GELC |
| R-35b | 825.4 | 05/10/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.833 | — | — | 0.33 | mg/L | Y | J | J | 2013-831 | CASA-13-30544 | GELC |
| R-35b | 825.4 | 11/14/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | N | 1 | — | — | 0.33 | mg/L | Y | U | U | 2013-321 | CASA-13-24211 | GELC |
| R-35b | 825.4 | 06/06/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.952 | — | — | 0.33 | mg/L | Y | J | J | 12-1347 | CASA-12-17134 | GELC |
| R-35b | 825.4 | 11/09/11 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.385 | — | — | 0.33 | mg/L | Y | J | J | 12-317 | CASA-12-1387 | GELC |
| R-35b | 825.4 | 08/12/11 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.44 | — | — | 0.33 | mg/L | Y | J | J | 11-3193 | CASA-11-24783 | GELC |
| R-35b | 825.4 | 05/10/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.277 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-831 | CASA-13-30552 | GELC |
| R-35b | 825.4 | 11/14/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.301 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-321 | CASA-13-24219 | GELC |
| R-35b | 825.4 | 06/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.328 | — | — | 0.067 | µg/L | Y | — | NQ | 12-1347 | CASA-12-17137 | GELC |
| R-35b | 825.4 | 11/09/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.316 | — | — | 0.067 | µg/L | Y | — | NQ | 12-317 | CASA-12-1386 | GELC |
| R-35b | 825.4 | 08/12/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.185 | — | — | 0.067 | µg/L | Y | J | J | 11-3193 | CASA-11-24782 | GELC |
| R-35b | 825.4 | 05/10/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 14.9 | — | — | 1 | µg/L | Y | — | NQ | 2013-831 | CASA-13-30552 | GELC |
| R-35b | 825.4 | 11/14/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 14.4 | — | — | 1 | µg/L | Y | — | NQ | 2013-321 | CASA-13-24219 | GELC |
| R-35b | 825.4 | 06/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 13.9 | — | — | 1 | µg/L | Y | — | NQ | 12-1347 | CASA-12-17137 | GELC |
| R-35b | 825.4 | 11/09/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 14.7 | — | — | 1 | µg/L | Y | — | NQ | 12-317 | CASA-12-1386 | GELC |
| R-35b | 825.4 | 08/12/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 13.6 | — | — | 1 | µg/L | Y | — | NQ | 11-3193 | CASA-11-24782 | GELC |
| R-35b | 825.4 | 05/10/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 31.4 | — | — | 3.3 | µg/L | Y | — | NQ | 2013-831 | CASA-13-30552 | GELC |
| R-35b | 825.4 | 11/14/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 30 | — | — | 3.3 | µg/L | Y | — | NQ | 2013-321 | CASA-13-24219 | GELC |
| R-35b | 825.4 | 06/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 29.2 | — | — | 3.3 | µg/L | Y | — | NQ | 12-1347 | CASA-12-17137 | GELC |
| R-35b | 825.4 | 11/09/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 25.2 | — | — | 3.3 | µg/L | Y | — | NQ | 12-317 | CASA-12-1386 | GELC |
| R-35b | 825.4 | 08/12/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 26.5 | — | — | 3.3 | µg/L | Y | — | NQ | 11-3193 | CASA-11-24782 | GELC |
| R-36 | 766.9 | 05/17/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.41 | — | — | 0.01 | SU | Y | H | NQ | 2013-868 | CASA-13-30553 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.52 | — | — | 0.01 | SU | Y | H | NQ | 2013-322 | CASA-13-24220 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.49 | — | — | 0.01 | SU | Y | H | NQ | 2013-322 | CASA-13-24207 | GELC |
| R-36 | 766.9 | 05/30/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.65 | — | — | 0.01 | SU | Y | H | NQ | 12-1325 | CASA-12-17138 | GELC |
| R-36 | 766.9 | 03/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.44 | — | — | 0.01 | SU | Y | H | NQ | 12-1064 | CASA-12-12038 | GELC |
| R-36 | 766.9 | 11/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.03 | — | — | 0.01 | SU | Y | H | J- | 12-366 | CASA-12-1390 | GELC |
| R-36 | 766.9 | 05/17/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 89.8 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-868 | CASA-13-30553 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 68.5 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-322 | CASA-13-24220 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 70 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-322 | CASA-13-24207 | GELC |
| R-36 | 766.9 | 05/30/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 69.4 | — | — | 0.725 | mg/L | Y | — | NQ | 12-1325 | CASA-12-17138 | GELC |
| R-36 | 766.9 | 03/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 75.4 | — | — | 0.725 | mg/L | Y | — | NQ | 12-1064 | CASA-12-12038 | GELC |
| R-36 | 766.9 | 11/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 69.7 | — | — | 0.73 | mg/L | Y | — | NQ | 12-366 | CASA-12-1390 | GELC |
| R-36 | 766.9 | 05/17/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | NH3-N | Y | 0.0994 | — | — | 0.017 | mg/L | Y | — | J | 2013-868 | CASA-13-30553 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | NH3-N | N | 0.05 | — | — | 0.017 | mg/L | Y | U | U | 2013-322 | CASA-13-24220 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | NH3-N | Y | 0.0371 | — | — | 0.017 | mg/L | Y | J | J | 2013-322 | CASA-13-24207 | GELC |
| R-36 | 766.9 | 05/30/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | NH3-N | N | 0.05 | — | — | 0.017 | mg/L | Y | U | U | 12-1325 | CASA-12-17138 | GELC |
| R-36 | 766.9 | 03/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | NH3-N | N | 0.0375 | — | — | 0.016 | mg/L | Y | J | U | 12-1064 | CASA-12-12038 | GELC |
| R-36 | 766.9 | 11/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | NH3-N | N | 0.05 | — | — | 0.016 | mg/L | Y | U | U | 12-366 | CASA-12-1390 | GELC |
| R-36 | 766.9 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 36.2 | — | — | 1 | µg/L | Y | — | NQ | 2013-868 | CASA-13-30553 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 33.9 | — | — | 1 | µg/L | Y | — | NQ | 2013-322 | CASA-13-24220 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Barium | Ba | Y | 33.1 | — | — | 1 | µg/L | Y | — | NQ | 2013-322 | CASA-13-24207 | GELC |
| R-36 | 766.9 | 05/30/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 35.3 | — | — | 1 | µg/L | Y | — | NQ | 12-1325 | CASA-12-17138 | GELC |
| R-36 | 766.9 | 03/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 31.2 | — | — | 1 | µg/L | Y | — | NQ | 12-1064 | CASA-12-12038 | GELC |
| R-36 | 766.9 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 35.3 | — | — | 1 | µg/L | Y | — | J | 12-366 | CASA-12-1390 | GELC |
| R-36 | 766.9 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 15.2 | — | — | 15 | µg/L | Y | J | J | 2013-868 | CASA-13-30553 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 22.2 | — | — | 15 | µg/L | Y | J | J | 2013-322 | CASA-13-24220 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Boron | B | Y | 21.7 | — | — | 15 | µg/L | Y | J | J | 2013-322 | CASA-13-24207 | GELC |
| R-36 | 766.9 | 05/30/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 24.1 | — | — | 15 | µg/L | Y | J | J | 12-1325 | CASA-12-17138 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-36 | 766.9 | 03/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 26.1 | — | — | 15 | µg/L | Y | J | J | 12-1064 | CASA-12-12038 | GELC |
| R-36 | 766.9 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 25.2 | — | — | 15 | µg/L | Y | J | J | 12-366 | CASA-12-1390 | GELC |
| R-36 | 766.9 | 05/17/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.101 | — | — | 0.067 | mg/L | Y | J | J | 2013-868 | CASA-13-30553 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.105 | — | — | 0.067 | mg/L | Y | J | J | 2013-322 | CASA-13-24220 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.0977 | — | — | 0.067 | mg/L | Y | J | J | 2013-322 | CASA-13-24207 | GELC |
| R-36 | 766.9 | 05/30/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.0723 | — | — | 0.067 | mg/L | Y | J | J | 12-1325 | CASA-12-17138 | GELC |
| R-36 | 766.9 | 03/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.0752 | — | — | 0.066 | mg/L | Y | J | J | 12-1064 | CASA-12-12038 | GELC |
| R-36 | 766.9 | 11/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.101 | — | — | 0.066 | mg/L | Y | J | J | 12-366 | CASA-12-1390 | GELC |
| R-36 | 766.9 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 18.7 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-868 | CASA-13-30553 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 17.9 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-322 | CASA-13-24220 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 17.7 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-322 | CASA-13-24207 | GELC |
| R-36 | 766.9 | 05/30/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 18.7 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1325 | CASA-12-17138 | GELC |
| R-36 | 766.9 | 03/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 17.4 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1064 | CASA-12-12038 | GELC |
| R-36 | 766.9 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 18.7 | — | — | 0.05 | mg/L | Y | — | NQ | 12-366 | CASA-12-1390 | GELC |
| R-36 | 766.9 | 05/17/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 6.27 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-868 | CASA-13-30553 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 5.78 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-322 | CASA-13-24220 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 5.79 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-322 | CASA-13-24207 | GELC |
| R-36 | 766.9 | 05/30/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 5.89 | — | — | 0.067 | mg/L | Y | — | NQ | 12-1325 | CASA-12-17138 | GELC |
| R-36 | 766.9 | 03/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 5.75 | — | — | 0.066 | mg/L | Y | — | NQ | 12-1064 | CASA-12-12038 | GELC |
| R-36 | 766.9 | 11/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 4.05 | — | — | 0.066 | mg/L | Y | — | NQ | 12-366 | CASA-12-1390 | GELC |
| R-36 | 766.9 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 5.09 | — | — | 2 | µg/L | Y | J | J | 2013-868 | CASA-13-30553 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 5.63 | — | — | 2 | µg/L | Y | J | J | 2013-322 | CASA-13-24220 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 5.78 | — | — | 2 | µg/L | Y | J | J | 2013-322 | CASA-13-24207 | GELC |
| R-36 | 766.9 | 05/30/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 5.55 | — | — | 2 | µg/L | Y | J | J | 12-1325 | CASA-12-17138 | GELC |
| R-36 | 766.9 | 03/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 4.74 | — | — | 2 | µg/L | Y | J | J | 12-1064 | CASA-12-12038 | GELC |
| R-36 | 766.9 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 6.35 | — | — | 2 | µg/L | Y | J | J | 12-366 | CASA-12-1390 | GELC |
| R-36 | 766.9 | 05/17/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.542 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-868 | CASA-13-30553 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.533 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-322 | CASA-13-24220 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.545 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-322 | CASA-13-24207 | GELC |
| R-36 | 766.9 | 05/30/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.537 | — | — | 0.033 | mg/L | Y | — | NQ | 12-1325 | CASA-12-17138 | GELC |
| R-36 | 766.9 | 03/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.542 | — | — | 0.033 | mg/L | Y | — | NQ | 12-1064 | CASA-12-12038 | GELC |
| R-36 | 766.9 | 11/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.402 | — | — | 0.033 | mg/L | Y | — | NQ | 12-366 | CASA-12-1390 | GELC |
| R-36 | 766.9 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 64.5 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-868 | CASA-13-30553 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 62.9 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-322 | CASA-13-24220 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | FD | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 62.1 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-322 | CASA-13-24207 | GELC |
| R-36 | 766.9 | 05/30/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 65.2 | — | — | 0.453 | mg/L | Y | — | NQ | 12-1325 | CASA-12-17138 | GELC |
| R-36 | 766.9 | 03/08/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 60.8 | — | — | 0.453 | mg/L | Y | — | NQ | 12-1064 | CASA-12-12038 | GELC |
| R-36 | 766.9 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 64.8 | — | — | 0.45 | mg/L | Y | — | NQ | 12-366 | CASA-12-1390 | GELC |
| R-36 | 766.9 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 4.3 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-868 | CASA-13-30553 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 4.4 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-322 | CASA-13-24220 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 4.35 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-322 | CASA-13-24207 | GELC |
| R-36 | 766.9 | 05/30/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 4.48 | — | — | 0.11 | mg/L | Y | — | NQ | 12-1325 | CASA-12-17138 | GELC |
| R-36 | 766.9 | 03/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 4.2 | — | — | 0.11 | mg/L | Y | — | NQ | 12-1064 | CASA-12-12038 | GELC |
| R-36 | 766.9 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 4.39 | — | — | 0.11 | mg/L | Y | — | NQ | 12-366 | CASA-12-1390 | GELC |
| R-36 | 766.9 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Manganese | Mn | Y | 3.04 | — | — | 2 | µg/L | Y | J | J | 2013-868 | CASA-13-30553 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Manganese | Mn | Y | 2.36 | — | — | 2 | µg/L | Y | J | J | 2013-322 | CASA-13-24220 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Manganese | Mn | Y | 2.07 | — | — | 2 | µg/L | Y | J | J | 2013-322 | CASA-13-24207 | GELC |
| R-36 | 766.9 | 05/30/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Manganese | Mn | Y | 2.06 | — | — | 2 | µg/L | Y | J | J | 12-1325 | CASA-12-17138 | GELC |
| R-36 | 766.9 | 03/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Manganese | Mn | Y | 2.55 | — | — | 2 | µg/L | Y | J | J | 12-1064 | CASA-12-12038 | GELC |
| R-36 | 766.9 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Manganese | Mn | Y | 2.05 | — | — | 2 | µg/L | Y | J | J | 12-366 | CASA-12-1390 | GELC |
| R-36 | 766.9 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.73 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-868 | CASA-13-30553 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.78 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-322 | CASA-13-24220 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.78 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-322 | CASA-13-24207 | GELC |
| R-36 | 766.9 | 05/30/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.75 | — | — | 0.165 | µg/L | Y | — | NQ | 12-1325 | CASA-12-17138 | GELC |
| R-36 | 766.9 | 03/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.91 | — | — | 0.165 | µg/L | Y | — | NQ | 12-1064 | CASA-12-12038 | GELC |
| R-36 | 766.9 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.82 | — | — | 0.17 | µg/L | Y | — | J | 12-366 | CASA-12-1390 | GELC |
| R-36 | 766.9 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 1.87 | — | — | 0.5 | µg/L | Y | J | J | 2013-868 | CASA-13-30553 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 1.62 | — | — | 0.5 | µg/L | Y | J | J | 2013-322 | CASA-13-24220 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 1.59 | — | — | 0.5 | µg/L | Y | J | J | 2013-322 | CASA-13-24207 | GELC |
| R-36 | 766.9 | 05/30/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 1.13 | — | — | 0.5 | µg/L | Y | J | J | 12-1325 | CASA-12-17138 | GELC |
| R-36 | 766.9 | 03/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 1.19 | — | — | 0.5 | µg/L | Y | J | J | 12-1064 | CASA-12-12038 | GELC |
| R-36 | 766.9 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 0.601 | — | — | 0.5 | µg/L | Y | J | J | 12-366 | CASA-12-1390 | GELC |
| R-36 | 766.9 | 05/17/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 2.41 | — | — | 0.085 | mg/L | Y | — | NQ | 2013-868 | CASA-13-30553 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 2.26 | — | — | 0.085 | mg/L | Y | — | NQ | 2013-322 | CASA-13-24220 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 2.3 | — | — | 0.085 | mg/L | Y | — | NQ | 2013-322 | CASA-13-24207 | GELC |
| R-36 | 766.9 | 05/30/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 2.25 | — | — | 0.085 | mg/L | Y | — | NQ | 12-1325 | CASA-12-17138 | GELC |
| R-36 | 766.9 | 03/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 1.25 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1064 | CASA-12-12038 | GELC |
| R-36 | 766.9 | 11/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 5.14 | — | — | 0.1 | mg/L | N | — | R | 12-366 | CASA-12-1390 | GELC |
| R-36 | 766.9 | 11/16/11 | WG | F | RE | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 2.29 | — | — | 0.085 | mg/L | Y | H | NQ | 12-366-1 | CASA-12-1390 | GELC |
| R-36 | 766.9 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 2.19 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-868 | CASA-13-30553 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.96 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-322 | CASA-13-24220 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.98 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-322 | CASA-13-24207 | GELC |
| R-36 | 766.9 | 05/30/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 2.05 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1325 | CASA-12-17138 | GELC |
| R-36 | 766.9 | 03/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 2.01 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1064 | CASA-12-12038 | GELC |
| R-36 | 766.9 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 2.03 | — | — | 0.05 | mg/L | Y | — | J | 12-366 | CASA-12-1390 | GELC |
| R-36 | 766.9 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Selenium | Se | Y | 1.72 | — | — | 1.5 | µg/L | Y | J | J | 2013-868 | CASA-13-30553 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Selenium | Se | N | 5 | — | — | 1.5 | µg/L | Y | U | U | 2013-322 | CASA-13-24220 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Selenium | Se | N | 5 | — | — | 1.5 | µg/L | Y | U | U | 2013-322 | CASA-13-24207 | GELC |
| R-36 | 766.9 | 05/30/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Selenium | Se | N | 5 | — | — | 1.5 | µg/L | Y | U | U | 12-1325 | CASA-12-17138 | GELC |
| R-36 | 766.9 | 03/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Selenium | Se | N | 5 | — | — | 1.5 | µg/L | Y | U | U | 12-1064 | CASA-12-12038 | GELC |
| R-36 | 766.9 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Selenium | Se | N | 5 | — | — | 1.5 | µg/L | Y | U | UJ | 12-366 | CASA-12-1390 | GELC |
| R-36 | 766.9 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 75.2 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-868 | CASA-13-30553 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 71.8 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-322 | CASA-13-24220 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 70.5 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-322 | CASA-13-24207 | GELC |
| R-36 | 766.9 | 05/30/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 75.5 | — | — | 0.053 | mg/L | Y | — | NQ | 12-1325 | CASA-12-17138 | GELC |
| R-36 | 766.9 | 03/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 70.6 | — | — | 0.053 | mg/L | Y | — | NQ | 12-1064 | CASA-12-12038 | GELC |
| R-36 | 766.9 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 75.4 | — | — | 0.053 | mg/L | Y | — | NQ | 12-366 | CASA-12-1390 | GELC |
| R-36 | 766.9 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 14.3 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-868 | CASA-13-30553 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 15 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-322 | CASA-13-24220 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Sodium | Na | Y | 14.9 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-322 | CASA-13-24207 | GELC |
| R-36 | 766.9 | 05/30/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 14.2 | — | — | 0.1 | mg/L | Y | — | NQ | 12-1325 | CASA-12-17138 | GELC |
| R-36 | 766.9 | 03/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 14.6 | — | — | 0.1 | mg/L | Y | — | NQ | 12-1064 | CASA-12-12038 | GELC |
| R-36 | 766.9 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 13.9 | — | — | 0.1 | mg/L | Y | — | NQ | 12-366 | CASA-12-1390 | GELC |
| R-36 | 766.9 | 05/17/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 196 | — | — | 1 | µS/cm | Y | — | NQ | 2013-868 | CASA-13-30553 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 192 | — | — | 1 | µS/cm | Y | — | NQ | 2013-322 | CASA-13-24220 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 192 | — | — | 1 | µS/cm | Y | — | NQ | 2013-322 | CASA-13-24207 | GELC |
| R-36 | 766.9 | 05/30/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 192 | — | — | 1 | µS/cm | Y | — | NQ | 12-1325 | CASA-12-17138 | GELC |
| R-36 | 766.9 | 03/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 191 | — | — | 1 | µS/cm | Y | — | NQ | 12-1064 | CASA-12-12038 | GELC |
| R-36 | 766.9 | 11/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 222 | — | — | 1 | µS/cm | Y | — | NQ | 12-366 | CASA-12-1390 | GELC |
| R-36 | 766.9 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 72.4 | — | — | 1 | µg/L | Y | — | NQ | 2013-868 | CASA-13-30553 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 70.9 | — | — | 1 | µg/L | Y | — | NQ | 2013-322 | CASA-13-24220 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 70.2 | — | — | 1 | µg/L | Y | — | NQ | 2013-322 | CASA-13-24207 | GELC |
| R-36 | 766.9 | 05/30/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 71.1 | — | — | 1 | µg/L | Y | — | NQ | 12-1325 | CASA-12-17138 | GELC |
| R-36 | 766.9 | 03/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 70 | — | — | 1 | µg/L | Y | — | NQ | 12-1064 | CASA-12-12038 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-36 | 766.9 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 71.7 | — | — | 1 | µg/L | Y | — | NQ | 12-366 | CASA-12-1390 | GELC |
| R-36 | 766.9 | 05/17/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 7.27 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-868 | CASA-13-30553 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 6.94 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-322 | CASA-13-24220 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 7 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-322 | CASA-13-24207 | GELC |
| R-36 | 766.9 | 05/30/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 6.9 | — | — | 0.133 | mg/L | Y | — | NQ | 12-1325 | CASA-12-17138 | GELC |
| R-36 | 766.9 | 03/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 6.76 | — | — | 0.1 | mg/L | Y | — | NQ | 12-1064 | CASA-12-12038 | GELC |
| R-36 | 766.9 | 11/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 9.82 | — | — | 0.1 | mg/L | Y | — | NQ | 12-366 | CASA-12-1390 | GELC |
| R-36 | 766.9 | 05/17/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 149 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-868 | CASA-13-30553 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 143 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-322 | CASA-13-24220 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 126 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-322 | CASA-13-24207 | GELC |
| R-36 | 766.9 | 05/30/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 159 | — | — | 3.4 | mg/L | Y | — | NQ | 12-1325 | CASA-12-17138 | GELC |
| R-36 | 766.9 | 03/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 167 | — | — | 3.4 | mg/L | Y | — | NQ | 12-1064 | CASA-12-12038 | GELC |
| R-36 | 766.9 | 11/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 193 | — | — | 3.4 | mg/L | Y | — | NQ | 12-366 | CASA-12-1390 | GELC |
| R-36 | 766.9 | 05/17/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.722 | — | — | 0.33 | mg/L | Y | J | J | 2013-868 | CASA-13-30545 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.547 | — | — | 0.33 | mg/L | Y | J | J | 2013-322 | CASA-13-24212 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | UF | INIT | FD | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.584 | — | — | 0.33 | mg/L | Y | J | J | 2013-322 | CASA-13-24206 | GELC |
| R-36 | 766.9 | 05/30/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.698 | — | — | 0.33 | mg/L | Y | J | J | 12-1325 | CASA-12-17135 | GELC |
| R-36 | 766.9 | 03/08/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.675 | — | — | 0.33 | mg/L | Y | J | J | 12-1064 | CASA-12-12037 | GELC |
| R-36 | 766.9 | 11/16/11 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | N | 1 | — | — | 0.33 | mg/L | Y | U | U | 12-365 | CASA-12-1388 | GELC |
| R-36 | 766.9 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.276 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-868 | CASA-13-30553 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.298 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-322 | CASA-13-24220 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.301 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-322 | CASA-13-24207 | GELC |
| R-36 | 766.9 | 05/30/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.289 | — | — | 0.067 | µg/L | Y | — | NQ | 12-1325 | CASA-12-17138 | GELC |
| R-36 | 766.9 | 03/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.318 | — | — | 0.067 | µg/L | Y | — | NQ | 12-1064 | CASA-12-12038 | GELC |
| R-36 | 766.9 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.315 | — | — | 0.067 | µg/L | Y | — | NQ | 12-366 | CASA-12-1390 | GELC |
| R-36 | 766.9 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 15.6 | — | — | 1 | µg/L | Y | — | NQ | 2013-868 | CASA-13-30553 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 15.1 | — | — | 1 | µg/L | Y | — | NQ | 2013-322 | CASA-13-24220 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Vanadium | V | Y | 14.3 | — | — | 1 | µg/L | Y | — | NQ | 2013-322 | CASA-13-24207 | GELC |
| R-36 | 766.9 | 05/30/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 15.2 | — | — | 1 | µg/L | Y | — | NQ | 12-1325 | CASA-12-17138 | GELC |
| R-36 | 766.9 | 03/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 15 | — | — | 1 | µg/L | Y | — | NQ | 12-1064 | CASA-12-12038 | GELC |
| R-36 | 766.9 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 14.7 | — | — | 1 | µg/L | Y | — | J | 12-366 | CASA-12-1390 | GELC |
| R-36 | 766.9 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 58.4 | — | — | 3.3 | µg/L | Y | — | NQ | 2013-868 | CASA-13-30553 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 53.5 | — | — | 3.3 | µg/L | Y | — | NQ | 2013-322 | CASA-13-24220 | GELC |
| R-36 | 766.9 | 11/14/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 50.8 | — | — | 3.3 | µg/L | Y | — | NQ | 2013-322 | CASA-13-24207 | GELC |
| R-36 | 766.9 | 05/30/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 49.1 | — | — | 3.3 | µg/L | Y | — | NQ | 12-1325 | CASA-12-17138 | GELC |
| R-36 | 766.9 | 03/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 50.6 | — | — | 3.3 | µg/L | Y | — | NQ | 12-1064 | CASA-12-12038 | GELC |
| R-36 | 766.9 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 50.7 | — | — | 3.3 | µg/L | Y | — | NQ | 12-366 | CASA-12-1390 | GELC |
| R-42 | 931.8 | 05/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.63 | — | — | 0.01 | SU | Y | H | NQ | 2013-808 | CAMO-13-30593 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.84 | — | — | 0.01 | SU | Y | H | NQ | 2013-502 | CAMO-13-28417 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.81 | — | — | 0.01 | SU | Y | H | NQ | 2013-502 | CAMO-13-28406 | GELC |
| R-42 | 931.8 | 10/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.84 | — | — | 0.01 | SU | Y | H | NQ | 2013-259 | CAMO-13-24261 | GELC |
| R-42 | 931.8 | 08/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.74 | — | — | 0.01 | SU | Y | H | NQ | 12-1481 | CAMO-12-21744 | GELC |
| R-42 | 931.8 | 05/23/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.91 | — | — | 0.01 | SU | Y | H | NQ | 12-1319 | CAMO-12-14024 | GELC |
| R-42 | 931.8 | 05/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 62.9 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-808 | CAMO-13-30593 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 66.9 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-502 | CAMO-13-28417 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 65.3 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-502 | CAMO-13-28406 | GELC |
| R-42 | 931.8 | 10/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | N | 1 | — | — | 0.725 | mg/L | Y | U | U | 2013-259 | CAMO-13-24261 | GELC |
| R-42 | 931.8 | 08/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 76.7 | — | — | 0.725 | mg/L | Y | — | NQ | 12-1481 | CAMO-12-21744 | GELC |
| R-42 | 931.8 | 05/23/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 63.7 | — | — | 0.725 | mg/L | Y | — | NQ | 12-1319 | CAMO-12-14024 | GELC |
| R-42 | 931.8 | 05/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | NH3-N | Y | 0.0587 | — | — | 0.017 | mg/L | Y | — | NQ | 2013-808 | CAMO-13-30593 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | NH3-N | Y | 0.523 | — | — | 0.017 | mg/L | Y | — | NQ | 2013-502 | CAMO-13-28417 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | NH3-N | N | 0.0237 | — | — | 0.017 | mg/L | Y | J | U | 2013-502 | CAMO-13-28406 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-42 | 931.8 | 10/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | NH3-N | N | 0.05 | — | — | 0.017 | mg/L | Y | U | U | 2013-259 | CAMO-13-24261 | GELC |
| R-42 | 931.8 | 08/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | NH3-N | Y | 0.0631 | — | — | 0.017 | mg/L | Y | — | NQ | 12-1481 | CAMO-12-21744 | GELC |
| R-42 | 931.8 | 05/23/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | NH3-N | N | 0.0234 | — | — | 0.017 | mg/L | Y | J | U | 12-1319 | CAMO-12-14024 | GELC |
| R-42 | 931.8 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Antimony | Sb | Y | 1.2 | — | — | 1 | µg/L | Y | J | J | 2013-808 | CAMO-13-30593 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Antimony | Sb | Y | 1.24 | — | — | 1 | µg/L | Y | J | J | 2013-502 | CAMO-13-28417 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Antimony | Sb | Y | 1.1 | — | — | 1 | µg/L | Y | J | J | 2013-502 | CAMO-13-28406 | GELC |
| R-42 | 931.8 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Antimony | Sb | Y | 1.26 | — | — | 1 | µg/L | Y | J | J | 2013-259 | CAMO-13-24261 | GELC |
| R-42 | 931.8 | 08/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Antimony | Sb | N | 3 | — | — | 1 | µg/L | Y | U | U | 12-1481 | CAMO-12-21744 | GELC |
| R-42 | 931.8 | 05/23/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Antimony | Sb | Y | 1.04 | — | — | 1 | µg/L | Y | J | J | 12-1319 | CAMO-12-14024 | GELC |
| R-42 | 931.8 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 90.1 | — | — | 1 | µg/L | Y | — | NQ | 2013-808 | CAMO-13-30593 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 95 | — | — | 1 | µg/L | Y | — | NQ | 2013-502 | CAMO-13-28417 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Barium | Ba | Y | 96.5 | — | — | 1 | µg/L | Y | — | NQ | 2013-502 | CAMO-13-28406 | GELC |
| R-42 | 931.8 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 93.3 | — | — | 1 | µg/L | Y | — | NQ | 2013-259 | CAMO-13-24261 | GELC |
| R-42 | 931.8 | 08/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 87.8 | — | — | 1 | µg/L | Y | — | NQ | 12-1481 | CAMO-12-21744 | GELC |
| R-42 | 931.8 | 05/23/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 95.1 | — | — | 1 | µg/L | Y | — | NQ | 12-1319 | CAMO-12-14024 | GELC |
| R-42 | 931.8 | 05/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.206 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-808 | CAMO-13-30593 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.194 | — | — | 0.067 | mg/L | Y | J | J | 2013-502 | CAMO-13-28417 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.26 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-502 | CAMO-13-28406 | GELC |
| R-42 | 931.8 | 10/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.257 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-259 | CAMO-13-24261 | GELC |
| R-42 | 931.8 | 08/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.215 | — | — | 0.067 | mg/L | Y | — | NQ | 12-1481 | CAMO-12-21744 | GELC |
| R-42 | 931.8 | 05/23/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.244 | — | — | 0.067 | mg/L | Y | — | NQ | 12-1319 | CAMO-12-14024 | GELC |
| R-42 | 931.8 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 51.6 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-808 | CAMO-13-30593 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 52.9 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-502 | CAMO-13-28417 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 53.7 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-502 | CAMO-13-28406 | GELC |
| R-42 | 931.8 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 51.3 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-259 | CAMO-13-24261 | GELC |
| R-42 | 931.8 | 08/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 48.8 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1481 | CAMO-12-21744 | GELC |
| R-42 | 931.8 | 05/23/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 52.1 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1319 | CAMO-12-14024 | GELC |
| R-42 | 931.8 | 05/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 41.1 | — | — | 0.67 | mg/L | Y | — | NQ | 2013-808 | CAMO-13-30593 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 41.5 | — | — | 0.335 | mg/L | Y | — | NQ | 2013-502 | CAMO-13-28417 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 41.3 | — | — | 0.335 | mg/L | Y | — | NQ | 2013-502 | CAMO-13-28406 | GELC |
| R-42 | 931.8 | 10/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 41.9 | — | — | 0.335 | mg/L | Y | — | NQ | 2013-259 | CAMO-13-24261 | GELC |
| R-42 | 931.8 | 08/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 37.8 | — | — | 0.67 | mg/L | Y | — | NQ | 12-1481 | CAMO-12-21744 | GELC |
| R-42 | 931.8 | 05/23/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 38.7 | — | — | 0.67 | mg/L | Y | — | NQ | 12-1319 | CAMO-12-14024 | GELC |
| R-42 | 931.8 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 932 | — | — | 2 | µg/L | Y | — | NQ | 2013-808 | CAMO-13-30593 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 1040 | — | — | 40 | µg/L | Y | — | NQ | 2013-502 | CAMO-13-28417 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 1070 | — | — | 40 | µg/L | Y | — | NQ | 2013-502 | CAMO-13-28406 | GELC |
| R-42 | 931.8 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 1010 | — | — | 40 | µg/L | Y | — | NQ | 2013-259 | CAMO-13-24261 | GELC |
| R-42 | 931.8 | 08/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 1070 | — | — | 40 | µg/L | Y | — | NQ | 12-1481 | CAMO-12-21744 | GELC |
| R-42 | 931.8 | 05/23/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 894 | — | — | 2 | µg/L | Y | — | NQ | 12-1319 | CAMO-12-14024 | GELC |
| R-42 | 931.8 | 05/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.244 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-808 | CAMO-13-30593 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.232 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-502 | CAMO-13-28417 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.234 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-502 | CAMO-13-28406 | GELC |
| R-42 | 931.8 | 10/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.283 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-259 | CAMO-13-24261 | GELC |
| R-42 | 931.8 | 08/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.268 | — | — | 0.033 | mg/L | Y | — | NQ | 12-1481 | CAMO-12-21744 | GELC |
| R-42 | 931.8 | 05/23/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.271 | — | — | 0.033 | mg/L | Y | — | NQ | 12-1319 | CAMO-12-14024 | GELC |
| R-42 | 931.8 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 188 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-808 | CAMO-13-30593 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 194 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-502 | CAMO-13-28417 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | FD | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 197 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-502 | CAMO-13-28406 | GELC |
| R-42 | 931.8 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 187 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-259 | CAMO-13-24261 | GELC |
| R-42 | 931.8 | 08/08/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 179 | — | — | 0.453 | mg/L | Y | — | NQ | 12-1481 | CAMO-12-21744 | GELC |
| R-42 | 931.8 | 05/23/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 190 | — | — | 0.453 | mg/L | Y | — | NQ | 12-1319 | CAMO-12-14024 | GELC |
| R-42 | 931.8 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 14.3 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-808 | CAMO-13-30593 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 15.1 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-502 | CAMO-13-28417 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 15.2 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-502 | CAMO-13-28406 | GELC |
| R-42 | 931.8 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 14.4 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-259 | CAMO-13-24261 | GELC |
| R-42 | 931.8 | 08/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 13.8 | — | — | 0.11 | mg/L | Y | — | NQ | 12-1481 | CAMO-12-21744 | GELC |
| R-42 | 931.8 | 05/23/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 14.5 | — | — | 0.11 | mg/L | Y | — | NQ | 12-1319 | CAMO-12-14024 | GELC |
| R-42 | 931.8 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 0.523 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-808 | CAMO-13-30593 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 0.543 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-502 | CAMO-13-28417 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 0.547 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-502 | CAMO-13-28406 | GELC |
| R-42 | 931.8 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 0.619 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-259 | CAMO-13-24261 | GELC |
| R-42 | 931.8 | 08/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | N | 0.523 | — | — | 0.165 | µg/L | Y | — | U | 12-1481 | CAMO-12-21744 | GELC |
| R-42 | 931.8 | 05/23/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 0.493 | — | — | 0.165 | µg/L | Y | J | J | 12-1319 | CAMO-12-14024 | GELC |
| R-42 | 931.8 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 24.3 | — | — | 0.5 | µg/L | Y | — | NQ | 2013-808 | CAMO-13-30593 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 23.4 | — | — | 0.5 | µg/L | Y | — | NQ | 2013-502 | CAMO-13-28417 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 24.4 | — | — | 0.5 | µg/L | Y | — | NQ | 2013-502 | CAMO-13-28406 | GELC |
| R-42 | 931.8 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 23.4 | — | — | 0.5 | µg/L | Y | — | NQ | 2013-259 | CAMO-13-24261 | GELC |
| R-42 | 931.8 | 08/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 24.4 | — | — | 0.5 | µg/L | Y | — | NQ | 12-1481 | CAMO-12-21744 | GELC |
| R-42 | 931.8 | 05/23/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 25.6 | — | — | 0.5 | µg/L | Y | — | NQ | 12-1319 | CAMO-12-14024 | GELC |
| R-42 | 931.8 | 05/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 5.65 | — | — | 0.17 | mg/L | Y | — | NQ | 2013-808 | CAMO-13-30593 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 5.44 | — | — | 0.17 | mg/L | Y | — | NQ | 2013-502 | CAMO-13-28417 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 5.34 | — | — | 0.17 | mg/L | Y | — | NQ | 2013-502 | CAMO-13-28406 | GELC |
| R-42 | 931.8 | 10/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 5.61 | — | — | 0.17 | mg/L | Y | — | NQ | 2013-259 | CAMO-13-24261 | GELC |
| R-42 | 931.8 | 08/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 5.55 | — | — | 0.085 | mg/L | Y | — | NQ | 12-1481 | CAMO-12-21744 | GELC |
| R-42 | 931.8 | 05/23/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 6.08 | — | — | 0.17 | mg/L | Y | — | NQ | 12-1319 | CAMO-12-14024 | GELC |
| R-42 | 931.8 | 05/06/13 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 1.26 | — | — | 0.1 | µg/L | Y | — | NQ | 2013-808 | CAMO-13-30593 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 1.23 | — | — | 0.2 | µg/L | Y | — | NQ | 2013-502 | CAMO-13-28417 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | FD | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 1.25 | — | — | 0.2 | µg/L | Y | — | NQ | 2013-502 | CAMO-13-28406 | GELC |
| R-42 | 931.8 | 10/31/12 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 1.19 | — | — | 0.1 | µg/L | Y | — | NQ | 2013-259 | CAMO-13-24261 | GELC |
| R-42 | 931.8 | 08/08/12 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 1.34 | — | — | 0.1 | µg/L | Y | — | NQ | 12-1481 | CAMO-12-21744 | GELC |
| R-42 | 931.8 | 05/23/12 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 1.4 | — | — | 0.1 | µg/L | Y | — | NQ | 12-1319 | CAMO-12-14024 | GELC |
| R-42 | 931.8 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 2.42 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-808 | CAMO-13-30593 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 2.51 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-502 | CAMO-13-28417 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Potassium | K | Y | 2.57 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-502 | CAMO-13-28406 | GELC |
| R-42 | 931.8 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 2.28 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-259 | CAMO-13-24261 | GELC |
| R-42 | 931.8 | 08/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 2.3 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1481 | CAMO-12-21744 | GELC |
| R-42 | 931.8 | 05/23/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 2.45 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1319 | CAMO-12-14024 | GELC |
| R-42 | 931.8 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 71.4 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-808 | CAMO-13-30593 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 74.6 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-502 | CAMO-13-28417 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 76.2 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-502 | CAMO-13-28406 | GELC |
| R-42 | 931.8 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 74.8 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-259 | CAMO-13-24261 | GELC |
| R-42 | 931.8 | 08/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 0.0725 | — | — | 0.053 | mg/L | Y | — | NQ | 12-1481 | CAMO-12-21744 | GELC |
| R-42 | 931.8 | 05/23/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 73.2 | — | — | 0.053 | mg/L | Y | — | NQ | 12-1319 | CAMO-12-14024 | GELC |
| R-42 | 931.8 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 17 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-808 | CAMO-13-30593 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 17.5 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-502 | CAMO-13-28417 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Sodium | Na | Y | 17.8 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-502 | CAMO-13-28406 | GELC |
| R-42 | 931.8 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 16.6 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-259 | CAMO-13-24261 | GELC |
| R-42 | 931.8 | 08/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 15.8 | — | — | 0.1 | mg/L | Y | — | NQ | 12-1481 | CAMO-12-21744 | GELC |
| R-42 | 931.8 | 05/23/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 17.2 | — | — | 0.1 | mg/L | Y | — | NQ | 12-1319 | CAMO-12-14024 | GELC |
| R-42 | 931.8 | 05/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 504 | — | — | 1 | µS/cm | Y | — | NQ | 2013-808 | CAMO-13-30593 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 484 | — | — | 1 | µS/cm | Y | — | NQ | 2013-502 | CAMO-13-28417 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 483 | — | — | 1 | µS/cm | Y | — | NQ | 2013-502 | CAMO-13-28406 | GELC |
| R-42 | 931.8 | 10/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 488 | — | — | 1 | µS/cm | Y | — | NQ | 2013-259 | CAMO-13-24261 | GELC |
| R-42 | 931.8 | 08/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 478 | — | — | 1 | µS/cm | Y | — | NQ | 12-1481 | CAMO-12-21744 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-42 | 931.8 | 05/23/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 480 | — | — | 1 | µS/cm | Y | — | NQ | 12-1319 | CAMO-12-14024 | GELC |
| R-42 | 931.8 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 206 | — | — | 1 | µg/L | Y | — | NQ | 2013-808 | CAMO-13-30593 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 203 | — | — | 1 | µg/L | Y | — | NQ | 2013-502 | CAMO-13-28417 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 206 | — | — | 1 | µg/L | Y | — | NQ | 2013-502 | CAMO-13-28406 | GELC |
| R-42 | 931.8 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 195 | — | — | 1 | µg/L | Y | — | NQ | 2013-259 | CAMO-13-24261 | GELC |
| R-42 | 931.8 | 08/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 188 | — | — | 1 | µg/L | Y | — | NQ | 12-1481 | CAMO-12-21744 | GELC |
| R-42 | 931.8 | 05/23/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 200 | — | — | 1 | µg/L | Y | — | NQ | 12-1319 | CAMO-12-14024 | GELC |
| R-42 | 931.8 | 05/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 75 | — | — | 1.33 | mg/L | Y | — | NQ | 2013-808 | CAMO-13-30593 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 76.2 | — | — | 0.665 | mg/L | Y | — | NQ | 2013-502 | CAMO-13-28417 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 76 | — | — | 0.665 | mg/L | Y | — | NQ | 2013-502 | CAMO-13-28406 | GELC |
| R-42 | 931.8 | 10/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 77.7 | — | — | 0.665 | mg/L | Y | — | NQ | 2013-259 | CAMO-13-24261 | GELC |
| R-42 | 931.8 | 08/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 71.6 | — | — | 1.33 | mg/L | Y | — | NQ | 12-1481 | CAMO-12-21744 | GELC |
| R-42 | 931.8 | 05/23/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 73.4 | — | — | 1.33 | mg/L | Y | — | NQ | 12-1319 | CAMO-12-14024 | GELC |
| R-42 | 931.8 | 05/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 321 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-808 | CAMO-13-30593 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 317 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-502 | CAMO-13-28417 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 307 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-502 | CAMO-13-28406 | GELC |
| R-42 | 931.8 | 10/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 347 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-259 | CAMO-13-24261 | GELC |
| R-42 | 931.8 | 08/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 321 | — | — | 3.4 | mg/L | Y | — | NQ | 12-1481 | CAMO-12-21744 | GELC |
| R-42 | 931.8 | 05/23/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 346 | — | — | 3.4 | mg/L | Y | — | NQ | 12-1319 | CAMO-12-14024 | GELC |
| R-42 | 931.8 | 05/06/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | EPA:351.2 | Total Kjeldahl Nitrogen | TKN | Y | 0.109 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-808 | CAMO-13-30577 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | EPA:351.2 | Total Kjeldahl Nitrogen | TKN | N | 0.1 | — | — | 0.033 | mg/L | Y | U | U | 2013-502 | CAMO-13-28409 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | UF | INIT | FD | GENERAL CHEMISTRY | EPA:351.2 | Total Kjeldahl Nitrogen | TKN | N | 0.0671 | — | — | 0.033 | mg/L | Y | J | U | 2013-502 | CAMO-13-28405 | GELC |
| R-42 | 931.8 | 10/31/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | EPA:351.2 | Total Kjeldahl Nitrogen | TKN | N | 0.188 | — | — | 0.035 | mg/L | Y | — | U | 2013-259 | CAMO-13-24244 | GELC |
| R-42 | 931.8 | 08/08/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | EPA:351.2 | Total Kjeldahl Nitrogen | TKN | N | 0.1 | — | — | 0.035 | mg/L | Y | U | U | 12-1481 | CAMO-12-21736 | GELC |
| R-42 | 931.8 | 05/23/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | EPA:351.2 | Total Kjeldahl Nitrogen | TKN | Y | 0.124 | — | — | 0.035 | mg/L | Y | — | NQ | 12-1319 | CAMO-12-14009 | GELC |
| R-42 | 931.8 | 05/06/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 1.02 | — | — | 0.33 | mg/L | Y | — | NQ | 2013-808 | CAMO-13-30577 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.918 | — | — | 0.33 | mg/L | Y | J | J | 2013-502 | CAMO-13-28409 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | UF | INIT | FD | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.904 | — | — | 0.33 | mg/L | Y | J | J | 2013-502 | CAMO-13-28405 | GELC |
| R-42 | 931.8 | 10/31/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | N | 0.744 | — | — | 0.33 | mg/L | Y | J | U | 2013-259 | CAMO-13-24244 | GELC |
| R-42 | 931.8 | 08/08/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 1.1 | — | — | 0.33 | mg/L | Y | — | NQ | 12-1481 | CAMO-12-21736 | GELC |
| R-42 | 931.8 | 05/23/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.651 | — | — | 0.33 | mg/L | Y | J | J | 12-1319 | CAMO-12-14009 | GELC |
| R-42 | 931.8 | 05/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 0.06 | — | — | 0.017 | mg/L | Y | — | NQ | 2013-808 | CAMO-13-30593 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | N | 0.0488 | — | — | 0.017 | mg/L | Y | J | U | 2013-502 | CAMO-13-28417 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | N | 0.052 | — | — | 0.017 | mg/L | Y | — | U | 2013-502 | CAMO-13-28406 | GELC |
| R-42 | 931.8 | 10/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 4.03 | — | — | 0.085 | mg/L | Y | — | NQ | 2013-259 | CAMO-13-24261 | GELC |
| R-42 | 931.8 | 08/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | N | 0.071 | — | — | 0.017 | mg/L | Y | — | U | 12-1481 | CAMO-12-21744 | GELC |
| R-42 | 931.8 | 05/23/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 0.019 | — | — | 0.017 | mg/L | Y | J | J | 12-1319 | CAMO-12-14024 | GELC |
| R-42 | 931.8 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.864 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-808 | CAMO-13-30593 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.831 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-502 | CAMO-13-28417 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.871 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-502 | CAMO-13-28406 | GELC |
| R-42 | 931.8 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.812 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-259 | CAMO-13-24261 | GELC |
| R-42 | 931.8 | 08/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.798 | — | — | 0.067 | µg/L | Y | — | NQ | 12-1481 | CAMO-12-21744 | GELC |
| R-42 | 931.8 | 05/23/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.825 | — | — | 0.067 | µg/L | Y | — | NQ | 12-1319 | CAMO-12-14024 | GELC |
| R-42 | 931.8 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 4.6 | — | — | 1 | µg/L | Y | J | J | 2013-808 | CAMO-13-30593 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 9.39 | — | — | 1 | µg/L | Y | — | NQ | 2013-502 | CAMO-13-28417 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Vanadium | V | Y | 9.79 | — | — | 1 | µg/L | Y | — | NQ | 2013-502 | CAMO-13-28406 | GELC |
| R-42 | 931.8 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 5.37 | — | — | 1 | µg/L | Y | — | NQ | 2013-259 | CAMO-13-24261 | GELC |
| R-42 | 931.8 | 08/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 5.06 | — | — | 1 | µg/L | Y | — | NQ | 12-1481 | CAMO-12-21744 | GELC |
| R-42 | 931.8 | 05/23/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 5.74 | — | — | 1 | µg/L | Y | — | NQ | 12-1319 | CAMO-12-14024 | GELC |
| R-42 | 931.8 | 05/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 7 | — | — | 3.3 | µg/L | Y | J | J | 2013-808 | CAMO-13-30593 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 4.86 | — | — | 3.3 | µg/L | Y | J | J | 2013-502 | CAMO-13-28417 | GELC |
| R-42 | 931.8 | 02/01/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 4.91 | — | — | 3.3 | µg/L | Y | J | J | 2013-502 | CAMO-13-28406 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-42 | 931.8 | 10/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 4.78 | — | — | 3.3 | µg/L | Y | J | J | 2013-259 | CAMO-13-24261 | GELC |
| R-42 | 931.8 | 08/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 8.64 | — | — | 3.3 | µg/L | Y | J | J | 12-1481 | CAMO-12-21744 | GELC |
| R-42 | 931.8 | 05/23/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 10.9 | — | — | 3.3 | µg/L | Y | — | NQ | 12-1319 | CAMO-12-14024 | GELC |
| R-43 S1 | 903.9 | 05/15/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.07 | — | — | 0.01 | SU | Y | H | NQ | 2013-856 | CASA-13-30554 | GELC |
| R-43 S1 | 903.9 | 02/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.23 | — | — | 0.01 | SU | Y | H | NQ | 2013-516 | CASA-13-28362 | GELC |
| R-43 S1 | 903.9 | 11/07/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.26 | — | — | 0.01 | SU | Y | H | NQ | 2013-286 | CASA-13-24221 | GELC |
| R-43 S1 | 903.9 | 08/14/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.09 | — | — | 0.01 | SU | Y | H | NQ | 12-1496 | CASA-12-21648 | GELC |
| R-43 S1 | 903.9 | 05/22/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.96 | — | — | 0.01 | SU | Y | H | NQ | 12-1315 | CASA-12-14063 | GELC |
| R-43 S1 | 903.9 | 05/15/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 41.1 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-856 | CASA-13-30554 | GELC |
| R-43 S1 | 903.9 | 02/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 42.9 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-516 | CASA-13-28362 | GELC |
| R-43 S1 | 903.9 | 11/07/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 41.8 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-286 | CASA-13-24221 | GELC |
| R-43 S1 | 903.9 | 08/14/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 42.3 | — | — | 0.725 | mg/L | Y | — | NQ | 12-1496 | CASA-12-21648 | GELC |
| R-43 S1 | 903.9 | 05/22/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 41.9 | — | — | 0.725 | mg/L | Y | — | NQ | 12-1315 | CASA-12-14063 | GELC |
| R-43 S1 | 903.9 | 05/15/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 23.8 | — | — | 1 | µg/L | Y | — | NQ | 2013-856 | CASA-13-30554 | GELC |
| R-43 S1 | 903.9 | 02/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 21.2 | — | — | 1 | µg/L | Y | — | NQ | 2013-516 | CASA-13-28362 | GELC |
| R-43 S1 | 903.9 | 11/07/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 23 | — | — | 1 | µg/L | Y | — | NQ | 2013-286 | CASA-13-24221 | GELC |
| R-43 S1 | 903.9 | 08/14/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 23.1 | — | — | 1 | µg/L | Y | — | NQ | 12-1496 | CASA-12-21648 | GELC |
| R-43 S1 | 903.9 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 21.3 | — | — | 1 | µg/L | Y | — | NQ | 12-1315 | CASA-12-14063 | GELC |
| R-43 S1 | 903.9 | 05/15/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.0979 | — | — | 0.067 | mg/L | Y | J | J | 2013-856 | CASA-13-30554 | GELC |
| R-43 S1 | 903.9 | 02/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | N | 0.2 | — | — | 0.067 | mg/L | Y | U | U | 2013-516 | CASA-13-28362 | GELC |
| R-43 S1 | 903.9 | 11/07/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.0975 | — | — | 0.067 | mg/L | Y | J | J | 2013-286 | CASA-13-24221 | GELC |
| R-43 S1 | 903.9 | 08/14/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | N | 0.2 | — | — | 0.067 | mg/L | Y | U | U | 12-1496 | CASA-12-21648 | GELC |
| R-43 S1 | 903.9 | 05/22/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.0793 | — | — | 0.067 | mg/L | Y | J | J | 12-1315 | CASA-12-14063 | GELC |
| R-43 S1 | 903.9 | 05/15/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 18.3 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-856 | CASA-13-30554 | GELC |
| R-43 S1 | 903.9 | 02/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 17.3 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-516 | CASA-13-28362 | GELC |
| R-43 S1 | 903.9 | 11/07/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 18.1 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-286 | CASA-13-24221 | GELC |
| R-43 S1 | 903.9 | 08/14/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 18.4 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1496 | CASA-12-21648 | GELC |
| R-43 S1 | 903.9 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 17 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1315 | CASA-12-14063 | GELC |
| R-43 S1 | 903.9 | 05/15/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 7.03 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-856 | CASA-13-30554 | GELC |
| R-43 S1 | 903.9 | 02/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 6.18 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-516 | CASA-13-28362 | GELC |
| R-43 S1 | 903.9 | 11/07/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 6.26 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-286 | CASA-13-24221 | GELC |
| R-43 S1 | 903.9 | 08/14/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 6.11 | — | — | 0.067 | mg/L | Y | — | NQ | 12-1496 | CASA-12-21648 | GELC |
| R-43 S1 | 903.9 | 05/22/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 6.16 | — | — | 0.067 | mg/L | Y | — | NQ | 12-1315 | CASA-12-14063 | GELC |
| R-43 S1 | 903.9 | 05/15/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 50.5 | — | — | 2 | µg/L | Y | — | NQ | 2013-856 | CASA-13-30554 | GELC |
| R-43 S1 | 903.9 | 02/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 43.1 | — | — | 2 | µg/L | Y | — | NQ | 2013-516 | CASA-13-28362 | GELC |
| R-43 S1 | 903.9 | 11/07/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 49.6 | — | — | 2 | µg/L | Y | — | NQ | 2013-286 | CASA-13-24221 | GELC |
| R-43 S1 | 903.9 | 08/14/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 42.2 | — | — | 2 | µg/L | Y | — | NQ | 12-1496 | CASA-12-21648 | GELC |
| R-43 S1 | 903.9 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 34.5 | — | — | 2 | µg/L | Y | — | NQ | 12-1315 | CASA-12-14063 | GELC |
| R-43 S1 | 903.9 | 05/15/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.367 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-856 | CASA-13-30554 | GELC |
| R-43 S1 | 903.9 | 02/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.343 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-516 | CASA-13-28362 | GELC |
| R-43 S1 | 903.9 | 11/07/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.406 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-286 | CASA-13-24221 | GELC |
| R-43 S1 | 903.9 | 08/14/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.338 | — | — | 0.033 | mg/L | Y | — | NQ | 12-1496 | CASA-12-21648 | GELC |
| R-43 S1 | 903.9 | 05/22/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.398 | — | — | 0.033 | mg/L | Y | — | NQ | 12-1315 | CASA-12-14063 | GELC |
| R-43 S1 | 903.9 | 05/15/13 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 62 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-856 | CASA-13-30554 | GELC |
| R-43 S1 | 903.9 | 02/06/13 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 59.3 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-516 | CASA-13-28362 | GELC |
| R-43 S1 | 903.9 | 11/07/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 62.1 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-286 | CASA-13-24221 | GELC |
| R-43 S1 | 903.9 | 08/14/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 62.9 | — | — | 0.453 | mg/L | Y | — | NQ | 12-1496 | CASA-12-21648 | GELC |
| R-43 S1 | 903.9 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 58.2 | — | — | 0.453 | mg/L | Y | — | NQ | 12-1315 | CASA-12-14063 | GELC |
| R-43 S1 | 903.9 | 05/15/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 3.98 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-856 | CASA-13-30554 | GELC |
| R-43 S1 | 903.9 | 02/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 3.88 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-516 | CASA-13-28362 | GELC |
| R-43 S1 | 903.9 | 11/07/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 4.07 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-286 | CASA-13-24221 | GELC |
| R-43 S1 | 903.9 | 08/14/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 4.11 | — | — | 0.11 | mg/L | Y | — | NQ | 12-1496 | CASA-12-21648 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-43 S1 | 903.9 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 3.85 | — | — | 0.11 | mg/L | Y | — | NQ | 12-1315 | CASA-12-14063 | GELC |
| R-43 S1 | 903.9 | 05/15/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.05 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-856 | CASA-13-30554 | GELC |
| R-43 S1 | 903.9 | 02/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | N | 1.31 | — | — | 0.165 | µg/L | Y | — | U | 2013-516 | CASA-13-28362 | GELC |
| R-43 S1 | 903.9 | 11/07/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.31 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-286 | CASA-13-24221 | GELC |
| R-43 S1 | 903.9 | 08/14/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.27 | — | — | 0.165 | µg/L | Y | — | NQ | 12-1496 | CASA-12-21648 | GELC |
| R-43 S1 | 903.9 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.17 | — | — | 0.165 | µg/L | Y | — | NQ | 12-1315 | CASA-12-14063 | GELC |
| R-43 S1 | 903.9 | 05/15/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 4.36 | — | — | 0.5 | µg/L | Y | — | NQ | 2013-856 | CASA-13-30554 | GELC |
| R-43 S1 | 903.9 | 02/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 4.26 | — | — | 0.5 | µg/L | Y | — | NQ | 2013-516 | CASA-13-28362 | GELC |
| R-43 S1 | 903.9 | 11/07/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 5.21 | — | — | 0.5 | µg/L | Y | — | NQ | 2013-286 | CASA-13-24221 | GELC |
| R-43 S1 | 903.9 | 08/14/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 8.24 | — | — | 0.5 | µg/L | Y | — | NQ | 12-1496 | CASA-12-21648 | GELC |
| R-43 S1 | 903.9 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 2.7 | — | — | 0.5 | µg/L | Y | — | NQ | 12-1315 | CASA-12-14063 | GELC |
| R-43 S1 | 903.9 | 05/15/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 5.38 | — | — | 0.17 | mg/L | Y | — | NQ | 2013-856 | CASA-13-30554 | GELC |
| R-43 S1 | 903.9 | 02/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 5.05 | — | — | 0.085 | mg/L | Y | — | NQ | 2013-516 | CASA-13-28362 | GELC |
| R-43 S1 | 903.9 | 11/07/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 5.35 | — | — | 0.085 | mg/L | Y | — | NQ | 2013-286 | CASA-13-24221 | GELC |
| R-43 S1 | 903.9 | 08/14/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 5.92 | — | — | 0.17 | mg/L | Y | — | NQ | 12-1496 | CASA-12-21648 | GELC |
| R-43 S1 | 903.9 | 05/22/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 5.14 | — | — | 0.17 | mg/L | Y | — | NQ | 12-1315 | CASA-12-14063 | GELC |
| R-43 S1 | 903.9 | 05/15/13 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.895 | — | — | 0.05 | µg/L | Y | — | NQ | 2013-856 | CASA-13-30554 | GELC |
| R-43 S1 | 903.9 | 02/06/13 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.984 | — | — | 0.1 | µg/L | Y | — | NQ | 2013-516 | CASA-13-28362 | GELC |
| R-43 S1 | 903.9 | 11/07/12 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.905 | — | — | 0.1 | µg/L | Y | — | NQ | 2013-286 | CASA-13-24221 | GELC |
| R-43 S1 | 903.9 | 08/14/12 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.99 | — | — | 0.1 | µg/L | Y | — | NQ | 12-1496 | CASA-12-21648 | GELC |
| R-43 S1 | 903.9 | 05/22/12 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.988 | — | — | 0.1 | µg/L | Y | — | NQ | 12-1315 | CASA-12-14063 | GELC |
| R-43 S1 | 903.9 | 05/15/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.46 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-856 | CASA-13-30554 | GELC |
| R-43 S1 | 903.9 | 02/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.42 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-516 | CASA-13-28362 | GELC |
| R-43 S1 | 903.9 | 11/07/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.57 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-286 | CASA-13-24221 | GELC |
| R-43 S1 | 903.9 | 08/14/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.47 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1496 | CASA-12-21648 | GELC |
| R-43 S1 | 903.9 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.37 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1315 | CASA-12-14063 | GELC |
| R-43 S1 | 903.9 | 05/15/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Selenium | Se | Y | 2.37 | — | — | 1.5 | µg/L | Y | J | J | 2013-856 | CASA-13-30554 | GELC |
| R-43 S1 | 903.9 | 02/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Selenium | Se | Y | 3.54 | — | — | 1.5 | µg/L | Y | J | J | 2013-516 | CASA-13-28362 | GELC |
| R-43 S1 | 903.9 | 11/07/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Selenium | Se | Y | 2.07 | — | — | 1.5 | µg/L | Y | J | J | 2013-286 | CASA-13-24221 | GELC |
| R-43 S1 | 903.9 | 08/14/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Selenium | Se | Y | 2.05 | — | — | 1.5 | µg/L | Y | J | J | 12-1496 | CASA-12-21648 | GELC |
| R-43 S1 | 903.9 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Selenium | Se | Y | 2.25 | — | — | 1.5 | µg/L | Y | J | J | 12-1315 | CASA-12-14063 | GELC |
| R-43 S1 | 903.9 | 05/15/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 78 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-856 | CASA-13-30554 | GELC |
| R-43 S1 | 903.9 | 02/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 71.1 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-516 | CASA-13-28362 | GELC |
| R-43 S1 | 903.9 | 11/07/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 79.6 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-286 | CASA-13-24221 | GELC |
| R-43 S1 | 903.9 | 08/14/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 79.5 | — | — | 0.053 | mg/L | Y | — | NQ | 12-1496 | CASA-12-21648 | GELC |
| R-43 S1 | 903.9 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 75.1 | — | — | 0.053 | mg/L | Y | — | NQ | 12-1315 | CASA-12-14063 | GELC |
| R-43 S1 | 903.9 | 05/15/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 10.7 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-856 | CASA-13-30554 | GELC |
| R-43 S1 | 903.9 | 02/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 10.4 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-516 | CASA-13-28362 | GELC |
| R-43 S1 | 903.9 | 11/07/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 11.4 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-286 | CASA-13-24221 | GELC |
| R-43 S1 | 903.9 | 08/14/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 10.9 | — | — | 0.1 | mg/L | Y | — | NQ | 12-1496 | CASA-12-21648 | GELC |
| R-43 S1 | 903.9 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 10.5 | — | — | 0.1 | mg/L | Y | — | NQ | 12-1315 | CASA-12-14063 | GELC |
| R-43 S1 | 903.9 | 05/15/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 187 | — | — | 1 | µS/cm | Y | — | NQ | 2013-856 | CASA-13-30554 | GELC |
| R-43 S1 | 903.9 | 02/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 177 | — | — | 1 | µS/cm | Y | — | NQ | 2013-516 | CASA-13-28362 | GELC |
| R-43 S1 | 903.9 | 11/07/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 180 | — | — | 1 | µS/cm | Y | — | NQ | 2013-286 | CASA-13-24221 | GELC |
| R-43 S1 | 903.9 | 08/14/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 177 | — | — | 1 | µS/cm | Y | — | NQ | 12-1496 | CASA-12-21648 | GELC |
| R-43 S1 | 903.9 | 05/22/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 178 | — | — | 1 | µS/cm | Y | — | NQ | 12-1315 | CASA-12-14063 | GELC |
| R-43 S1 | 903.9 | 05/15/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 71.9 | — | — | 1 | µg/L | Y | — | NQ | 2013-856 | CASA-13-30554 | GELC |
| R-43 S1 | 903.9 | 02/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 65.6 | — | — | 1 | µg/L | Y | — | NQ | 2013-516 | CASA-13-28362 | GELC |
| R-43 S1 | 903.9 | 11/07/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 69.9 | — | — | 1 | µg/L | Y | — | NQ | 2013-286 | CASA-13-24221 | GELC |
| R-43 S1 | 903.9 | 08/14/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 70.6 | — | — | 1 | µg/L | Y | — | NQ | 12-1496 | CASA-12-21648 | GELC |
| R-43 S1 | 903.9 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 66.4 | — | — | 1 | µg/L | Y | — | NQ | 12-1315 | CASA-12-14063 | GELC |
| R-43 S1 | 903.9 | 05/15/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 14.3 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-856 | CASA-13-30554 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-43 S1 | 903.9 | 02/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 11.8 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-516 | CASA-13-28362 | GELC |
| R-43 S1 | 903.9 | 11/07/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 12.3 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-286 | CASA-13-24221 | GELC |
| R-43 S1 | 903.9 | 08/14/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 11.8 | — | — | 0.133 | mg/L | Y | — | NQ | 12-1496 | CASA-12-21648 | GELC |
| R-43 S1 | 903.9 | 05/22/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 11.7 | — | — | 0.133 | mg/L | Y | — | NQ | 12-1315 | CASA-12-14063 | GELC |
| R-43 S1 | 903.9 | 05/15/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 136 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-856 | CASA-13-30554 | GELC |
| R-43 S1 | 903.9 | 02/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 154 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-516 | CASA-13-28362 | GELC |
| R-43 S1 | 903.9 | 11/07/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 161 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-286 | CASA-13-24221 | GELC |
| R-43 S1 | 903.9 | 08/14/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 151 | — | — | 3.4 | mg/L | Y | — | NQ | 12-1496 | CASA-12-21648 | GELC |
| R-43 S1 | 903.9 | 05/22/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 169 | — | — | 3.4 | mg/L | Y | — | NQ | 12-1315 | CASA-12-14063 | GELC |
| R-43 S1 | 903.9 | 05/15/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.756 | — | — | 0.33 | mg/L | Y | J | J | 2013-856 | CASA-13-30546 | GELC |
| R-43 S1 | 903.9 | 02/06/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 1 | — | — | 0.33 | mg/L | Y | — | NQ | 2013-516 | CASA-13-28358 | GELC |
| R-43 S1 | 903.9 | 11/07/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.506 | — | — | 0.33 | mg/L | Y | J | J | 2013-286 | CASA-13-24213 | GELC |
| R-43 S1 | 903.9 | 08/14/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.782 | — | — | 0.33 | mg/L | Y | J | J | 12-1496 | CASA-12-21644 | GELC |
| R-43 S1 | 903.9 | 05/22/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | N | 1 | — | — | 0.33 | mg/L | Y | U | U | 12-1315 | CASA-12-14058 | GELC |
| R-43 S1 | 903.9 | 05/15/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 0.0316 | — | — | 0.017 | mg/L | Y | J | J | 2013-856 | CASA-13-30554 | GELC |
| R-43 S1 | 903.9 | 02/06/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | N | 0.0206 | — | — | 0.017 | mg/L | Y | J | U | 2013-516 | CASA-13-28362 | GELC |
| R-43 S1 | 903.9 | 11/07/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 0.052 | — | — | 0.017 | mg/L | Y | — | NQ | 2013-286 | CASA-13-24221 | GELC |
| R-43 S1 | 903.9 | 08/14/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 0.0459 | — | — | 0.017 | mg/L | Y | J | J | 12-1496 | CASA-12-21648 | GELC |
| R-43 S1 | 903.9 | 05/22/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 0.0326 | — | — | 0.017 | mg/L | Y | J | J | 12-1315 | CASA-12-14063 | GELC |
| R-43 S1 | 903.9 | 05/15/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.095 | — | — | 0.067 | µg/L | Y | J | J | 2013-856 | CASA-13-30554 | GELC |
| R-43 S1 | 903.9 | 02/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | N | 0.122 | — | — | 0.067 | µg/L | Y | J | U | 2013-516 | CASA-13-28362 | GELC |
| R-43 S1 | 903.9 | 11/07/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.123 | — | — | 0.067 | µg/L | Y | J | J | 2013-286 | CASA-13-24221 | GELC |
| R-43 S1 | 903.9 | 08/14/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | N | 0.095 | — | — | 0.067 | µg/L | Y | J | U | 12-1496 | CASA-12-21648 | GELC |
| R-43 S1 | 903.9 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.116 | — | — | 0.067 | µg/L | Y | J | J | 12-1315 | CASA-12-14063 | GELC |
| R-43 S1 | 903.9 | 05/15/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 7.01 | — | — | 1 | µg/L | Y | — | NQ | 2013-856 | CASA-13-30554 | GELC |
| R-43 S1 | 903.9 | 02/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 7.02 | — | — | 1 | µg/L | Y | — | NQ | 2013-516 | CASA-13-28362 | GELC |
| R-43 S1 | 903.9 | 11/07/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 7.04 | — | — | 1 | µg/L | Y | — | NQ | 2013-286 | CASA-13-24221 | GELC |
| R-43 S1 | 903.9 | 08/14/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 7.45 | — | — | 1 | µg/L | Y | — | NQ | 12-1496 | CASA-12-21648 | GELC |
| R-43 S1 | 903.9 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 7.07 | — | — | 1 | µg/L | Y | — | NQ | 12-1315 | CASA-12-14063 | GELC |
| R-43 S1 | 903.9 | 05/15/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 3.67 | — | — | 3.3 | µg/L | Y | J | J | 2013-856 | CASA-13-30554 | GELC |
| R-43 S1 | 903.9 | 02/06/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | N | 10 | — | — | 3.3 | µg/L | Y | U | U | 2013-516 | CASA-13-28362 | GELC |
| R-43 S1 | 903.9 | 11/07/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 3.89 | — | — | 3.3 | µg/L | Y | J | J | 2013-286 | CASA-13-24221 | GELC |
| R-43 S1 | 903.9 | 08/14/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 4.86 | — | — | 3.3 | µg/L | Y | J | J | 12-1496 | CASA-12-21648 | GELC |
| R-43 S1 | 903.9 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | N | 5.68 | — | — | 3.3 | µg/L | Y | J | U | 12-1315 | CASA-12-14063 | GELC |
| R-43 S2 | 969.1 | 05/14/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.72 | — | — | 0.01 | SU | Y | H | NQ | 2013-847 | CASA-13-30555 | GELC |
| R-43 S2 | 969.1 | 02/07/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.84 | — | — | 0.01 | SU | Y | H | NQ | 2013-518 | CASA-13-28363 | GELC |
| R-43 S2 | 969.1 | 11/07/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.83 | — | — | 0.01 | SU | Y | H | NQ | 2013-286 | CASA-13-24222 | GELC |
| R-43 S2 | 969.1 | 08/13/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.71 | — | — | 0.01 | SU | Y | H | NQ | 12-1495 | CASA-12-21649 | GELC |
| R-43 S2 | 969.1 | 05/22/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.49 | — | — | 0.01 | SU | Y | H | NQ | 12-1315 | CASA-12-14064 | GELC |
| R-43 S2 | 969.1 | 05/14/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3 | ALK-CO3 | Y | 8.12 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-847 | CASA-13-30555 | GELC |
| R-43 S2 | 969.1 | 02/07/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3 | ALK-CO3 | Y | 10.5 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-518 | CASA-13-28363 | GELC |
| R-43 S2 | 969.1 | 11/07/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3 | ALK-CO3 | Y | 6.44 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-286 | CASA-13-24222 | GELC |
| R-43 S2 | 969.1 | 08/13/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3 | ALK-CO3 | Y | 10.6 | — | — | 0.725 | mg/L | Y | — | NQ | 12-1495 | CASA-12-21649 | GELC |
| R-43 S2 | 969.1 | 05/22/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3 | ALK-CO3 | Y | 7.25 | — | — | 0.725 | mg/L | Y | — | NQ | 12-1315 | CASA-12-14064 | GELC |
| R-43 S2 | 969.1 | 05/14/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 79.2 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-847 | CASA-13-30555 | GELC |
| R-43 S2 | 969.1 | 02/07/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 81.5 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-518 | CASA-13-28363 | GELC |
| R-43 S2 | 969.1 | 11/07/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 82.6 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-286 | CASA-13-24222 | GELC |
| R-43 S2 | 969.1 | 08/13/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 83.6 | — | — | 0.725 | mg/L | Y | — | NQ | 12-1495 | CASA-12-21649 | GELC |
| R-43 S2 | 969.1 | 05/22/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 82.3 | — | — | 0.725 | mg/L | Y | — | NQ | 12-1315 | CASA-12-14064 | GELC |
| R-43 S2 | 969.1 | 05/14/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 21.1 | — | — | 1 | µg/L | Y | — | NQ | 2013-847 | CASA-13-30555 | GELC |
| R-43 S2 | 969.1 | 02/07/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 19.2 | — | — | 1 | µg/L | Y | — | NQ | 2013-518 | CASA-13-28363 | GELC |
| R-43 S2 | 969.1 | 11/07/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 18.6 | — | — | 1 | µg/L | Y | — | NQ | 2013-286 | CASA-13-24222 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-43 S2 | 969.1 | 08/13/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 18.1 | — | — | 1 | µg/L | Y | — | NQ | 12-1495 | CASA-12-21649 | GELC |
| R-43 S2 | 969.1 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 16 | — | — | 1 | µg/L | Y | — | NQ | 12-1315 | CASA-12-14064 | GELC |
| R-43 S2 | 969.1 | 05/14/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 26.3 | — | — | 15 | µg/L | Y | J | J | 2013-847 | CASA-13-30555 | GELC |
| R-43 S2 | 969.1 | 02/07/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 34.4 | — | — | 15 | µg/L | Y | J | J | 2013-518 | CASA-13-28363 | GELC |
| R-43 S2 | 969.1 | 11/07/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 37.2 | — | — | 15 | µg/L | Y | J | J | 2013-286 | CASA-13-24222 | GELC |
| R-43 S2 | 969.1 | 08/13/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 38.6 | — | — | 15 | µg/L | Y | J | J | 12-1495 | CASA-12-21649 | GELC |
| R-43 S2 | 969.1 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 35.2 | — | — | 15 | µg/L | Y | J | J | 12-1315 | CASA-12-14064 | GELC |
| R-43 S2 | 969.1 | 05/14/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.0687 | — | — | 0.067 | mg/L | Y | J | J | 2013-847 | CASA-13-30555 | GELC |
| R-43 S2 | 969.1 | 02/07/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | N | 0.2 | — | — | 0.067 | mg/L | Y | U | U | 2013-518 | CASA-13-28363 | GELC |
| R-43 S2 | 969.1 | 11/07/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.074 | — | — | 0.067 | mg/L | Y | J | J | 2013-286 | CASA-13-24222 | GELC |
| R-43 S2 | 969.1 | 08/13/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | N | 0.2 | — | — | 0.067 | mg/L | Y | U | U | 12-1495 | CASA-12-21649 | GELC |
| R-43 S2 | 969.1 | 05/22/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | N | 0.2 | — | — | 0.067 | mg/L | Y | U | U | 12-1315 | CASA-12-14064 | GELC |
| R-43 S2 | 969.1 | 05/14/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 17.4 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-847 | CASA-13-30555 | GELC |
| R-43 S2 | 969.1 | 02/07/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 16.6 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-518 | CASA-13-28363 | GELC |
| R-43 S2 | 969.1 | 11/07/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 17.1 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-286 | CASA-13-24222 | GELC |
| R-43 S2 | 969.1 | 08/13/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 16.6 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1495 | CASA-12-21649 | GELC |
| R-43 S2 | 969.1 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 15.7 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1315 | CASA-12-14064 | GELC |
| R-43 S2 | 969.1 | 05/14/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 4.23 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-847 | CASA-13-30555 | GELC |
| R-43 S2 | 969.1 | 02/07/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 3.81 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-518 | CASA-13-28363 | GELC |
| R-43 S2 | 969.1 | 11/07/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 3.87 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-286 | CASA-13-24222 | GELC |
| R-43 S2 | 969.1 | 08/13/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 3.72 | — | — | 0.067 | mg/L | Y | — | NQ | 12-1495 | CASA-12-21649 | GELC |
| R-43 S2 | 969.1 | 05/22/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 3.7 | — | — | 0.067 | mg/L | Y | — | NQ | 12-1315 | CASA-12-14064 | GELC |
| R-43 S2 | 969.1 | 05/14/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 3 | — | — | 2 | µg/L | Y | J | J | 2013-847 | CASA-13-30555 | GELC |
| R-43 S2 | 969.1 | 02/07/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 3.44 | — | — | 2 | µg/L | Y | J | J | 2013-518 | CASA-13-28363 | GELC |
| R-43 S2 | 969.1 | 11/07/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 3.45 | — | — | 2 | µg/L | Y | J | J | 2013-286 | CASA-13-24222 | GELC |
| R-43 S2 | 969.1 | 08/13/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 2.85 | — | — | 2 | µg/L | Y | J | J | 12-1495 | CASA-12-21649 | GELC |
| R-43 S2 | 969.1 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 3.45 | — | — | 2 | µg/L | Y | J | J | 12-1315 | CASA-12-14064 | GELC |
| R-43 S2 | 969.1 | 05/14/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.319 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-847 | CASA-13-30555 | GELC |
| R-43 S2 | 969.1 | 02/07/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.273 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-518 | CASA-13-28363 | GELC |
| R-43 S2 | 969.1 | 11/07/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.347 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-286 | CASA-13-24222 | GELC |
| R-43 S2 | 969.1 | 08/13/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.285 | — | — | 0.033 | mg/L | Y | — | NQ | 12-1495 | CASA-12-21649 | GELC |
| R-43 S2 | 969.1 | 05/22/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.337 | — | — | 0.033 | mg/L | Y | — | NQ | 12-1315 | CASA-12-14064 | GELC |
| R-43 S2 | 969.1 | 05/14/13 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 63.1 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-847 | CASA-13-30555 | GELC |
| R-43 S2 | 969.1 | 02/07/13 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 61.1 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-518 | CASA-13-28363 | GELC |
| R-43 S2 | 969.1 | 11/07/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 63 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-286 | CASA-13-24222 | GELC |
| R-43 S2 | 969.1 | 08/13/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 60.8 | — | — | 0.453 | mg/L | Y | — | NQ | 12-1495 | CASA-12-21649 | GELC |
| R-43 S2 | 969.1 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 57.4 | — | — | 0.453 | mg/L | Y | — | NQ | 12-1315 | CASA-12-14064 | GELC |
| R-43 S2 | 969.1 | 05/14/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 4.79 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-847 | CASA-13-30555 | GELC |
| R-43 S2 | 969.1 | 02/07/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 4.76 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-518 | CASA-13-28363 | GELC |
| R-43 S2 | 969.1 | 11/07/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 4.92 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-286 | CASA-13-24222 | GELC |
| R-43 S2 | 969.1 | 08/13/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 4.68 | — | — | 0.11 | mg/L | Y | — | NQ | 12-1495 | CASA-12-21649 | GELC |
| R-43 S2 | 969.1 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 4.43 | — | — | 0.11 | mg/L | Y | — | NQ | 12-1315 | CASA-12-14064 | GELC |
| R-43 S2 | 969.1 | 05/14/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.22 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-847 | CASA-13-30555 | GELC |
| R-43 S2 | 969.1 | 02/07/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | N | 1.47 | — | — | 0.165 | µg/L | Y | — | U | 2013-518 | CASA-13-28363 | GELC |
| R-43 S2 | 969.1 | 11/07/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.54 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-286 | CASA-13-24222 | GELC |
| R-43 S2 | 969.1 | 08/13/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.57 | — | — | 0.165 | µg/L | Y | — | NQ | 12-1495 | CASA-12-21649 | GELC |
| R-43 S2 | 969.1 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.41 | — | — | 0.165 | µg/L | Y | — | NQ | 12-1315 | CASA-12-14064 | GELC |
| R-43 S2 | 969.1 | 05/14/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 0.577 | — | — | 0.5 | µg/L | Y | J | J | 2013-847 | CASA-13-30555 | GELC |
| R-43 S2 | 969.1 | 02/07/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 1.19 | — | — | 0.5 | µg/L | Y | J | J | 2013-518 | CASA-13-28363 | GELC |
| R-43 S2 | 969.1 | 11/07/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 0.745 | — | — | 0.5 | µg/L | Y | J | J | 2013-286 | CASA-13-24222 | GELC |
| R-43 S2 | 969.1 | 08/13/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 0.695 | — | — | 0.5 | µg/L | Y | J | J | 12-1495 | CASA-12-21649 | GELC |
| R-43 S2 | 969.1 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 0.638 | — | — | 0.5 | µg/L | Y | J | J | 12-1315 | CASA-12-14064 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-43 S2 | 969.1 | 05/14/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 1.34 | — | — | 0.017 | mg/L | Y | — | NQ | 2013-847 | CASA-13-30555 | GELC |
| R-43 S2 | 969.1 | 02/07/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 1.13 | — | — | 0.085 | mg/L | Y | — | NQ | 2013-518 | CASA-13-28363 | GELC |
| R-43 S2 | 969.1 | 11/07/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 1.08 | — | — | 0.017 | mg/L | Y | — | NQ | 2013-286 | CASA-13-24222 | GELC |
| R-43 S2 | 969.1 | 08/13/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 1.33 | — | — | 0.085 | mg/L | Y | — | NQ | 12-1495 | CASA-12-21649 | GELC |
| R-43 S2 | 969.1 | 05/22/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 1.17 | — | — | 0.085 | mg/L | Y | — | NQ | 12-1315 | CASA-12-14064 | GELC |
| R-43 S2 | 969.1 | 05/14/13 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.474 | — | — | 0.05 | µg/L | Y | — | NQ | 2013-847 | CASA-13-30555 | GELC |
| R-43 S2 | 969.1 | 02/07/13 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.517 | — | — | 0.05 | µg/L | Y | — | NQ | 2013-518 | CASA-13-28363 | GELC |
| R-43 S2 | 969.1 | 11/07/12 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.472 | — | — | 0.05 | µg/L | Y | — | NQ | 2013-286 | CASA-13-24222 | GELC |
| R-43 S2 | 969.1 | 08/13/12 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.497 | — | — | 0.05 | µg/L | Y | — | NQ | 12-1495 | CASA-12-21649 | GELC |
| R-43 S2 | 969.1 | 05/22/12 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.422 | — | — | 0.05 | µg/L | Y | — | NQ | 12-1315 | CASA-12-14064 | GELC |
| R-43 S2 | 969.1 | 05/14/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.57 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-847 | CASA-13-30555 | GELC |
| R-43 S2 | 969.1 | 02/07/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.47 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-518 | CASA-13-28363 | GELC |
| R-43 S2 | 969.1 | 11/07/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.66 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-286 | CASA-13-24222 | GELC |
| R-43 S2 | 969.1 | 08/13/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.51 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1495 | CASA-12-21649 | GELC |
| R-43 S2 | 969.1 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.46 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1315 | CASA-12-14064 | GELC |
| R-43 S2 | 969.1 | 05/14/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 72.2 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-847 | CASA-13-30555 | GELC |
| R-43 S2 | 969.1 | 02/07/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 66.6 | — | — | 0.053 | mg/L | Y | — | J- | 2013-518 | CASA-13-28363 | GELC |
| R-43 S2 | 969.1 | 11/07/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 72.9 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-286 | CASA-13-24222 | GELC |
| R-43 S2 | 969.1 | 08/13/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 69.6 | — | — | 0.053 | mg/L | Y | — | NQ | 12-1495 | CASA-12-21649 | GELC |
| R-43 S2 | 969.1 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 65.2 | — | — | 0.053 | mg/L | Y | — | NQ | 12-1315 | CASA-12-14064 | GELC |
| R-43 S2 | 969.1 | 05/14/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 16.2 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-847 | CASA-13-30555 | GELC |
| R-43 S2 | 969.1 | 02/07/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 16 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-518 | CASA-13-28363 | GELC |
| R-43 S2 | 969.1 | 11/07/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 17.2 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-286 | CASA-13-24222 | GELC |
| R-43 S2 | 969.1 | 08/13/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 16.6 | — | — | 0.1 | mg/L | Y | — | NQ | 12-1495 | CASA-12-21649 | GELC |
| R-43 S2 | 969.1 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 16 | — | — | 0.1 | mg/L | Y | — | NQ | 12-1315 | CASA-12-14064 | GELC |
| R-43 S2 | 969.1 | 05/14/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 192 | — | — | 1 | µS/cm | Y | — | NQ | 2013-847 | CASA-13-30555 | GELC |
| R-43 S2 | 969.1 | 02/07/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 184 | — | — | 1 | µS/cm | Y | — | NQ | 2013-518 | CASA-13-28363 | GELC |
| R-43 S2 | 969.1 | 11/07/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 190 | — | — | 1 | µS/cm | Y | — | NQ | 2013-286 | CASA-13-24222 | GELC |
| R-43 S2 | 969.1 | 08/13/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 186 | — | — | 1 | µS/cm | Y | — | NQ | 12-1495 | CASA-12-21649 | GELC |
| R-43 S2 | 969.1 | 05/22/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 185 | — | — | 1 | µS/cm | Y | — | NQ | 12-1315 | CASA-12-14064 | GELC |
| R-43 S2 | 969.1 | 05/14/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 113 | — | — | 1 | µg/L | Y | — | NQ | 2013-847 | CASA-13-30555 | GELC |
| R-43 S2 | 969.1 | 02/07/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 103 | — | — | 1 | µg/L | Y | — | NQ | 2013-518 | CASA-13-28363 | GELC |
| R-43 S2 | 969.1 | 11/07/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 107 | — | — | 1 | µg/L | Y | — | NQ | 2013-286 | CASA-13-24222 | GELC |
| R-43 S2 | 969.1 | 08/13/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 103 | — | — | 1 | µg/L | Y | — | NQ | 12-1495 | CASA-12-21649 | GELC |
| R-43 S2 | 969.1 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 95.3 | — | — | 1 | µg/L | Y | — | NQ | 12-1315 | CASA-12-14064 | GELC |
| R-43 S2 | 969.1 | 05/14/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 4.82 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-847 | CASA-13-30555 | GELC |
| R-43 S2 | 969.1 | 02/07/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 4.39 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-518 | CASA-13-28363 | GELC |
| R-43 S2 | 969.1 | 11/07/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 4.59 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-286 | CASA-13-24222 | GELC |
| R-43 S2 | 969.1 | 08/13/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 4.15 | — | — | 0.133 | mg/L | Y | — | NQ | 12-1495 | CASA-12-21649 | GELC |
| R-43 S2 | 969.1 | 05/22/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 4.15 | — | — | 0.133 | mg/L | Y | — | NQ | 12-1315 | CASA-12-14064 | GELC |
| R-43 S2 | 969.1 | 05/14/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 146 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-847 | CASA-13-30555 | GELC |
| R-43 S2 | 969.1 | 02/07/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 161 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-518 | CASA-13-28363 | GELC |
| R-43 S2 | 969.1 | 11/07/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 139 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-286 | CASA-13-24222 | GELC |
| R-43 S2 | 969.1 | 08/13/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 154 | — | — | 3.4 | mg/L | Y | — | NQ | 12-1495 | CASA-12-21649 | GELC |
| R-43 S2 | 969.1 | 05/22/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 149 | — | — | 3.4 | mg/L | Y | — | NQ | 12-1315 | CASA-12-14064 | GELC |
| R-43 S2 | 969.1 | 05/14/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.772 | — | — | 0.33 | mg/L | Y | J | J | 2013-847 | CASA-13-30547 | GELC |
| R-43 S2 | 969.1 | 02/07/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.645 | — | — | 0.33 | mg/L | Y | J | J | 2013-518 | CASA-13-28359 | GELC |
| R-43 S2 | 969.1 | 11/07/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | N | 1 | — | — | 0.33 | mg/L | Y | U | U | 2013-286 | CASA-13-24214 | GELC |
| R-43 S2 | 969.1 | 08/13/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.641 | — | — | 0.33 | mg/L | Y | J | J | 12-1495 | CASA-12-21645 | GELC |
| R-43 S2 | 969.1 | 05/22/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | N | 1 | — | — | 0.33 | mg/L | Y | U | U | 12-1315 | CASA-12-14059 | GELC |
| R-43 S2 | 969.1 | 05/14/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.883 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-847 | CASA-13-30555 | GELC |
| R-43 S2 | 969.1 | 02/07/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.978 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-518 | CASA-13-28363 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-43 S2 | 969.1 | 11/07/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 1.11 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-286 | CASA-13-24222 | GELC |
| R-43 S2 | 969.1 | 08/13/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 1.02 | — | — | 0.067 | µg/L | Y | — | NQ | 12-1495 | CASA-12-21649 | GELC |
| R-43 S2 | 969.1 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 1.02 | — | — | 0.067 | µg/L | Y | — | NQ | 12-1315 | CASA-12-14064 | GELC |
| R-43 S2 | 969.1 | 05/14/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 7.94 | — | — | 1 | µg/L | Y | — | NQ | 2013-847 | CASA-13-30555 | GELC |
| R-43 S2 | 969.1 | 02/07/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 7.54 | — | — | 1 | µg/L | Y | — | NQ | 2013-518 | CASA-13-28363 | GELC |
| R-43 S2 | 969.1 | 11/07/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 7.95 | — | — | 1 | µg/L | Y | — | NQ | 2013-286 | CASA-13-24222 | GELC |
| R-43 S2 | 969.1 | 08/13/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 8.09 | — | — | 1 | µg/L | Y | — | NQ | 12-1495 | CASA-12-21649 | GELC |
| R-43 S2 | 969.1 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 7.12 | — | — | 1 | µg/L | Y | — | NQ | 12-1315 | CASA-12-14064 | GELC |
| R-44 S1 | 895 | 05/09/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.91 | — | — | 0.01 | SU | Y | H | NQ | 2013-830 | CAMO-13-30594 | GELC |
| R-44 S1 | 895 | 11/12/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.88 | — | — | 0.01 | SU | Y | H | NQ | 2013-307 | CAMO-13-24262 | GELC |
| R-44 S1 | 895 | 05/24/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.85 | — | — | 0.01 | SU | Y | H | NQ | 12-1321 | CAMO-12-14025 | GELC |
| R-44 S1 | 895 | 11/17/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.87 | — | — | 0.01 | SU | Y | H | J- | 12-378 | CAMO-12-1498 | GELC |
| R-44 S1 | 895 | 08/05/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.86 | — | — | 0.01 | SU | Y | H | J- | 11-3066 | CAMO-11-24646 | GELC |
| R-44 S1 | 895 | 05/09/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 54.8 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30594 | GELC |
| R-44 S1 | 895 | 11/12/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 58.5 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-307 | CAMO-13-24262 | GELC |
| R-44 S1 | 895 | 05/24/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 55.4 | — | — | 0.725 | mg/L | Y | — | NQ | 12-1321 | CAMO-12-14025 | GELC |
| R-44 S1 | 895 | 11/17/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 60 | — | — | 0.73 | mg/L | Y | — | NQ | 12-378 | CAMO-12-1498 | GELC |
| R-44 S1 | 895 | 08/05/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 57 | — | — | 0.73 | mg/L | Y | — | NQ | 11-3066 | CAMO-11-24646 | GELC |
| R-44 S1 | 895 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 21.9 | — | — | 1 | µg/L | Y | — | NQ | 2013-830 | CAMO-13-30594 | GELC |
| R-44 S1 | 895 | 11/12/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 21.3 | — | — | 1 | µg/L | Y | — | NQ | 2013-307 | CAMO-13-24262 | GELC |
| R-44 S1 | 895 | 05/24/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 20.5 | — | — | 1 | µg/L | Y | — | NQ | 12-1321 | CAMO-12-14025 | GELC |
| R-44 S1 | 895 | 11/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 25.2 | — | — | 1 | µg/L | Y | — | J | 12-378 | CAMO-12-1498 | GELC |
| R-44 S1 | 895 | 08/05/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 20.6 | — | — | 1 | µg/L | Y | — | NQ | 11-3066 | CAMO-11-24646 | GELC |
| R-44 S1 | 895 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 13.3 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30594 | GELC |
| R-44 S1 | 895 | 11/12/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 13.6 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-307 | CAMO-13-24262 | GELC |
| R-44 S1 | 895 | 05/24/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 12.5 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1321 | CAMO-12-14025 | GELC |
| R-44 S1 | 895 | 11/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 14.1 | — | — | 0.05 | mg/L | Y | — | NQ | 12-378 | CAMO-12-1498 | GELC |
| R-44 S1 | 895 | 08/05/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 12.6 | — | — | 0.05 | mg/L | Y | — | NQ | 11-3066 | CAMO-11-24646 | GELC |
| R-44 S1 | 895 | 05/09/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 2.25 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30594 | GELC |
| R-44 S1 | 895 | 11/12/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 2.32 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-307 | CAMO-13-24262 | GELC |
| R-44 S1 | 895 | 05/24/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 2.29 | — | — | 0.067 | mg/L | Y | — | NQ | 12-1321 | CAMO-12-14025 | GELC |
| R-44 S1 | 895 | 11/17/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 2.15 | — | — | 0.066 | mg/L | Y | — | NQ | 12-378 | CAMO-12-1498 | GELC |
| R-44 S1 | 895 | 08/05/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 2.17 | — | — | 0.066 | mg/L | Y | — | NQ | 11-3066 | CAMO-11-24646 | GELC |
| R-44 S1 | 895 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 17.5 | — | — | 2 | µg/L | Y | — | NQ | 2013-830 | CAMO-13-30594 | GELC |
| R-44 S1 | 895 | 11/12/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 14.5 | — | — | 2 | µg/L | Y | — | NQ | 2013-307 | CAMO-13-24262 | GELC |
| R-44 S1 | 895 | 05/24/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 17.5 | — | — | 2 | µg/L | Y | — | NQ | 12-1321 | CAMO-12-14025 | GELC |
| R-44 S1 | 895 | 11/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 14.9 | — | — | 2 | µg/L | Y | — | NQ | 12-378 | CAMO-12-1498 | GELC |
| R-44 S1 | 895 | 08/05/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 12.6 | — | — | 2 | µg/L | Y | — | NQ | 11-3066 | CAMO-11-24646 | GELC |
| R-44 S1 | 895 | 05/09/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.273 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30594 | GELC |
| R-44 S1 | 895 | 11/12/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.32 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-307 | CAMO-13-24262 | GELC |
| R-44 S1 | 895 | 05/24/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.325 | — | — | 0.033 | mg/L | Y | — | NQ | 12-1321 | CAMO-12-14025 | GELC |
| R-44 S1 | 895 | 11/17/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.28 | — | — | 0.033 | mg/L | Y | — | NQ | 12-378 | CAMO-12-1498 | GELC |
| R-44 S1 | 895 | 08/05/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.293 | — | — | 0.033 | mg/L | Y | — | NQ | 11-3066 | CAMO-11-24646 | GELC |
| R-44 S1 | 895 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 49.2 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30594 | GELC |
| R-44 S1 | 895 | 11/12/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 49.9 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-307 | CAMO-13-24262 | GELC |
| R-44 S1 | 895 | 05/24/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 45.5 | — | — | 0.453 | mg/L | Y | — | NQ | 12-1321 | CAMO-12-14025 | GELC |
| R-44 S1 | 895 | 11/17/11 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 52.5 | — | — | 0.45 | mg/L | Y | — | NQ | 12-378 | CAMO-12-1498 | GELC |
| R-44 S1 | 895 | 08/05/11 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 45.6 | — | — | 0.45 | mg/L | Y | — | NQ | 11-3066 | CAMO-11-24646 | GELC |
| R-44 S1 | 895 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 3.7 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30594 | GELC |
| R-44 S1 | 895 | 11/12/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 3.91 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-307 | CAMO-13-24262 | GELC |
| R-44 S1 | 895 | 05/24/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 3.49 | — | — | 0.11 | mg/L | Y | — | NQ | 12-1321 | CAMO-12-14025 | GELC |
| R-44 S1 | 895 | 11/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 4.18 | — | — | 0.11 | mg/L | Y | — | NQ | 12-378 | CAMO-12-1498 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-44 S1 | 895 | 08/05/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 3.44 | — | — | 0.11 | mg/L | Y | — | NQ | 11-3066 | CAMO-11-24646 | GELC |
| R-44 S1 | 895 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 0.849 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-830 | CAMO-13-30594 | GELC |
| R-44 S1 | 895 | 11/12/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 0.879 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-307 | CAMO-13-24262 | GELC |
| R-44 S1 | 895 | 05/24/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 0.856 | — | — | 0.165 | µg/L | Y | — | NQ | 12-1321 | CAMO-12-14025 | GELC |
| R-44 S1 | 895 | 11/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 0.903 | — | — | 0.17 | µg/L | Y | — | J | 12-378 | CAMO-12-1498 | GELC |
| R-44 S1 | 895 | 08/05/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 0.79 | — | — | 0.17 | µg/L | Y | — | NQ | 11-3066 | CAMO-11-24646 | GELC |
| R-44 S1 | 895 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 2.22 | — | — | 0.5 | µg/L | Y | — | NQ | 2013-830 | CAMO-13-30594 | GELC |
| R-44 S1 | 895 | 11/12/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 0.864 | — | — | 0.5 | µg/L | Y | J | J | 2013-307 | CAMO-13-24262 | GELC |
| R-44 S1 | 895 | 05/24/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | N | 2 | — | — | 0.5 | µg/L | Y | U | U | 12-1321 | CAMO-12-14025 | GELC |
| R-44 S1 | 895 | 11/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | N | 2 | — | — | 0.5 | µg/L | Y | U | U | 12-378 | CAMO-12-1498 | GELC |
| R-44 S1 | 895 | 08/05/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 2.03 | — | — | 0.5 | µg/L | Y | — | NQ | 11-3066 | CAMO-11-24646 | GELC |
| R-44 S1 | 895 | 05/09/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 0.986 | — | — | 0.017 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30594 | GELC |
| R-44 S1 | 895 | 11/12/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 1.1 | — | — | 0.085 | mg/L | Y | — | NQ | 2013-307 | CAMO-13-24262 | GELC |
| R-44 S1 | 895 | 05/24/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | N | 0.307 | — | — | 0.085 | mg/L | Y | — | U | 12-1321 | CAMO-12-14025 | GELC |
| R-44 S1 | 895 | 11/17/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 0.298 | — | — | 0.01 | mg/L | Y | — | NQ | 12-378 | CAMO-12-1498 | GELC |
| R-44 S1 | 895 | 08/05/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 1.12 | — | — | 0.05 | mg/L | Y | — | NQ | 11-3066 | CAMO-11-24646 | GELC |
| R-44 S1 | 895 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.21 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30594 | GELC |
| R-44 S1 | 895 | 11/12/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.2 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-307 | CAMO-13-24262 | GELC |
| R-44 S1 | 895 | 05/24/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.16 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1321 | CAMO-12-14025 | GELC |
| R-44 S1 | 895 | 11/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.34 | — | — | 0.05 | mg/L | Y | — | J | 12-378 | CAMO-12-1498 | GELC |
| R-44 S1 | 895 | 08/05/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.3 | — | — | 0.05 | mg/L | Y | — | NQ | 11-3066 | CAMO-11-24646 | GELC |
| R-44 S1 | 895 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 74.9 | — | — | 0.053 | mg/L | Y | — | J- | 2013-830 | CAMO-13-30594 | GELC |
| R-44 S1 | 895 | 11/12/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 76.3 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-307 | CAMO-13-24262 | GELC |
| R-44 S1 | 895 | 05/24/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 67.1 | — | — | 0.053 | mg/L | Y | — | NQ | 12-1321 | CAMO-12-14025 | GELC |
| R-44 S1 | 895 | 11/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 79.6 | — | — | 0.053 | mg/L | Y | — | NQ | 12-378 | CAMO-12-1498 | GELC |
| R-44 S1 | 895 | 08/05/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 68 | — | — | 0.053 | mg/L | Y | — | NQ | 11-3066 | CAMO-11-24646 | GELC |
| R-44 S1 | 895 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 9.93 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30594 | GELC |
| R-44 S1 | 895 | 11/12/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 9.96 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-307 | CAMO-13-24262 | GELC |
| R-44 S1 | 895 | 05/24/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 9.25 | — | — | 0.1 | mg/L | Y | — | NQ | 12-1321 | CAMO-12-14025 | GELC |
| R-44 S1 | 895 | 11/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 11 | — | — | 0.1 | mg/L | Y | — | NQ | 12-378 | CAMO-12-1498 | GELC |
| R-44 S1 | 895 | 08/05/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 9.37 | — | — | 0.1 | mg/L | Y | — | NQ | 11-3066 | CAMO-11-24646 | GELC |
| R-44 S1 | 895 | 05/09/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 135 | — | — | 1 | µS/cm | Y | — | NQ | 2013-830 | CAMO-13-30594 | GELC |
| R-44 S1 | 895 | 11/12/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 134 | — | — | 1 | µS/cm | Y | — | NQ | 2013-307 | CAMO-13-24262 | GELC |
| R-44 S1 | 895 | 05/24/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 133 | — | — | 1 | µS/cm | Y | — | NQ | 12-1321 | CAMO-12-14025 | GELC |
| R-44 S1 | 895 | 11/17/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 133 | — | — | 1 | µS/cm | Y | — | NQ | 12-378 | CAMO-12-1498 | GELC |
| R-44 S1 | 895 | 08/05/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 133 | — | — | 1 | µS/cm | Y | — | NQ | 11-3066 | CAMO-11-24646 | GELC |
| R-44 S1 | 895 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 58.8 | — | — | 1 | µg/L | Y | — | NQ | 2013-830 | CAMO-13-30594 | GELC |
| R-44 S1 | 895 | 11/12/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 59.5 | — | — | 1 | µg/L | Y | — | NQ | 2013-307 | CAMO-13-24262 | GELC |
| R-44 S1 | 895 | 05/24/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 54.1 | — | — | 1 | µg/L | Y | — | NQ | 12-1321 | CAMO-12-14025 | GELC |
| R-44 S1 | 895 | 11/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 64 | — | — | 1 | µg/L | Y | — | NQ | 12-378 | CAMO-12-1498 | GELC |
| R-44 S1 | 895 | 08/05/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 54 | — | — | 1 | µg/L | Y | — | NQ | 11-3066 | CAMO-11-24646 | GELC |
| R-44 S1 | 895 | 05/09/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 3.26 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30594 | GELC |
| R-44 S1 | 895 | 11/12/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 3.33 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-307 | CAMO-13-24262 | GELC |
| R-44 S1 | 895 | 05/24/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 3.29 | — | — | 0.133 | mg/L | Y | — | NQ | 12-1321 | CAMO-12-14025 | GELC |
| R-44 S1 | 895 | 11/17/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 3.06 | — | — | 0.1 | mg/L | Y | — | NQ | 12-378 | CAMO-12-1498 | GELC |
| R-44 S1 | 895 | 08/05/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 2.95 | — | — | 0.1 | mg/L | Y | — | NQ | 11-3066 | CAMO-11-24646 | GELC |
| R-44 S1 | 895 | 05/09/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 124 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30594 | GELC |
| R-44 S1 | 895 | 11/12/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 131 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-307 | CAMO-13-24262 | GELC |
| R-44 S1 | 895 | 05/24/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 114 | — | — | 3.4 | mg/L | Y | — | NQ | 12-1321 | CAMO-12-14025 | GELC |
| R-44 S1 | 895 | 11/17/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 140 | — | — | 3.4 | mg/L | Y | — | NQ | 12-378 | CAMO-12-1498 | GELC |
| R-44 S1 | 895 | 08/05/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 119 | — | — | 3.4 | mg/L | Y | — | NQ | 11-3066 | CAMO-11-24646 | GELC |
| R-44 S1 | 895 | 05/09/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 1.02 | — | — | 0.33 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30578 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-44 S1 | 895 | 11/12/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.707 | — | — | 0.33 | mg/L | Y | J | J | 2013-307 | CAMO-13-24245 | GELC |
| R-44 S1 | 895 | 05/24/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | N | 1 | — | — | 0.33 | mg/L | Y | U | U | 12-1321 | CAMO-12-14010 | GELC |
| R-44 S1 | 895 | 11/17/11 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | N | 0.383 | — | — | 0.33 | mg/L | Y | J | U | 12-377 | CAMO-12-1500 | GELC |
| R-44 S1 | 895 | 08/05/11 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.431 | — | — | 0.33 | mg/L | Y | J | J | 11-3066 | CAMO-11-24645 | GELC |
| R-44 S1 | 895 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.429 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-830 | CAMO-13-30594 | GELC |
| R-44 S1 | 895 | 11/12/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.461 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-307 | CAMO-13-24262 | GELC |
| R-44 S1 | 895 | 05/24/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.475 | — | — | 0.067 | µg/L | Y | — | NQ | 12-1321 | CAMO-12-14025 | GELC |
| R-44 S1 | 895 | 11/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.453 | — | — | 0.067 | µg/L | Y | — | NQ | 12-378 | CAMO-12-1498 | GELC |
| R-44 S1 | 895 | 08/05/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.405 | — | — | 0.067 | µg/L | Y | — | NQ | 11-3066 | CAMO-11-24646 | GELC |
| R-44 S1 | 895 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 5.58 | — | — | 1 | µg/L | Y | — | NQ | 2013-830 | CAMO-13-30594 | GELC |
| R-44 S1 | 895 | 11/12/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 4.95 | — | — | 1 | µg/L | Y | J | J | 2013-307 | CAMO-13-24262 | GELC |
| R-44 S1 | 895 | 05/24/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 5.45 | — | — | 1 | µg/L | Y | — | NQ | 12-1321 | CAMO-12-14025 | GELC |
| R-44 S1 | 895 | 11/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | N | 6.35 | — | — | 1 | µg/L | Y | — | U | 12-378 | CAMO-12-1498 | GELC |
| R-44 S1 | 895 | 08/05/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 4.17 | — | — | 1 | µg/L | Y | J | J | 11-3066 | CAMO-11-24646 | GELC |
| R-44 S2 | 985.3 | 05/09/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.94 | — | — | 0.01 | SU | Y | H | NQ | 2013-830 | CAMO-13-30595 | GELC |
| R-44 S2 | 985.3 | 11/12/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.97 | — | — | 0.01 | SU | Y | H | NQ | 2013-307 | CAMO-13-24263 | GELC |
| R-44 S2 | 985.3 | 05/24/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.95 | — | — | 0.01 | SU | Y | H | NQ | 12-1321 | CAMO-12-14026 | GELC |
| R-44 S2 | 985.3 | 11/17/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.94 | — | — | 0.01 | SU | Y | H | J- | 12-378 | CAMO-12-1501 | GELC |
| R-44 S2 | 985.3 | 08/05/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.92 | — | — | 0.01 | SU | Y | H | J- | 11-3066 | CAMO-11-24647 | GELC |
| R-44 S2 | 985.3 | 05/09/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 61.9 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30595 | GELC |
| R-44 S2 | 985.3 | 11/12/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 66 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-307 | CAMO-13-24263 | GELC |
| R-44 S2 | 985.3 | 05/24/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 63.7 | — | — | 0.725 | mg/L | Y | — | NQ | 12-1321 | CAMO-12-14026 | GELC |
| R-44 S2 | 985.3 | 11/17/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 63.1 | — | — | 0.73 | mg/L | Y | — | NQ | 12-378 | CAMO-12-1501 | GELC |
| R-44 S2 | 985.3 | 08/05/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 64.9 | — | — | 0.73 | mg/L | Y | — | NQ | 11-3066 | CAMO-11-24647 | GELC |
| R-44 S2 | 985.3 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 23.7 | — | — | 1 | µg/L | Y | — | NQ | 2013-830 | CAMO-13-30595 | GELC |
| R-44 S2 | 985.3 | 11/12/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 22.7 | — | — | 1 | µg/L | Y | — | NQ | 2013-307 | CAMO-13-24263 | GELC |
| R-44 S2 | 985.3 | 05/24/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 23.9 | — | — | 1 | µg/L | Y | — | NQ | 12-1321 | CAMO-12-14026 | GELC |
| R-44 S2 | 985.3 | 11/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 21.8 | — | — | 1 | µg/L | Y | — | J | 12-378 | CAMO-12-1501 | GELC |
| R-44 S2 | 985.3 | 08/05/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 24.4 | — | — | 1 | µg/L | Y | — | NQ | 11-3066 | CAMO-11-24647 | GELC |
| R-44 S2 | 985.3 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 13.4 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30595 | GELC |
| R-44 S2 | 985.3 | 11/12/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 13.7 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-307 | CAMO-13-24263 | GELC |
| R-44 S2 | 985.3 | 05/24/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 13.9 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1321 | CAMO-12-14026 | GELC |
| R-44 S2 | 985.3 | 11/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 13.1 | — | — | 0.05 | mg/L | Y | — | NQ | 12-378 | CAMO-12-1501 | GELC |
| R-44 S2 | 985.3 | 08/05/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 13.8 | — | — | 0.05 | mg/L | Y | — | NQ | 11-3066 | CAMO-11-24647 | GELC |
| R-44 S2 | 985.3 | 05/09/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 2.18 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30595 | GELC |
| R-44 S2 | 985.3 | 11/12/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 2.26 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-307 | CAMO-13-24263 | GELC |
| R-44 S2 | 985.3 | 05/24/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 2.33 | — | — | 0.067 | mg/L | Y | — | NQ | 12-1321 | CAMO-12-14026 | GELC |
| R-44 S2 | 985.3 | 11/17/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 2.17 | — | — | 0.066 | mg/L | Y | — | NQ | 12-378 | CAMO-12-1501 | GELC |
| R-44 S2 | 985.3 | 08/05/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 2.28 | — | — | 0.066 | mg/L | Y | — | NQ | 11-3066 | CAMO-11-24647 | GELC |
| R-44 S2 | 985.3 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 5.02 | — | — | 2 | µg/L | Y | J | J | 2013-830 | CAMO-13-30595 | GELC |
| R-44 S2 | 985.3 | 11/12/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 4.74 | — | — | 2 | µg/L | Y | J | J | 2013-307 | CAMO-13-24263 | GELC |
| R-44 S2 | 985.3 | 05/24/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 6.01 | — | — | 2 | µg/L | Y | J | J | 12-1321 | CAMO-12-14026 | GELC |
| R-44 S2 | 985.3 | 11/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 5.39 | — | — | 2 | µg/L | Y | J | J | 12-378 | CAMO-12-1501 | GELC |
| R-44 S2 | 985.3 | 08/05/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 6.1 | — | — | 2 | µg/L | Y | J | J | 11-3066 | CAMO-11-24647 | GELC |
| R-44 S2 | 985.3 | 05/09/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.314 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30595 | GELC |
| R-44 S2 | 985.3 | 11/12/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.367 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-307 | CAMO-13-24263 | GELC |
| R-44 S2 | 985.3 | 05/24/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.374 | — | — | 0.033 | mg/L | Y | — | NQ | 12-1321 | CAMO-12-14026 | GELC |
| R-44 S2 | 985.3 | 11/17/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.346 | — | — | 0.033 | mg/L | Y | — | NQ | 12-378 | CAMO-12-1501 | GELC |
| R-44 S2 | 985.3 | 08/05/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.34 | — | — | 0.033 | mg/L | Y | — | NQ | 11-3066 | CAMO-11-24647 | GELC |
| R-44 S2 | 985.3 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 50.9 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30595 | GELC |
| R-44 S2 | 985.3 | 11/12/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 52 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-307 | CAMO-13-24263 | GELC |
| R-44 S2 | 985.3 | 05/24/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 51.8 | — | — | 0.453 | mg/L | Y | — | NQ | 12-1321 | CAMO-12-14026 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-44 S2 | 985.3 | 11/17/11 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 47.6 | — | — | 0.45 | mg/L | Y | — | NQ | 12-378 | CAMO-12-1501 | GELC |
| R-44 S2 | 985.3 | 08/05/11 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 51.5 | — | — | 0.45 | mg/L | Y | — | NQ | 11-3066 | CAMO-11-24647 | GELC |
| R-44 S2 | 985.3 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 4.04 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30595 | GELC |
| R-44 S2 | 985.3 | 11/12/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 4.31 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-307 | CAMO-13-24263 | GELC |
| R-44 S2 | 985.3 | 05/24/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 4.18 | — | — | 0.11 | mg/L | Y | — | NQ | 12-1321 | CAMO-12-14026 | GELC |
| R-44 S2 | 985.3 | 11/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 3.61 | — | — | 0.11 | mg/L | Y | — | NQ | 12-378 | CAMO-12-1501 | GELC |
| R-44 S2 | 985.3 | 08/05/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 4.13 | — | — | 0.11 | mg/L | Y | — | NQ | 11-3066 | CAMO-11-24647 | GELC |
| R-44 S2 | 985.3 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Manganese | Mn | Y | 2.04 | — | — | 2 | µg/L | Y | J | J | 2013-830 | CAMO-13-30595 | GELC |
| R-44 S2 | 985.3 | 11/12/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Manganese | Mn | Y | 2.77 | — | — | 2 | µg/L | Y | J | J | 2013-307 | CAMO-13-24263 | GELC |
| R-44 S2 | 985.3 | 05/24/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Manganese | Mn | Y | 2.36 | — | — | 2 | µg/L | Y | J | J | 12-1321 | CAMO-12-14026 | GELC |
| R-44 S2 | 985.3 | 11/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Manganese | Mn | N | 10 | — | — | 2 | µg/L | Y | U | U | 12-378 | CAMO-12-1501 | GELC |
| R-44 S2 | 985.3 | 08/05/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Manganese | Mn | Y | 4.38 | — | — | 2 | µg/L | Y | J | J | 11-3066 | CAMO-11-24647 | GELC |
| R-44 S2 | 985.3 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 0.768 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-830 | CAMO-13-30595 | GELC |
| R-44 S2 | 985.3 | 11/12/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 0.84 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-307 | CAMO-13-24263 | GELC |
| R-44 S2 | 985.3 | 05/24/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 0.835 | — | — | 0.165 | µg/L | Y | — | NQ | 12-1321 | CAMO-12-14026 | GELC |
| R-44 S2 | 985.3 | 11/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | N | 0.809 | — | — | 0.17 | µg/L | Y | — | U | 12-378 | CAMO-12-1501 | GELC |
| R-44 S2 | 985.3 | 08/05/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 0.717 | — | — | 0.17 | µg/L | Y | — | NQ | 11-3066 | CAMO-11-24647 | GELC |
| R-44 S2 | 985.3 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 0.661 | — | — | 0.5 | µg/L | Y | J | J | 2013-830 | CAMO-13-30595 | GELC |
| R-44 S2 | 985.3 | 11/12/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 0.927 | — | — | 0.5 | µg/L | Y | J | J | 2013-307 | CAMO-13-24263 | GELC |
| R-44 S2 | 985.3 | 05/24/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | N | 2 | — | — | 0.5 | µg/L | Y | U | U | 12-1321 | CAMO-12-14026 | GELC |
| R-44 S2 | 985.3 | 11/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | N | 2 | — | — | 0.5 | µg/L | Y | U | U | 12-378 | CAMO-12-1501 | GELC |
| R-44 S2 | 985.3 | 08/05/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 0.523 | — | — | 0.5 | µg/L | Y | J | J | 11-3066 | CAMO-11-24647 | GELC |
| R-44 S2 | 985.3 | 05/09/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 0.565 | — | — | 0.017 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30595 | GELC |
| R-44 S2 | 985.3 | 11/12/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 0.626 | — | — | 0.017 | mg/L | Y | — | NQ | 2013-307 | CAMO-13-24263 | GELC |
| R-44 S2 | 985.3 | 05/24/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 0.735 | — | — | 0.085 | mg/L | Y | — | NQ | 12-1321 | CAMO-12-14026 | GELC |
| R-44 S2 | 985.3 | 11/17/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 0.163 | — | — | 0.01 | mg/L | Y | — | NQ | 12-378 | CAMO-12-1501 | GELC |
| R-44 S2 | 985.3 | 08/05/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 0.665 | — | — | 0.05 | mg/L | Y | — | J | 11-3066 | CAMO-11-24647 | GELC |
| R-44 S2 | 985.3 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.32 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30595 | GELC |
| R-44 S2 | 985.3 | 11/12/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.34 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-307 | CAMO-13-24263 | GELC |
| R-44 S2 | 985.3 | 05/24/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.39 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1321 | CAMO-12-14026 | GELC |
| R-44 S2 | 985.3 | 11/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.15 | — | — | 0.05 | mg/L | Y | — | J | 12-378 | CAMO-12-1501 | GELC |
| R-44 S2 | 985.3 | 08/05/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.5 | — | — | 0.05 | mg/L | Y | — | NQ | 11-3066 | CAMO-11-24647 | GELC |
| R-44 S2 | 985.3 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 75.8 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30595 | GELC |
| R-44 S2 | 985.3 | 11/12/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 77 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-307 | CAMO-13-24263 | GELC |
| R-44 S2 | 985.3 | 05/24/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 74.6 | — | — | 0.053 | mg/L | Y | — | NQ | 12-1321 | CAMO-12-14026 | GELC |
| R-44 S2 | 985.3 | 11/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 74.9 | — | — | 0.053 | mg/L | Y | — | NQ | 12-378 | CAMO-12-1501 | GELC |
| R-44 S2 | 985.3 | 08/05/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 74.1 | — | — | 0.053 | mg/L | Y | — | NQ | 11-3066 | CAMO-11-24647 | GELC |
| R-44 S2 | 985.3 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 10.6 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30595 | GELC |
| R-44 S2 | 985.3 | 11/12/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 10.8 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-307 | CAMO-13-24263 | GELC |
| R-44 S2 | 985.3 | 05/24/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 11 | — | — | 0.1 | mg/L | Y | — | NQ | 12-1321 | CAMO-12-14026 | GELC |
| R-44 S2 | 985.3 | 11/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 9.51 | — | — | 0.1 | mg/L | Y | — | NQ | 12-378 | CAMO-12-1501 | GELC |
| R-44 S2 | 985.3 | 08/05/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 11.1 | — | — | 0.1 | mg/L | Y | — | NQ | 11-3066 | CAMO-11-24647 | GELC |
| R-44 S2 | 985.3 | 05/09/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 145 | — | — | 1 | µS/cm | Y | — | NQ | 2013-830 | CAMO-13-30595 | GELC |
| R-44 S2 | 985.3 | 11/12/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 145 | — | — | 1 | µS/cm | Y | — | NQ | 2013-307 | CAMO-13-24263 | GELC |
| R-44 S2 | 985.3 | 05/24/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 144 | — | — | 1 | µS/cm | Y | — | NQ | 12-1321 | CAMO-12-14026 | GELC |
| R-44 S2 | 985.3 | 11/17/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 145 | — | — | 1 | µS/cm | Y | — | NQ | 12-378 | CAMO-12-1501 | GELC |
| R-44 S2 | 985.3 | 08/05/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 147 | — | — | 1 | µS/cm | Y | — | NQ | 11-3066 | CAMO-11-24647 | GELC |
| R-44 S2 | 985.3 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 59.4 | — | — | 1 | µg/L | Y | — | NQ | 2013-830 | CAMO-13-30595 | GELC |
| R-44 S2 | 985.3 | 11/12/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 60.6 | — | — | 1 | µg/L | Y | — | NQ | 2013-307 | CAMO-13-24263 | GELC |
| R-44 S2 | 985.3 | 05/24/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 62.1 | — | — | 1 | µg/L | Y | — | NQ | 12-1321 | CAMO-12-14026 | GELC |
| R-44 S2 | 985.3 | 11/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 57.3 | — | — | 1 | µg/L | Y | — | NQ | 12-378 | CAMO-12-1501 | GELC |
| R-44 S2 | 985.3 | 08/05/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 63.3 | — | — | 1 | µg/L | Y | — | NQ | 11-3066 | CAMO-11-24647 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-44 S2 | 985.3 | 05/09/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 2.86 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30595 | GELC |
| R-44 S2 | 985.3 | 11/12/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 3.45 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-307 | CAMO-13-24263 | GELC |
| R-44 S2 | 985.3 | 05/24/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 3.69 | — | — | 0.133 | mg/L | Y | — | NQ | 12-1321 | CAMO-12-14026 | GELC |
| R-44 S2 | 985.3 | 11/17/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 3.76 | — | — | 0.1 | mg/L | Y | — | NQ | 12-378 | CAMO-12-1501 | GELC |
| R-44 S2 | 985.3 | 08/05/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 3.92 | — | — | 0.1 | mg/L | Y | — | NQ | 11-3066 | CAMO-11-24647 | GELC |
| R-44 S2 | 985.3 | 05/09/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 149 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30595 | GELC |
| R-44 S2 | 985.3 | 11/12/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 140 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-307 | CAMO-13-24263 | GELC |
| R-44 S2 | 985.3 | 05/24/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 117 | — | — | 3.4 | mg/L | Y | — | NQ | 12-1321 | CAMO-12-14026 | GELC |
| R-44 S2 | 985.3 | 11/17/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 147 | — | — | 3.4 | mg/L | Y | — | NQ | 12-378 | CAMO-12-1501 | GELC |
| R-44 S2 | 985.3 | 08/05/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 136 | — | — | 3.4 | mg/L | Y | — | NQ | 11-3066 | CAMO-11-24647 | GELC |
| R-44 S2 | 985.3 | 05/09/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.692 | — | — | 0.33 | mg/L | Y | J | J | 2013-830 | CAMO-13-30579 | GELC |
| R-44 S2 | 985.3 | 11/12/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.906 | — | — | 0.33 | mg/L | Y | J | J | 2013-307 | CAMO-13-24246 | GELC |
| R-44 S2 | 985.3 | 05/24/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | N | 1 | — | — | 0.33 | mg/L | Y | U | U | 12-1321 | CAMO-12-14011 | GELC |
| R-44 S2 | 985.3 | 11/17/11 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | N | 1 | — | — | 0.33 | mg/L | Y | U | U | 12-377 | CAMO-12-1502 | GELC |
| R-44 S2 | 985.3 | 08/05/11 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.597 | — | — | 0.33 | mg/L | Y | J | J | 11-3066 | CAMO-11-24648 | GELC |
| R-44 S2 | 985.3 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.515 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-830 | CAMO-13-30595 | GELC |
| R-44 S2 | 985.3 | 11/12/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.558 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-307 | CAMO-13-24263 | GELC |
| R-44 S2 | 985.3 | 05/24/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.606 | — | — | 0.067 | µg/L | Y | — | NQ | 12-1321 | CAMO-12-14026 | GELC |
| R-44 S2 | 985.3 | 11/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.56 | — | — | 0.067 | µg/L | Y | — | NQ | 12-378 | CAMO-12-1501 | GELC |
| R-44 S2 | 985.3 | 08/05/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.483 | — | — | 0.067 | µg/L | Y | — | NQ | 11-3066 | CAMO-11-24647 | GELC |
| R-44 S2 | 985.3 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 6.16 | — | — | 1 | µg/L | Y | — | NQ | 2013-830 | CAMO-13-30595 | GELC |
| R-44 S2 | 985.3 | 11/12/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 6.25 | — | — | 1 | µg/L | Y | — | NQ | 2013-307 | CAMO-13-24263 | GELC |
| R-44 S2 | 985.3 | 05/24/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 6.87 | — | — | 1 | µg/L | Y | — | NQ | 12-1321 | CAMO-12-14026 | GELC |
| R-44 S2 | 985.3 | 11/17/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | N | 5.08 | — | — | 1 | µg/L | Y | — | U | 12-378 | CAMO-12-1501 | GELC |
| R-44 S2 | 985.3 | 08/05/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 5.71 | — | — | 1 | µg/L | Y | — | NQ | 11-3066 | CAMO-11-24647 | GELC |
| R-45 S1 | 880 | 05/09/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.91 | — | — | 0.01 | SU | Y | H | NQ | 2013-830 | CAMO-13-30596 | GELC |
| R-45 S1 | 880 | 11/06/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.86 | — | — | 0.01 | SU | Y | H | NQ | 2013-276 | CAMO-13-24264 | GELC |
| R-45 S1 | 880 | 05/22/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.9 | — | — | 0.01 | SU | Y | H | NQ | 12-1314 | CAMO-12-14027 | GELC |
| R-45 S1 | 880 | 11/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.87 | — | — | 0.01 | SU | Y | H | J- | 12-363 | CAMO-12-1492 | GELC |
| R-45 S1 | 880 | 08/01/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.79 | — | — | 0.01 | SU | Y | H | J- | 11-2990 | CAMO-11-24641 | GELC |
| R-45 S1 | 880 | 05/09/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 65 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30596 | GELC |
| R-45 S1 | 880 | 11/06/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 67 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-276 | CAMO-13-24264 | GELC |
| R-45 S1 | 880 | 05/22/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 65.8 | — | — | 0.725 | mg/L | Y | — | NQ | 12-1314 | CAMO-12-14027 | GELC |
| R-45 S1 | 880 | 11/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 64.1 | — | — | 0.73 | mg/L | Y | — | NQ | 12-363 | CAMO-12-1492 | GELC |
| R-45 S1 | 880 | 08/01/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 66.5 | — | — | 0.73 | mg/L | Y | — | NQ | 11-2990 | CAMO-11-24641 | GELC |
| R-45 S1 | 880 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 30.6 | — | — | 1 | µg/L | Y | — | NQ | 2013-830 | CAMO-13-30596 | GELC |
| R-45 S1 | 880 | 11/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 29.9 | — | — | 1 | µg/L | Y | — | NQ | 2013-276 | CAMO-13-24264 | GELC |
| R-45 S1 | 880 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 27.9 | — | — | 1 | µg/L | Y | — | NQ | 12-1314 | CAMO-12-14027 | GELC |
| R-45 S1 | 880 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 29.6 | — | — | 1 | µg/L | Y | — | J | 12-363 | CAMO-12-1492 | GELC |
| R-45 S1 | 880 | 08/01/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 29 | — | — | 1 | µg/L | Y | — | NQ | 11-2990 | CAMO-11-24641 | GELC |
| R-45 S1 | 880 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 18.8 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30596 | GELC |
| R-45 S1 | 880 | 11/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 18.6 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-276 | CAMO-13-24264 | GELC |
| R-45 S1 | 880 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 17.3 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1314 | CAMO-12-14027 | GELC |
| R-45 S1 | 880 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 18.2 | — | — | 0.05 | mg/L | Y | — | NQ | 12-363 | CAMO-12-1492 | GELC |
| R-45 S1 | 880 | 08/01/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 17.8 | — | — | 0.05 | mg/L | Y | — | NQ | 11-2990 | CAMO-11-24641 | GELC |
| R-45 S1 | 880 | 05/09/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 4.06 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30596 | GELC |
| R-45 S1 | 880 | 11/06/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 3.97 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-276 | CAMO-13-24264 | GELC |
| R-45 S1 | 880 | 05/22/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 3.88 | — | — | 0.067 | mg/L | Y | — | NQ | 12-1314 | CAMO-12-14027 | GELC |
| R-45 S1 | 880 | 11/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 3.62 | — | — | 0.066 | mg/L | Y | — | NQ | 12-363 | CAMO-12-1492 | GELC |
| R-45 S1 | 880 | 08/01/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 3.75 | — | — | 0.066 | mg/L | Y | — | NQ | 11-2990 | CAMO-11-24641 | GELC |
| R-45 S1 | 880 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 24.1 | — | — | 2 | µg/L | Y | — | NQ | 2013-830 | CAMO-13-30596 | GELC |
| R-45 S1 | 880 | 11/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 23 | — | — | 2 | µg/L | Y | — | NQ | 2013-276 | CAMO-13-24264 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-45 S1 | 880 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 19 | — | — | 2 | µg/L | Y | — | NQ | 12-1314 | CAMO-12-14027 | GELC |
| R-45 S1 | 880 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 20.9 | — | — | 2 | µg/L | Y | — | NQ | 12-363 | CAMO-12-1492 | GELC |
| R-45 S1 | 880 | 08/01/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 17.9 | — | — | 2 | µg/L | Y | — | NQ | 11-2990 | CAMO-11-24641 | GELC |
| R-45 S1 | 880 | 05/09/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.291 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30596 | GELC |
| R-45 S1 | 880 | 11/06/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.351 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-276 | CAMO-13-24264 | GELC |
| R-45 S1 | 880 | 05/22/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.346 | — | — | 0.033 | mg/L | Y | — | NQ | 12-1314 | CAMO-12-14027 | GELC |
| R-45 S1 | 880 | 11/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.328 | — | — | 0.033 | mg/L | Y | — | NQ | 12-363 | CAMO-12-1492 | GELC |
| R-45 S1 | 880 | 08/01/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.3 | — | — | 0.033 | mg/L | Y | — | NQ | 11-2990 | CAMO-11-24641 | GELC |
| R-45 S1 | 880 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 69 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30596 | GELC |
| R-45 S1 | 880 | 11/06/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 68 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-276 | CAMO-13-24264 | GELC |
| R-45 S1 | 880 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 63.3 | — | — | 0.453 | mg/L | Y | — | NQ | 12-1314 | CAMO-12-14027 | GELC |
| R-45 S1 | 880 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 65.6 | — | — | 0.45 | mg/L | Y | — | NQ | 12-363 | CAMO-12-1492 | GELC |
| R-45 S1 | 880 | 08/01/11 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 64.2 | — | — | 0.45 | mg/L | Y | — | NQ | 11-2990 | CAMO-11-24641 | GELC |
| R-45 S1 | 880 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 5.11 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30596 | GELC |
| R-45 S1 | 880 | 11/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 5.24 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-276 | CAMO-13-24264 | GELC |
| R-45 S1 | 880 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 4.86 | — | — | 0.11 | mg/L | Y | — | NQ | 12-1314 | CAMO-12-14027 | GELC |
| R-45 S1 | 880 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 4.89 | — | — | 0.11 | mg/L | Y | — | NQ | 12-363 | CAMO-12-1492 | GELC |
| R-45 S1 | 880 | 08/01/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 4.82 | — | — | 0.11 | mg/L | Y | — | NQ | 11-2990 | CAMO-11-24641 | GELC |
| R-45 S1 | 880 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 0.733 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-830 | CAMO-13-30596 | GELC |
| R-45 S1 | 880 | 11/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 0.908 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-276 | CAMO-13-24264 | GELC |
| R-45 S1 | 880 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 0.794 | — | — | 0.165 | µg/L | Y | — | NQ | 12-1314 | CAMO-12-14027 | GELC |
| R-45 S1 | 880 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | N | 0.856 | — | — | 0.17 | µg/L | Y | — | U | 12-363 | CAMO-12-1492 | GELC |
| R-45 S1 | 880 | 08/01/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 0.748 | — | — | 0.17 | µg/L | Y | — | NQ | 11-2990 | CAMO-11-24641 | GELC |
| R-45 S1 | 880 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 1.59 | — | — | 0.5 | µg/L | Y | J | J | 2013-830 | CAMO-13-30596 | GELC |
| R-45 S1 | 880 | 11/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 1.22 | — | — | 0.5 | µg/L | Y | J | J | 2013-276 | CAMO-13-24264 | GELC |
| R-45 S1 | 880 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 0.893 | — | — | 0.5 | µg/L | Y | J | J | 12-1314 | CAMO-12-14027 | GELC |
| R-45 S1 | 880 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | N | 2 | — | — | 0.5 | µg/L | Y | U | U | 12-363 | CAMO-12-1492 | GELC |
| R-45 S1 | 880 | 08/01/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 1.36 | — | — | 0.5 | µg/L | Y | J | J | 11-2990 | CAMO-11-24641 | GELC |
| R-45 S1 | 880 | 05/09/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 2.3 | — | — | 0.085 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30596 | GELC |
| R-45 S1 | 880 | 11/06/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 2.65 | — | — | 0.425 | mg/L | Y | — | NQ | 2013-276 | CAMO-13-24264 | GELC |
| R-45 S1 | 880 | 05/22/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 2.53 | — | — | 0.085 | mg/L | Y | — | NQ | 12-1314 | CAMO-12-14027 | GELC |
| R-45 S1 | 880 | 11/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 2.4 | — | — | 0.05 | mg/L | Y | — | NQ | 12-363 | CAMO-12-1492 | GELC |
| R-45 S1 | 880 | 08/01/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 2.17 | — | — | 0.05 | mg/L | Y | — | NQ | 11-2990 | CAMO-11-24641 | GELC |
| R-45 S1 | 880 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.35 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30596 | GELC |
| R-45 S1 | 880 | 11/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.43 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-276 | CAMO-13-24264 | GELC |
| R-45 S1 | 880 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.28 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1314 | CAMO-12-14027 | GELC |
| R-45 S1 | 880 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.25 | — | — | 0.05 | mg/L | Y | — | J | 12-363 | CAMO-12-1492 | GELC |
| R-45 S1 | 880 | 08/01/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.34 | — | — | 0.05 | mg/L | Y | — | NQ | 11-2990 | CAMO-11-24641 | GELC |
| R-45 S1 | 880 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 76.6 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30596 | GELC |
| R-45 S1 | 880 | 11/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 77.9 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-276 | CAMO-13-24264 | GELC |
| R-45 S1 | 880 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 72.1 | — | — | 0.053 | mg/L | Y | — | NQ | 12-1314 | CAMO-12-14027 | GELC |
| R-45 S1 | 880 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 76.4 | — | — | 0.053 | mg/L | Y | — | NQ | 12-363 | CAMO-12-1492 | GELC |
| R-45 S1 | 880 | 08/01/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 72.2 | — | — | 0.053 | mg/L | Y | — | NQ | 11-2990 | CAMO-11-24641 | GELC |
| R-45 S1 | 880 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 11 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30596 | GELC |
| R-45 S1 | 880 | 11/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 11.6 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-276 | CAMO-13-24264 | GELC |
| R-45 S1 | 880 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 10.6 | — | — | 0.1 | mg/L | Y | — | NQ | 12-1314 | CAMO-12-14027 | GELC |
| R-45 S1 | 880 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 10.6 | — | — | 0.1 | mg/L | Y | — | NQ | 12-363 | CAMO-12-1492 | GELC |
| R-45 S1 | 880 | 08/01/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 10.6 | — | — | 0.1 | mg/L | Y | — | NQ | 11-2990 | CAMO-11-24641 | GELC |
| R-45 S1 | 880 | 05/09/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 184 | — | — | 1 | µS/cm | Y | — | NQ | 2013-830 | CAMO-13-30596 | GELC |
| R-45 S1 | 880 | 11/06/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 175 | — | — | 1 | µS/cm | Y | — | NQ | 2013-276 | CAMO-13-24264 | GELC |
| R-45 S1 | 880 | 05/22/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 175 | — | — | 1 | µS/cm | Y | — | NQ | 12-1314 | CAMO-12-14027 | GELC |
| R-45 S1 | 880 | 11/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 176 | — | — | 1 | µS/cm | Y | — | NQ | 12-363 | CAMO-12-1492 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-45 S1 | 880 | 08/01/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 168 | — | — | 1 | µS/cm | Y | — | NQ | 11-2990 | CAMO-11-24641 | GELC |
| R-45 S1 | 880 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 84.2 | — | — | 1 | µg/L | Y | — | NQ | 2013-830 | CAMO-13-30596 | GELC |
| R-45 S1 | 880 | 11/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 81.7 | — | — | 1 | µg/L | Y | — | NQ | 2013-276 | CAMO-13-24264 | GELC |
| R-45 S1 | 880 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 76.8 | — | — | 1 | µg/L | Y | — | NQ | 12-1314 | CAMO-12-14027 | GELC |
| R-45 S1 | 880 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 79.9 | — | — | 1 | µg/L | Y | — | NQ | 12-363 | CAMO-12-1492 | GELC |
| R-45 S1 | 880 | 08/01/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 78.1 | — | — | 1 | µg/L | Y | — | NQ | 11-2990 | CAMO-11-24641 | GELC |
| R-45 S1 | 880 | 05/09/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 6.17 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30596 | GELC |
| R-45 S1 | 880 | 11/06/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 6.42 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-276 | CAMO-13-24264 | GELC |
| R-45 S1 | 880 | 05/22/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 5.99 | — | — | 0.133 | mg/L | Y | — | NQ | 12-1314 | CAMO-12-14027 | GELC |
| R-45 S1 | 880 | 11/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 5.59 | — | — | 0.1 | mg/L | Y | — | NQ | 12-363 | CAMO-12-1492 | GELC |
| R-45 S1 | 880 | 08/01/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 5.39 | — | — | 0.1 | mg/L | Y | — | NQ | 11-2990 | CAMO-11-24641 | GELC |
| R-45 S1 | 880 | 05/09/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 149 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30596 | GELC |
| R-45 S1 | 880 | 11/06/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 176 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-276 | CAMO-13-24264 | GELC |
| R-45 S1 | 880 | 05/22/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 153 | — | — | 3.4 | mg/L | Y | — | NQ | 12-1314 | CAMO-12-14027 | GELC |
| R-45 S1 | 880 | 11/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 149 | — | — | 3.4 | mg/L | Y | — | NQ | 12-363 | CAMO-12-1492 | GELC |
| R-45 S1 | 880 | 08/01/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 151 | — | — | 3.4 | mg/L | Y | — | NQ | 11-2990 | CAMO-11-24641 | GELC |
| R-45 S1 | 880 | 05/09/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.658 | — | — | 0.33 | mg/L | Y | J | J | 2013-830 | CAMO-13-30580 | GELC |
| R-45 S1 | 880 | 11/06/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | N | 1 | — | — | 0.33 | mg/L | Y | U | U | 2013-276 | CAMO-13-24247 | GELC |
| R-45 S1 | 880 | 05/22/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | N | 1 | — | — | 0.33 | mg/L | Y | U | U | 12-1314 | CAMO-12-14012 | GELC |
| R-45 S1 | 880 | 11/16/11 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | N | 1 | — | — | 0.33 | mg/L | Y | U | U | 12-362 | CAMO-12-1494 | GELC |
| R-45 S1 | 880 | 08/01/11 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | N | 1 | — | — | 0.33 | mg/L | Y | U | U | 11-2990 | CAMO-11-24642 | GELC |
| R-45 S1 | 880 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.705 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-830 | CAMO-13-30596 | GELC |
| R-45 S1 | 880 | 11/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.827 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-276 | CAMO-13-24264 | GELC |
| R-45 S1 | 880 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.8 | — | — | 0.067 | µg/L | Y | — | NQ | 12-1314 | CAMO-12-14027 | GELC |
| R-45 S1 | 880 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.835 | — | — | 0.067 | µg/L | Y | — | NQ | 12-363 | CAMO-12-1492 | GELC |
| R-45 S1 | 880 | 08/01/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.896 | — | — | 0.067 | µg/L | Y | — | J | 11-2990 | CAMO-11-24641 | GELC |
| R-45 S1 | 880 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 6.35 | — | — | 1 | µg/L | Y | — | NQ | 2013-830 | CAMO-13-30596 | GELC |
| R-45 S1 | 880 | 11/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 5.25 | — | — | 1 | µg/L | Y | — | NQ | 2013-276 | CAMO-13-24264 | GELC |
| R-45 S1 | 880 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 4.76 | — | — | 1 | µg/L | Y | J | J | 12-1314 | CAMO-12-14027 | GELC |
| R-45 S1 | 880 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | N | 5.78 | — | — | 1 | µg/L | Y | — | U | 12-363 | CAMO-12-1492 | GELC |
| R-45 S1 | 880 | 08/01/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 5.41 | — | — | 1 | µg/L | Y | — | NQ | 11-2990 | CAMO-11-24641 | GELC |
| R-45 S1 | 880 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 5.05 | — | — | 3.3 | µg/L | Y | J | J | 2013-830 | CAMO-13-30596 | GELC |
| R-45 S1 | 880 | 11/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | N | 10 | — | — | 3.3 | µg/L | Y | U | U | 2013-276 | CAMO-13-24264 | GELC |
| R-45 S1 | 880 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | N | 11.9 | — | — | 3.3 | µg/L | Y | — | U | 12-1314 | CAMO-12-14027 | GELC |
| R-45 S1 | 880 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 3.82 | — | — | 3.3 | µg/L | Y | J | J | 12-363 | CAMO-12-1492 | GELC |
| R-45 S1 | 880 | 08/01/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 3.47 | — | — | 3.3 | µg/L | Y | J | J | 11-2990 | CAMO-11-24641 | GELC |
| R-45 S2 | 974.9 | 05/09/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.16 | — | — | 0.01 | SU | Y | H | NQ | 2013-830 | CAMO-13-30597 | GELC |
| R-45 S2 | 974.9 | 11/06/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.08 | — | — | 0.01 | SU | Y | H | NQ | 2013-276 | CAMO-13-24265 | GELC |
| R-45 S2 | 974.9 | 05/22/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.06 | — | — | 0.01 | SU | Y | H | NQ | 12-1314 | CAMO-12-14028 | GELC |
| R-45 S2 | 974.9 | 11/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.13 | — | — | 0.01 | SU | Y | H | J- | 12-363 | CAMO-12-1496 | GELC |
| R-45 S2 | 974.9 | 08/01/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.07 | — | — | 0.01 | SU | Y | H | J- | 11-2990 | CAMO-11-24643 | GELC |
| R-45 S2 | 974.9 | 05/09/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 72.1 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30597 | GELC |
| R-45 S2 | 974.9 | 11/06/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 70.8 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-276 | CAMO-13-24265 | GELC |
| R-45 S2 | 974.9 | 05/22/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 72.5 | — | — | 0.725 | mg/L | Y | — | NQ | 12-1314 | CAMO-12-14028 | GELC |
| R-45 S2 | 974.9 | 11/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 71.2 | — | — | 0.73 | mg/L | Y | — | NQ | 12-363 | CAMO-12-1496 | GELC |
| R-45 S2 | 974.9 | 08/01/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 73.9 | — | — | 0.73 | mg/L | Y | — | NQ | 11-2990 | CAMO-11-24643 | GELC |
| R-45 S2 | 974.9 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 29.9 | — | — | 1 | µg/L | Y | — | NQ | 2013-830 | CAMO-13-30597 | GELC |
| R-45 S2 | 974.9 | 11/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 30.3 | — | — | 1 | µg/L | Y | — | NQ | 2013-276 | CAMO-13-24265 | GELC |
| R-45 S2 | 974.9 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 28.3 | — | — | 1 | µg/L | Y | — | NQ | 12-1314 | CAMO-12-14028 | GELC |
| R-45 S2 | 974.9 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 30.9 | — | — | 1 | µg/L | Y | — | J | 12-363 | CAMO-12-1496 | GELC |
| R-45 S2 | 974.9 | 08/01/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 28.5 | — | — | 1 | µg/L | Y | — | NQ | 11-2990 | CAMO-11-24643 | GELC |
| R-45 S2 | 974.9 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 16.7 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30597 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-45 S2 | 974.9 | 11/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 17.8 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-276 | CAMO-13-24265 | GELC |
| R-45 S2 | 974.9 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 15.8 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1314 | CAMO-12-14028 | GELC |
| R-45 S2 | 974.9 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 17.5 | — | — | 0.05 | mg/L | Y | — | NQ | 12-363 | CAMO-12-1496 | GELC |
| R-45 S2 | 974.9 | 08/01/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 16.4 | — | — | 0.05 | mg/L | Y | — | NQ | 11-2990 | CAMO-11-24643 | GELC |
| R-45 S2 | 974.9 | 05/09/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 3.4 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30597 | GELC |
| R-45 S2 | 974.9 | 11/06/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 3.43 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-276 | CAMO-13-24265 | GELC |
| R-45 S2 | 974.9 | 05/22/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 3.37 | — | — | 0.067 | mg/L | Y | — | NQ | 12-1314 | CAMO-12-14028 | GELC |
| R-45 S2 | 974.9 | 11/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 3.16 | — | — | 0.066 | mg/L | Y | — | NQ | 12-363 | CAMO-12-1496 | GELC |
| R-45 S2 | 974.9 | 08/01/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 3.34 | — | — | 0.066 | mg/L | Y | — | NQ | 11-2990 | CAMO-11-24643 | GELC |
| R-45 S2 | 974.9 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 12.1 | — | — | 2 | µg/L | Y | — | NQ | 2013-830 | CAMO-13-30597 | GELC |
| R-45 S2 | 974.9 | 11/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 12.5 | — | — | 2 | µg/L | Y | — | NQ | 2013-276 | CAMO-13-24265 | GELC |
| R-45 S2 | 974.9 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 9.99 | — | — | 2 | µg/L | Y | J | J | 12-1314 | CAMO-12-14028 | GELC |
| R-45 S2 | 974.9 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 11.5 | — | — | 2 | µg/L | Y | — | NQ | 12-363 | CAMO-12-1496 | GELC |
| R-45 S2 | 974.9 | 08/01/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 8.91 | — | — | 2 | µg/L | Y | J | J | 11-2990 | CAMO-11-24643 | GELC |
| R-45 S2 | 974.9 | 05/09/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.352 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30597 | GELC |
| R-45 S2 | 974.9 | 11/06/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.422 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-276 | CAMO-13-24265 | GELC |
| R-45 S2 | 974.9 | 05/22/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.413 | — | — | 0.033 | mg/L | Y | — | NQ | 12-1314 | CAMO-12-14028 | GELC |
| R-45 S2 | 974.9 | 11/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.398 | — | — | 0.033 | mg/L | Y | — | NQ | 12-363 | CAMO-12-1496 | GELC |
| R-45 S2 | 974.9 | 08/01/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.373 | — | — | 0.033 | mg/L | Y | — | NQ | 11-2990 | CAMO-11-24643 | GELC |
| R-45 S2 | 974.9 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 62.6 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30597 | GELC |
| R-45 S2 | 974.9 | 11/06/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 65.9 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-276 | CAMO-13-24265 | GELC |
| R-45 S2 | 974.9 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 58.7 | — | — | 0.453 | mg/L | Y | — | NQ | 12-1314 | CAMO-12-14028 | GELC |
| R-45 S2 | 974.9 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 64.1 | — | — | 0.45 | mg/L | Y | — | NQ | 12-363 | CAMO-12-1496 | GELC |
| R-45 S2 | 974.9 | 08/01/11 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 59.9 | — | — | 0.45 | mg/L | Y | — | NQ | 11-2990 | CAMO-11-24643 | GELC |
| R-45 S2 | 974.9 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 4.79 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30597 | GELC |
| R-45 S2 | 974.9 | 11/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 5.22 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-276 | CAMO-13-24265 | GELC |
| R-45 S2 | 974.9 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 4.66 | — | — | 0.11 | mg/L | Y | — | NQ | 12-1314 | CAMO-12-14028 | GELC |
| R-45 S2 | 974.9 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 4.95 | — | — | 0.11 | mg/L | Y | — | NQ | 12-363 | CAMO-12-1496 | GELC |
| R-45 S2 | 974.9 | 08/01/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 4.59 | — | — | 0.11 | mg/L | Y | — | NQ | 11-2990 | CAMO-11-24643 | GELC |
| R-45 S2 | 974.9 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 0.874 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-830 | CAMO-13-30597 | GELC |
| R-45 S2 | 974.9 | 11/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 0.942 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-276 | CAMO-13-24265 | GELC |
| R-45 S2 | 974.9 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 0.914 | — | — | 0.165 | µg/L | Y | — | NQ | 12-1314 | CAMO-12-14028 | GELC |
| R-45 S2 | 974.9 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | N | 1.18 | — | — | 0.17 | µg/L | Y | — | U | 12-363 | CAMO-12-1496 | GELC |
| R-45 S2 | 974.9 | 08/01/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 0.802 | — | — | 0.17 | µg/L | Y | — | NQ | 11-2990 | CAMO-11-24643 | GELC |
| R-45 S2 | 974.9 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 1.13 | — | — | 0.5 | µg/L | Y | J | J | 2013-830 | CAMO-13-30597 | GELC |
| R-45 S2 | 974.9 | 11/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 0.999 | — | — | 0.5 | µg/L | Y | J | J | 2013-276 | CAMO-13-24265 | GELC |
| R-45 S2 | 974.9 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 1.73 | — | — | 0.5 | µg/L | Y | J | J | 12-1314 | CAMO-12-14028 | GELC |
| R-45 S2 | 974.9 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 1.45 | — | — | 0.5 | µg/L | Y | J | J | 12-363 | CAMO-12-1496 | GELC |
| R-45 S2 | 974.9 | 08/01/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 1.85 | — | — | 0.5 | µg/L | Y | J | J | 11-2990 | CAMO-11-24643 | GELC |
| R-45 S2 | 974.9 | 05/09/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 0.589 | — | — | 0.017 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30597 | GELC |
| R-45 S2 | 974.9 | 11/06/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 0.7 | — | — | 0.085 | mg/L | Y | — | NQ | 2013-276 | CAMO-13-24265 | GELC |
| R-45 S2 | 974.9 | 05/22/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 0.68 | — | — | 0.085 | mg/L | Y | — | NQ | 12-1314 | CAMO-12-14028 | GELC |
| R-45 S2 | 974.9 | 11/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 0.6 | — | — | 0.05 | mg/L | Y | — | NQ | 12-363 | CAMO-12-1496 | GELC |
| R-45 S2 | 974.9 | 08/01/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 0.65 | — | — | 0.05 | mg/L | Y | — | NQ | 11-2990 | CAMO-11-24643 | GELC |
| R-45 S2 | 974.9 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.35 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30597 | GELC |
| R-45 S2 | 974.9 | 11/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.54 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-276 | CAMO-13-24265 | GELC |
| R-45 S2 | 974.9 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.32 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1314 | CAMO-12-14028 | GELC |
| R-45 S2 | 974.9 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.34 | — | — | 0.05 | mg/L | Y | — | J | 12-363 | CAMO-12-1496 | GELC |
| R-45 S2 | 974.9 | 08/01/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.39 | — | — | 0.05 | mg/L | Y | — | NQ | 11-2990 | CAMO-11-24643 | GELC |
| R-45 S2 | 974.9 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 76.2 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30597 | GELC |
| R-45 S2 | 974.9 | 11/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 82.5 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-276 | CAMO-13-24265 | GELC |
| R-45 S2 | 974.9 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 74.6 | — | — | 0.053 | mg/L | Y | — | NQ | 12-1314 | CAMO-12-14028 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-45 S2 | 974.9 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 80.3 | — | — | 0.053 | mg/L | Y | — | NQ | 12-363 | CAMO-12-1496 | GELC |
| R-45 S2 | 974.9 | 08/01/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 73.1 | — | — | 0.053 | mg/L | Y | — | NQ | 11-2990 | CAMO-11-24643 | GELC |
| R-45 S2 | 974.9 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 10.9 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30597 | GELC |
| R-45 S2 | 974.9 | 11/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 12.2 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-276 | CAMO-13-24265 | GELC |
| R-45 S2 | 974.9 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 10.7 | — | — | 0.1 | mg/L | Y | — | NQ | 12-1314 | CAMO-12-14028 | GELC |
| R-45 S2 | 974.9 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 11.4 | — | — | 0.1 | mg/L | Y | — | NQ | 12-363 | CAMO-12-1496 | GELC |
| R-45 S2 | 974.9 | 08/01/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 10.8 | — | — | 0.1 | mg/L | Y | — | NQ | 11-2990 | CAMO-11-24643 | GELC |
| R-45 S2 | 974.9 | 05/09/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 171 | — | — | 1 | µS/cm | Y | — | NQ | 2013-830 | CAMO-13-30597 | GELC |
| R-45 S2 | 974.9 | 11/06/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 167 | — | — | 1 | µS/cm | Y | — | NQ | 2013-276 | CAMO-13-24265 | GELC |
| R-45 S2 | 974.9 | 05/22/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 167 | — | — | 1 | µS/cm | Y | — | NQ | 12-1314 | CAMO-12-14028 | GELC |
| R-45 S2 | 974.9 | 11/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 170 | — | — | 1 | µS/cm | Y | — | NQ | 12-363 | CAMO-12-1496 | GELC |
| R-45 S2 | 974.9 | 08/01/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 161 | — | — | 1 | µS/cm | Y | — | NQ | 11-2990 | CAMO-11-24643 | GELC |
| R-45 S2 | 974.9 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 72.3 | — | — | 1 | µg/L | Y | — | NQ | 2013-830 | CAMO-13-30597 | GELC |
| R-45 S2 | 974.9 | 11/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 75.6 | — | — | 1 | µg/L | Y | — | NQ | 2013-276 | CAMO-13-24265 | GELC |
| R-45 S2 | 974.9 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 68.1 | — | — | 1 | µg/L | Y | — | NQ | 12-1314 | CAMO-12-14028 | GELC |
| R-45 S2 | 974.9 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 75.1 | — | — | 1 | µg/L | Y | — | NQ | 12-363 | CAMO-12-1496 | GELC |
| R-45 S2 | 974.9 | 08/01/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 70.5 | — | — | 1 | µg/L | Y | — | NQ | 11-2990 | CAMO-11-24643 | GELC |
| R-45 S2 | 974.9 | 05/09/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 4.06 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30597 | GELC |
| R-45 S2 | 974.9 | 11/06/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 4.38 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-276 | CAMO-13-24265 | GELC |
| R-45 S2 | 974.9 | 05/22/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 4.24 | — | — | 0.133 | mg/L | Y | — | NQ | 12-1314 | CAMO-12-14028 | GELC |
| R-45 S2 | 974.9 | 11/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 4.27 | — | — | 0.1 | mg/L | Y | — | NQ | 12-363 | CAMO-12-1496 | GELC |
| R-45 S2 | 974.9 | 08/01/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 4.21 | — | — | 0.1 | mg/L | Y | — | NQ | 11-2990 | CAMO-11-24643 | GELC |
| R-45 S2 | 974.9 | 05/09/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 141 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-830 | CAMO-13-30597 | GELC |
| R-45 S2 | 974.9 | 11/06/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 181 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-276 | CAMO-13-24265 | GELC |
| R-45 S2 | 974.9 | 05/22/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 150 | — | — | 3.4 | mg/L | Y | — | NQ | 12-1314 | CAMO-12-14028 | GELC |
| R-45 S2 | 974.9 | 11/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 149 | — | — | 3.4 | mg/L | Y | — | NQ | 12-363 | CAMO-12-1496 | GELC |
| R-45 S2 | 974.9 | 08/01/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 150 | — | — | 3.4 | mg/L | Y | — | NQ | 11-2990 | CAMO-11-24643 | GELC |
| R-45 S2 | 974.9 | 05/09/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.77 | — | — | 0.33 | mg/L | Y | J | J | 2013-830 | CAMO-13-30581 | GELC |
| R-45 S2 | 974.9 | 11/06/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | N | 1 | — | — | 0.33 | mg/L | Y | U | U | 2013-276 | CAMO-13-24248 | GELC |
| R-45 S2 | 974.9 | 05/22/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | N | 1 | — | — | 0.33 | mg/L | Y | U | U | 12-1314 | CAMO-12-14013 | GELC |
| R-45 S2 | 974.9 | 11/16/11 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | N | 1 | — | — | 0.33 | mg/L | Y | U | U | 12-362 | CAMO-12-1497 | GELC |
| R-45 S2 | 974.9 | 08/01/11 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | N | 1 | — | — | 0.33 | mg/L | Y | U | U | 11-2990 | CAMO-11-24644 | GELC |
| R-45 S2 | 974.9 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.651 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-830 | CAMO-13-30597 | GELC |
| R-45 S2 | 974.9 | 11/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.746 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-276 | CAMO-13-24265 | GELC |
| R-45 S2 | 974.9 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.717 | — | — | 0.067 | µg/L | Y | — | NQ | 12-1314 | CAMO-12-14028 | GELC |
| R-45 S2 | 974.9 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.784 | — | — | 0.067 | µg/L | Y | — | NQ | 12-363 | CAMO-12-1496 | GELC |
| R-45 S2 | 974.9 | 08/01/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.766 | — | — | 0.067 | µg/L | Y | — | J | 11-2990 | CAMO-11-24643 | GELC |
| R-45 S2 | 974.9 | 05/09/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 6.94 | — | — | 1 | µg/L | Y | — | NQ | 2013-830 | CAMO-13-30597 | GELC |
| R-45 S2 | 974.9 | 11/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 7.69 | — | — | 1 | µg/L | Y | — | NQ | 2013-276 | CAMO-13-24265 | GELC |
| R-45 S2 | 974.9 | 05/22/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 6.55 | — | — | 1 | µg/L | Y | — | NQ | 12-1314 | CAMO-12-14028 | GELC |
| R-45 S2 | 974.9 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 6.94 | — | — | 1 | µg/L | Y | — | J | 12-363 | CAMO-12-1496 | GELC |
| R-45 S2 | 974.9 | 08/01/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 6.86 | — | — | 1 | µg/L | Y | — | NQ | 11-2990 | CAMO-11-24643 | GELC |
| R-50 S1 | 1077 | 05/10/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.99 | — | — | 0.01 | SU | Y | H | NQ | 2013-832 | CAMO-13-30598 | GELC |
| R-50 S1 | 1077 | 02/04/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.92 | — | — | 0.01 | SU | Y | H | NQ | 2013-508 | CAMO-13-28418 | GELC |
| R-50 S1 | 1077 | 11/09/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.02 | — | — | 0.01 | SU | Y | H | NQ | 2013-306 | CAMO-13-24266 | GELC |
| R-50 S1 | 1077 | 08/15/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8 | — | — | 0.01 | SU | Y | H | NQ | 12-1503 | CAMO-12-21745 | GELC |
| R-50 S1 | 1077 | 05/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.96 | — | — | 0.01 | SU | Y | H | NQ | 12-1334 | CAMO-12-14029 | GELC |
| R-50 S1 | 1077 | 05/10/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 59.9 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-832 | CAMO-13-30598 | GELC |
| R-50 S1 | 1077 | 02/04/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 61.2 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-508 | CAMO-13-28418 | GELC |
| R-50 S1 | 1077 | 11/09/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 63.8 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-306 | CAMO-13-24266 | GELC |
| R-50 S1 | 1077 | 08/15/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 61.9 | — | — | 0.725 | mg/L | Y | — | NQ | 12-1503 | CAMO-12-21745 | GELC |
| R-50 S1 | 1077 | 05/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 59.5 | — | — | 0.725 | mg/L | Y | — | NQ | 12-1334 | CAMO-12-14029 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-50 S1 | 1077 | 05/10/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 18.7 | — | — | 1 | µg/L | Y | — | NQ | 2013-832 | CAMO-13-30598 | GELC |
| R-50 S1 | 1077 | 02/04/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 16.4 | — | — | 1 | µg/L | Y | — | NQ | 2013-508 | CAMO-13-28418 | GELC |
| R-50 S1 | 1077 | 11/09/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 17.6 | — | — | 1 | µg/L | Y | — | NQ | 2013-306 | CAMO-13-24266 | GELC |
| R-50 S1 | 1077 | 08/15/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 17.7 | — | — | 1 | µg/L | Y | — | NQ | 12-1503 | CAMO-12-21745 | GELC |
| R-50 S1 | 1077 | 05/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 16.6 | — | — | 1 | µg/L | Y | — | NQ | 12-1334 | CAMO-12-14029 | GELC |
| R-50 S1 | 1077 | 05/10/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.0953 | — | — | 0.067 | mg/L | Y | J | J | 2013-832 | CAMO-13-30598 | GELC |
| R-50 S1 | 1077 | 02/04/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | N | 0.2 | — | — | 0.067 | mg/L | Y | U | U | 2013-508 | CAMO-13-28418 | GELC |
| R-50 S1 | 1077 | 11/09/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.0775 | — | — | 0.067 | mg/L | Y | J | J | 2013-306 | CAMO-13-24266 | GELC |
| R-50 S1 | 1077 | 08/15/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | N | 0.2 | — | — | 0.067 | mg/L | Y | U | U | 12-1503 | CAMO-12-21745 | GELC |
| R-50 S1 | 1077 | 05/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | N | 0.2 | — | — | 0.067 | mg/L | Y | U | U | 12-1334 | CAMO-12-14029 | GELC |
| R-50 S1 | 1077 | 05/10/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 16.9 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-832 | CAMO-13-30598 | GELC |
| R-50 S1 | 1077 | 02/04/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 15.4 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-508 | CAMO-13-28418 | GELC |
| R-50 S1 | 1077 | 11/09/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 16.2 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-306 | CAMO-13-24266 | GELC |
| R-50 S1 | 1077 | 08/15/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 14.5 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1503 | CAMO-12-21745 | GELC |
| R-50 S1 | 1077 | 05/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 15.1 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1334 | CAMO-12-14029 | GELC |
| R-50 S1 | 1077 | 05/10/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 8.34 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-832 | CAMO-13-30598 | GELC |
| R-50 S1 | 1077 | 02/04/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 7.7 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-508 | CAMO-13-28418 | GELC |
| R-50 S1 | 1077 | 11/09/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 7.07 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-306 | CAMO-13-24266 | GELC |
| R-50 S1 | 1077 | 08/15/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 7.14 | — | — | 0.067 | mg/L | Y | — | NQ | 12-1503 | CAMO-12-21745 | GELC |
| R-50 S1 | 1077 | 05/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 7.79 | — | — | 0.067 | mg/L | Y | — | NQ | 12-1334 | CAMO-12-14029 | GELC |
| R-50 S1 | 1077 | 05/10/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 103 | — | — | 2 | µg/L | Y | — | NQ | 2013-832 | CAMO-13-30598 | GELC |
| R-50 S1 | 1077 | 02/04/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 98.1 | — | — | 2 | µg/L | Y | — | NQ | 2013-508 | CAMO-13-28418 | GELC |
| R-50 S1 | 1077 | 11/09/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 3.79 | — | — | 2 | µg/L | N | J | R | 2013-306 | CAMO-13-24266 | GELC |
| R-50 S1 | 1077 | 11/09/12 | WG | F | RE | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 96.3 | — | — | 2 | µg/L | Y | — | NQ | 2013-306-1 | CAMO-13-24266 | GELC |
| R-50 S1 | 1077 | 08/15/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 87.4 | — | — | 2 | µg/L | Y | — | NQ | 12-1503 | CAMO-12-21745 | GELC |
| R-50 S1 | 1077 | 05/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 98.3 | — | — | 2 | µg/L | Y | — | NQ | 12-1334 | CAMO-12-14029 | GELC |
| R-50 S1 | 1077 | 05/10/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.282 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-832 | CAMO-13-30598 | GELC |
| R-50 S1 | 1077 | 02/04/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.278 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-508 | CAMO-13-28418 | GELC |
| R-50 S1 | 1077 | 11/09/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.337 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-306 | CAMO-13-24266 | GELC |
| R-50 S1 | 1077 | 08/15/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.328 | — | — | 0.033 | mg/L | Y | — | NQ | 12-1503 | CAMO-12-21745 | GELC |
| R-50 S1 | 1077 | 05/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.336 | — | — | 0.033 | mg/L | Y | — | NQ | 12-1334 | CAMO-12-14029 | GELC |
| R-50 S1 | 1077 | 05/10/13 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 64.1 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-832 | CAMO-13-30598 | GELC |
| R-50 S1 | 1077 | 02/04/13 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 58.3 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-508 | CAMO-13-28418 | GELC |
| R-50 S1 | 1077 | 11/09/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 61.4 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-306 | CAMO-13-24266 | GELC |
| R-50 S1 | 1077 | 08/15/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 54.5 | — | — | 0.453 | mg/L | Y | — | NQ | 12-1503 | CAMO-12-21745 | GELC |
| R-50 S1 | 1077 | 05/31/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 56.9 | — | — | 0.453 | mg/L | Y | — | NQ | 12-1334 | CAMO-12-14029 | GELC |
| R-50 S1 | 1077 | 05/10/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 5.08 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-832 | CAMO-13-30598 | GELC |
| R-50 S1 | 1077 | 02/04/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 4.8 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-508 | CAMO-13-28418 | GELC |
| R-50 S1 | 1077 | 11/09/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 5.09 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-306 | CAMO-13-24266 | GELC |
| R-50 S1 | 1077 | 08/15/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 4.41 | — | — | 0.11 | mg/L | Y | — | NQ | 12-1503 | CAMO-12-21745 | GELC |
| R-50 S1 | 1077 | 05/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 4.64 | — | — | 0.11 | mg/L | Y | — | NQ | 12-1334 | CAMO-12-14029 | GELC |
| R-50 S1 | 1077 | 05/10/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.18 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-832 | CAMO-13-30598 | GELC |
| R-50 S1 | 1077 | 02/04/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | N | 1.23 | — | — | 0.165 | µg/L | Y | — | U | 2013-508 | CAMO-13-28418 | GELC |
| R-50 S1 | 1077 | 11/09/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.17 | — | — | 0.165 | µg/L | N | — | R | 2013-306 | CAMO-13-24266 | GELC |
| R-50 S1 | 1077 | 11/09/12 | WG | F | RE | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.65 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-306-1 | CAMO-13-24266 | GELC |
| R-50 S1 | 1077 | 08/15/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.75 | — | — | 0.165 | µg/L | Y | — | NQ | 12-1503 | CAMO-12-21745 | GELC |
| R-50 S1 | 1077 | 05/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.6 | — | — | 0.165 | µg/L | Y | — | NQ | 12-1334 | CAMO-12-14029 | GELC |
| R-50 S1 | 1077 | 05/10/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 7.2 | — | — | 0.5 | µg/L | Y | — | NQ | 2013-832 | CAMO-13-30598 | GELC |
| R-50 S1 | 1077 | 02/04/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 6.35 | — | — | 0.5 | µg/L | Y | — | NQ | 2013-508 | CAMO-13-28418 | GELC |
| R-50 S1 | 1077 | 11/09/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 1.7 | — | — | 0.5 | µg/L | N | J | R | 2013-306 | CAMO-13-24266 | GELC |
| R-50 S1 | 1077 | 11/09/12 | WG | F | RE | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 7.11 | — | — | 0.5 | µg/L | Y | — | NQ | 2013-306-1 | CAMO-13-24266 | GELC |
| R-50 S1 | 1077 | 08/15/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 5.01 | — | — | 0.5 | µg/L | Y | — | NQ | 12-1503 | CAMO-12-21745 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-50 S1 | 1077 | 05/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 4.5 | — | — | 0.5 | µg/L | Y | — | NQ | 12-1334 | CAMO-12-14029 | GELC |
| R-50 S1 | 1077 | 05/10/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 1.45 | — | — | 0.017 | mg/L | Y | — | NQ | 2013-832 | CAMO-13-30598 | GELC |
| R-50 S1 | 1077 | 02/04/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 1.59 | — | — | 0.085 | mg/L | Y | — | NQ | 2013-508 | CAMO-13-28418 | GELC |
| R-50 S1 | 1077 | 11/09/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 1.5 | — | — | 0.085 | mg/L | Y | — | NQ | 2013-306 | CAMO-13-24266 | GELC |
| R-50 S1 | 1077 | 08/15/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 1.81 | — | — | 0.085 | mg/L | Y | — | NQ | 12-1503 | CAMO-12-21745 | GELC |
| R-50 S1 | 1077 | 05/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 1.72 | — | — | 0.085 | mg/L | Y | — | NQ | 12-1334 | CAMO-12-14029 | GELC |
| R-50 S1 | 1077 | 05/10/13 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.556 | — | — | 0.05 | µg/L | Y | — | NQ | 2013-832 | CAMO-13-30598 | GELC |
| R-50 S1 | 1077 | 02/04/13 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.58 | — | — | 0.05 | µg/L | Y | — | NQ | 2013-508 | CAMO-13-28418 | GELC |
| R-50 S1 | 1077 | 11/09/12 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.552 | — | — | 0.05 | µg/L | Y | — | NQ | 2013-306 | CAMO-13-24266 | GELC |
| R-50 S1 | 1077 | 08/15/12 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.555 | — | — | 0.05 | µg/L | Y | — | NQ | 12-1503 | CAMO-12-21745 | GELC |
| R-50 S1 | 1077 | 05/31/12 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.582 | — | — | 0.05 | µg/L | Y | — | NQ | 12-1334 | CAMO-12-14029 | GELC |
| R-50 S1 | 1077 | 05/10/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.53 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-832 | CAMO-13-30598 | GELC |
| R-50 S1 | 1077 | 02/04/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.51 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-508 | CAMO-13-28418 | GELC |
| R-50 S1 | 1077 | 11/09/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.61 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-306 | CAMO-13-24266 | GELC |
| R-50 S1 | 1077 | 08/15/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.55 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1503 | CAMO-12-21745 | GELC |
| R-50 S1 | 1077 | 05/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.56 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1334 | CAMO-12-14029 | GELC |
| R-50 S1 | 1077 | 05/10/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 73.8 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-832 | CAMO-13-30598 | GELC |
| R-50 S1 | 1077 | 02/04/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 68.8 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-508 | CAMO-13-28418 | GELC |
| R-50 S1 | 1077 | 11/09/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 75.2 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-306 | CAMO-13-24266 | GELC |
| R-50 S1 | 1077 | 08/15/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 68.2 | — | — | 0.053 | mg/L | Y | — | NQ | 12-1503 | CAMO-12-21745 | GELC |
| R-50 S1 | 1077 | 05/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 70.2 | — | — | 0.053 | mg/L | Y | — | NQ | 12-1334 | CAMO-12-14029 | GELC |
| R-50 S1 | 1077 | 05/10/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 13.8 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-832 | CAMO-13-30598 | GELC |
| R-50 S1 | 1077 | 02/04/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 14 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-508 | CAMO-13-28418 | GELC |
| R-50 S1 | 1077 | 11/09/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 14.4 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-306 | CAMO-13-24266 | GELC |
| R-50 S1 | 1077 | 08/15/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 13.7 | — | — | 0.1 | mg/L | Y | — | NQ | 12-1503 | CAMO-12-21745 | GELC |
| R-50 S1 | 1077 | 05/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 13.8 | — | — | 0.1 | mg/L | Y | — | NQ | 12-1334 | CAMO-12-14029 | GELC |
| R-50 S1 | 1077 | 05/10/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 190 | — | — | 1 | µS/cm | Y | — | NQ | 2013-832 | CAMO-13-30598 | GELC |
| R-50 S1 | 1077 | 02/04/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 181 | — | — | 1 | µS/cm | Y | — | NQ | 2013-508 | CAMO-13-28418 | GELC |
| R-50 S1 | 1077 | 11/09/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 187 | — | — | 1 | µS/cm | Y | — | NQ | 2013-306 | CAMO-13-24266 | GELC |
| R-50 S1 | 1077 | 08/15/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 180 | — | — | 1 | µS/cm | Y | — | NQ | 12-1503 | CAMO-12-21745 | GELC |
| R-50 S1 | 1077 | 05/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 184 | — | — | 1 | µS/cm | Y | — | NQ | 12-1334 | CAMO-12-14029 | GELC |
| R-50 S1 | 1077 | 05/10/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 70.6 | — | — | 1 | µg/L | Y | — | NQ | 2013-832 | CAMO-13-30598 | GELC |
| R-50 S1 | 1077 | 02/04/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 64.2 | — | — | 1 | µg/L | Y | — | NQ | 2013-508 | CAMO-13-28418 | GELC |
| R-50 S1 | 1077 | 11/09/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 65.8 | — | — | 1 | µg/L | Y | — | NQ | 2013-306 | CAMO-13-24266 | GELC |
| R-50 S1 | 1077 | 08/15/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 60.1 | — | — | 1 | µg/L | Y | — | NQ | 12-1503 | CAMO-12-21745 | GELC |
| R-50 S1 | 1077 | 05/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 63 | — | — | 1 | µg/L | Y | — | NQ | 12-1334 | CAMO-12-14029 | GELC |
| R-50 S1 | 1077 | 05/10/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 12.3 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-832 | CAMO-13-30598 | GELC |
| R-50 S1 | 1077 | 02/04/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 11.5 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-508 | CAMO-13-28418 | GELC |
| R-50 S1 | 1077 | 11/09/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 10.7 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-306 | CAMO-13-24266 | GELC |
| R-50 S1 | 1077 | 08/15/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 10.6 | — | — | 0.133 | mg/L | Y | — | NQ | 12-1503 | CAMO-12-21745 | GELC |
| R-50 S1 | 1077 | 05/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 11.4 | — | — | 0.133 | mg/L | Y | — | NQ | 12-1334 | CAMO-12-14029 | GELC |
| R-50 S1 | 1077 | 05/10/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 153 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-832 | CAMO-13-30598 | GELC |
| R-50 S1 | 1077 | 02/04/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 166 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-508 | CAMO-13-28418 | GELC |
| R-50 S1 | 1077 | 11/09/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 153 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-306 | CAMO-13-24266 | GELC |
| R-50 S1 | 1077 | 08/15/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 149 | — | — | 3.4 | mg/L | Y | — | NQ | 12-1503 | CAMO-12-21745 | GELC |
| R-50 S1 | 1077 | 05/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 139 | — | — | 3.4 | mg/L | Y | — | NQ | 12-1334 | CAMO-12-14029 | GELC |
| R-50 S1 | 1077 | 05/10/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | EPA:351.2 | Total Kjeldahl Nitrogen | TKN | Y | 0.0794 | — | — | 0.033 | mg/L | Y | J | J | 2013-832 | CAMO-13-30582 | GELC |
| R-50 S1 | 1077 | 02/04/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | EPA:351.2 | Total Kjeldahl Nitrogen | TKN | N | 0.1 | — | — | 0.033 | mg/L | Y | U | U | 2013-508 | CAMO-13-28410 | GELC |
| R-50 S1 | 1077 | 11/09/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | EPA:351.2 | Total Kjeldahl Nitrogen | TKN | Y | 0.0786 | — | — | 0.035 | mg/L | Y | J | J+ | 2013-306 | CAMO-13-24249 | GELC |
| R-50 S1 | 1077 | 08/15/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | EPA:351.2 | Total Kjeldahl Nitrogen | TKN | N | 0.1 | — | — | 0.035 | mg/L | Y | U | U | 12-1503 | CAMO-12-21737 | GELC |
| R-50 S1 | 1077 | 05/31/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | EPA:351.2 | Total Kjeldahl Nitrogen | TKN | Y | 0.0765 | — | — | 0.035 | mg/L | Y | J | J | 12-1334 | CAMO-12-14014 | GELC |
| R-50 S1 | 1077 | 05/10/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 1.28 | — | — | 0.33 | mg/L | Y | — | NQ | 2013-832 | CAMO-13-30582 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-50 S1 | 1077 | 02/04/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 1.08 | — | — | 0.33 | mg/L | Y | — | NQ | 2013-508 | CAMO-13-28410 | GELC |
| R-50 S1 | 1077 | 11/09/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 2.4 | — | — | 0.33 | mg/L | Y | — | NQ | 2013-306 | CAMO-13-24249 | GELC |
| R-50 S1 | 1077 | 08/15/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 2.22 | — | — | 0.33 | mg/L | Y | — | NQ | 12-1503 | CAMO-12-21737 | GELC |
| R-50 S1 | 1077 | 05/31/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 1.67 | — | — | 0.33 | mg/L | Y | — | NQ | 12-1334 | CAMO-12-14014 | GELC |
| R-50 S1 | 1077 | 05/10/13 | WG | UF | INIT | REG | RAD | Generic:Low_Level_Tritium | Tritium | H-3 | Y | 20.514 | 3.252 | 2.41 | — | pCi/L | Y | — | J- | 2013-849 | CAMO-13-30582 | ARSL |
| R-50 S1 | 1077 | 11/09/12 | WG | UF | INIT | REG | RAD | Generic:Low_Level_Tritium | Tritium | H-3 | Y | 22.455 | 3.603 | 3.008 | — | pCi/L | Y | — | J- | 2013-313 | CAMO-13-24249 | ARSL |
| R-50 S1 | 1077 | 05/31/12 | WG | UF | INIT | REG | RAD | Generic:Low_Level_Tritium | Tritium | H-3 | Y | 23.236 | 3.631 | 2.236 | — | pCi/L | Y | — | NQ | 12-1342 | CAMO-12-14014 | ARSL |
| R-50 S1 | 1077 | 11/18/11 | WG | UF | INIT | REG | RAD | Generic:Low_Level_Tritium | Tritium | H-3 | Y | 24.75 | 3.98 | 3.41 | — | pCi/L | Y | — | NQ | 12-436 | CAMO-12-1505 | ARSL |
| R-50 S1 | 1077 | 08/04/11 | WG | UF | INIT | REG | RAD | Generic:Low_Level_Tritium | Tritium | H-3 | Y | 12.7512 | 2.1574 | 2.5438 | — | pCi/L | Y | — | NQ | 11-3040 | CAMO-11-24673 | ARSL |
| R-50 S1 | 1077 | 08/04/11 | WG | UF | INIT | FD | RAD | Generic:Low_Level_Tritium | Tritium | H-3 | Y | 16.2932 | 2.6404 | 2.2862 | — | pCi/L | Y | — | NQ | 11-3040 | CAMO-11-24675 | ARSL |
| R-50 S1 | 1077 | 05/10/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.555 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-832 | CAMO-13-30598 | GELC |
| R-50 S1 | 1077 | 02/04/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.568 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-508 | CAMO-13-28418 | GELC |
| R-50 S1 | 1077 | 11/09/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.636 | — | — | 0.067 | µg/L | N | — | R | 2013-306 | CAMO-13-24266 | GELC |
| R-50 S1 | 1077 | 11/09/12 | WG | F | RE | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.573 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-306-1 | CAMO-13-24266 | GELC |
| R-50 S1 | 1077 | 08/15/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.623 | — | — | 0.067 | µg/L | Y | — | NQ | 12-1503 | CAMO-12-21745 | GELC |
| R-50 S1 | 1077 | 05/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.6 | — | — | 0.067 | µg/L | Y | — | NQ | 12-1334 | CAMO-12-14029 | GELC |
| R-50 S1 | 1077 | 05/10/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 5.15 | — | — | 1 | µg/L | Y | — | NQ | 2013-832 | CAMO-13-30598 | GELC |
| R-50 S1 | 1077 | 02/04/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 4.97 | — | — | 1 | µg/L | Y | J | J | 2013-508 | CAMO-13-28418 | GELC |
| R-50 S1 | 1077 | 11/09/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 5.32 | — | — | 1 | µg/L | Y | — | NQ | 2013-306 | CAMO-13-24266 | GELC |
| R-50 S1 | 1077 | 08/15/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 4.91 | — | — | 1 | µg/L | Y | J | J | 12-1503 | CAMO-12-21745 | GELC |
| R-50 S1 | 1077 | 05/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 4.82 | — | — | 1 | µg/L | Y | J | J | 12-1334 | CAMO-12-14029 | GELC |
| R-50 S1 | 1077 | 05/10/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 7.59 | — | — | 3.3 | µg/L | Y | J | J | 2013-832 | CAMO-13-30598 | GELC |
| R-50 S1 | 1077 | 02/04/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 5.74 | — | — | 3.3 | µg/L | Y | J | J | 2013-508 | CAMO-13-28418 | GELC |
| R-50 S1 | 1077 | 11/09/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | N | 10 | — | — | 3.3 | µg/L | Y | U | U | 2013-306 | CAMO-13-24266 | GELC |
| R-50 S1 | 1077 | 08/15/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | N | 10 | — | — | 3.3 | µg/L | Y | U | U | 12-1503 | CAMO-12-21745 | GELC |
| R-50 S1 | 1077 | 05/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 8.81 | — | — | 3.3 | µg/L | Y | J | J | 12-1334 | CAMO-12-14029 | GELC |
| R-50 S2 | 1185 | 05/13/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.98 | — | — | 0.01 | SU | Y | H | NQ | 2013-841 | CAMO-13-30599 | GELC |
| R-50 S2 | 1185 | 01/31/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.05 | — | — | 0.01 | SU | Y | H | NQ | 2013-502 | CAMO-13-28419 | GELC |
| R-50 S2 | 1185 | 11/09/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.11 | — | — | 0.01 | SU | Y | H | NQ | 2013-306 | CAMO-13-24267 | GELC |
| R-50 S2 | 1185 | 08/16/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.86 | — | — | 0.01 | SU | Y | H | NQ | 12-1506 | CAMO-12-21746 | GELC |
| R-50 S2 | 1185 | 05/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.07 | — | — | 0.01 | SU | Y | H | NQ | 12-1334 | CAMO-12-14030 | GELC |
| R-50 S2 | 1185 | 05/13/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 60.9 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-841 | CAMO-13-30599 | GELC |
| R-50 S2 | 1185 | 01/31/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | N | 1 | — | — | 0.725 | mg/L | Y | U | U | 2013-502 | CAMO-13-28419 | GELC |
| R-50 S2 | 1185 | 11/09/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 63.8 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-306 | CAMO-13-24267 | GELC |
| R-50 S2 | 1185 | 08/16/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 61.9 | — | — | 0.725 | mg/L | Y | — | NQ | 12-1506 | CAMO-12-21746 | GELC |
| R-50 S2 | 1185 | 05/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 62.1 | — | — | 0.725 | mg/L | Y | — | NQ | 12-1334 | CAMO-12-14030 | GELC |
| R-50 S2 | 1185 | 05/13/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 25.3 | — | — | 1 | µg/L | Y | — | NQ | 2013-841 | CAMO-13-30599 | GELC |
| R-50 S2 | 1185 | 01/31/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 24.5 | — | — | 1 | µg/L | Y | — | NQ | 2013-502 | CAMO-13-28419 | GELC |
| R-50 S2 | 1185 | 11/09/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 19.9 | — | — | 1 | µg/L | Y | — | NQ | 2013-306 | CAMO-13-24267 | GELC |
| R-50 S2 | 1185 | 08/16/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 23.6 | — | — | 1 | µg/L | Y | — | NQ | 12-1506 | CAMO-12-21746 | GELC |
| R-50 S2 | 1185 | 05/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 23.8 | — | — | 1 | µg/L | Y | — | NQ | 12-1334 | CAMO-12-14030 | GELC |
| R-50 S2 | 1185 | 05/13/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 11.8 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-841 | CAMO-13-30599 | GELC |
| R-50 S2 | 1185 | 01/31/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 11.4 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-502 | CAMO-13-28419 | GELC |
| R-50 S2 | 1185 | 11/09/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 12.7 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-306 | CAMO-13-24267 | GELC |
| R-50 S2 | 1185 | 08/16/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 11.1 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1506 | CAMO-12-21746 | GELC |
| R-50 S2 | 1185 | 05/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 11 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1334 | CAMO-12-14030 | GELC |
| R-50 S2 | 1185 | 05/13/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 2.22 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-841 | CAMO-13-30599 | GELC |
| R-50 S2 | 1185 | 01/31/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 2.07 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-502 | CAMO-13-28419 | GELC |
| R-50 S2 | 1185 | 11/09/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 2.11 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-306 | CAMO-13-24267 | GELC |
| R-50 S2 | 1185 | 08/16/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 2.11 | — | — | 0.067 | mg/L | Y | — | NQ | 12-1506 | CAMO-12-21746 | GELC |
| R-50 S2 | 1185 | 05/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 2.08 | — | — | 0.067 | mg/L | Y | — | NQ | 12-1334 | CAMO-12-14030 | GELC |
| R-50 S2 | 1185 | 05/13/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 3.18 | — | — | 2 | µg/L | Y | J | J | 2013-841 | CAMO-13-30599 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-50 S2 | 1185 | 01/31/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 7.19 | — | — | 2 | µg/L | Y | J | J | 2013-502 | CAMO-13-28419 | GELC |
| R-50 S2 | 1185 | 11/09/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 14.6 | — | — | 2 | µg/L | N | — | R | 2013-306 | CAMO-13-24267 | GELC |
| R-50 S2 | 1185 | 11/09/12 | WG | F | RE | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 4.25 | — | — | 2 | µg/L | Y | J | J | 2013-306-1 | CAMO-13-24267 | GELC |
| R-50 S2 | 1185 | 08/16/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 3.17 | — | — | 2 | µg/L | Y | J | J | 12-1506 | CAMO-12-21746 | GELC |
| R-50 S2 | 1185 | 05/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 2.99 | — | — | 2 | µg/L | Y | J | J | 12-1334 | CAMO-12-14030 | GELC |
| R-50 S2 | 1185 | 05/13/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.423 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-841 | CAMO-13-30599 | GELC |
| R-50 S2 | 1185 | 01/31/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.335 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-502 | CAMO-13-28419 | GELC |
| R-50 S2 | 1185 | 11/09/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.401 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-306 | CAMO-13-24267 | GELC |
| R-50 S2 | 1185 | 08/16/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.339 | — | — | 0.033 | mg/L | Y | — | NQ | 12-1506 | CAMO-12-21746 | GELC |
| R-50 S2 | 1185 | 05/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.39 | — | — | 0.033 | mg/L | Y | — | NQ | 12-1334 | CAMO-12-14030 | GELC |
| R-50 S2 | 1185 | 05/13/13 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 46 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-841 | CAMO-13-30599 | GELC |
| R-50 S2 | 1185 | 01/31/13 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 45.2 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-502 | CAMO-13-28419 | GELC |
| R-50 S2 | 1185 | 11/09/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 46.8 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-306 | CAMO-13-24267 | GELC |
| R-50 S2 | 1185 | 08/16/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 43.9 | — | — | 0.453 | mg/L | Y | — | NQ | 12-1506 | CAMO-12-21746 | GELC |
| R-50 S2 | 1185 | 05/31/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 43.7 | — | — | 0.453 | mg/L | Y | — | NQ | 12-1334 | CAMO-12-14030 | GELC |
| R-50 S2 | 1185 | 05/13/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 4.01 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-841 | CAMO-13-30599 | GELC |
| R-50 S2 | 1185 | 01/31/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 4.03 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-502 | CAMO-13-28419 | GELC |
| R-50 S2 | 1185 | 11/09/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 3.66 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-306 | CAMO-13-24267 | GELC |
| R-50 S2 | 1185 | 08/16/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 3.93 | — | — | 0.11 | mg/L | Y | — | NQ | 12-1506 | CAMO-12-21746 | GELC |
| R-50 S2 | 1185 | 05/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 3.92 | — | — | 0.11 | mg/L | Y | — | NQ | 12-1334 | CAMO-12-14030 | GELC |
| R-50 S2 | 1185 | 05/13/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.05 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-841 | CAMO-13-30599 | GELC |
| R-50 S2 | 1185 | 01/31/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.13 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-502 | CAMO-13-28419 | GELC |
| R-50 S2 | 1185 | 11/09/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 0.895 | — | — | 0.165 | µg/L | N | — | R | 2013-306 | CAMO-13-24267 | GELC |
| R-50 S2 | 1185 | 11/09/12 | WG | F | RE | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.25 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-306-1 | CAMO-13-24267 | GELC |
| R-50 S2 | 1185 | 08/16/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.3 | — | — | 0.165 | µg/L | Y | — | NQ | 12-1506 | CAMO-12-21746 | GELC |
| R-50 S2 | 1185 | 05/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.21 | — | — | 0.165 | µg/L | Y | — | NQ | 12-1334 | CAMO-12-14030 | GELC |
| R-50 S2 | 1185 | 05/13/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 1.87 | — | — | 0.5 | µg/L | Y | J | J | 2013-841 | CAMO-13-30599 | GELC |
| R-50 S2 | 1185 | 01/31/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 2.36 | — | — | 0.5 | µg/L | Y | — | NQ | 2013-502 | CAMO-13-28419 | GELC |
| R-50 S2 | 1185 | 11/09/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 0.866 | — | — | 0.5 | µg/L | N | J | R | 2013-306 | CAMO-13-24267 | GELC |
| R-50 S2 | 1185 | 11/09/12 | WG | F | RE | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 1.61 | — | — | 0.5 | µg/L | Y | J | J | 2013-306-1 | CAMO-13-24267 | GELC |
| R-50 S2 | 1185 | 08/16/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 1.38 | — | — | 0.5 | µg/L | Y | J | J | 12-1506 | CAMO-12-21746 | GELC |
| R-50 S2 | 1185 | 05/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 1.45 | — | — | 0.5 | µg/L | Y | J | J | 12-1334 | CAMO-12-14030 | GELC |
| R-50 S2 | 1185 | 05/13/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 0.407 | — | — | 0.017 | mg/L | Y | — | NQ | 2013-841 | CAMO-13-30599 | GELC |
| R-50 S2 | 1185 | 01/31/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 0.445 | — | — | 0.017 | mg/L | Y | — | NQ | 2013-502 | CAMO-13-28419 | GELC |
| R-50 S2 | 1185 | 11/09/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 0.471 | — | — | 0.017 | mg/L | Y | — | NQ | 2013-306 | CAMO-13-24267 | GELC |
| R-50 S2 | 1185 | 08/16/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 0.975 | — | — | 0.085 | mg/L | N | — | R | 12-1506 | CAMO-12-21746 | GELC |
| R-50 S2 | 1185 | 08/16/12 | WG | F | RE | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 0.495 | — | — | 0.017 | mg/L | Y | H | NQ | 12-1506-1 | CAMO-12-21746 | GELC |
| R-50 S2 | 1185 | 05/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 0.55 | — | — | 0.085 | mg/L | Y | — | NQ | 12-1334 | CAMO-12-14030 | GELC |
| R-50 S2 | 1185 | 05/13/13 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.306 | — | — | 0.05 | µg/L | Y | — | NQ | 2013-841 | CAMO-13-30599 | GELC |
| R-50 S2 | 1185 | 01/31/13 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.296 | — | — | 0.05 | µg/L | Y | — | NQ | 2013-502 | CAMO-13-28419 | GELC |
| R-50 S2 | 1185 | 11/09/12 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.33 | — | — | 0.05 | µg/L | Y | — | NQ | 2013-306 | CAMO-13-24267 | GELC |
| R-50 S2 | 1185 | 08/16/12 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.336 | — | — | 0.05 | µg/L | Y | — | NQ | 12-1506 | CAMO-12-21746 | GELC |
| R-50 S2 | 1185 | 05/31/12 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.341 | — | — | 0.05 | µg/L | Y | — | NQ | 12-1334 | CAMO-12-14030 | GELC |
| R-50 S2 | 1185 | 05/13/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.49 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-841 | CAMO-13-30599 | GELC |
| R-50 S2 | 1185 | 01/31/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.44 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-502 | CAMO-13-28419 | GELC |
| R-50 S2 | 1185 | 11/09/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.17 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-306 | CAMO-13-24267 | GELC |
| R-50 S2 | 1185 | 08/16/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.45 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1506 | CAMO-12-21746 | GELC |
| R-50 S2 | 1185 | 05/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.42 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1334 | CAMO-12-14030 | GELC |
| R-50 S2 | 1185 | 05/13/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 81.8 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-841 | CAMO-13-30599 | GELC |
| R-50 S2 | 1185 | 01/31/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 78.3 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-502 | CAMO-13-28419 | GELC |
| R-50 S2 | 1185 | 11/09/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 71.7 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-306 | CAMO-13-24267 | GELC |
| R-50 S2 | 1185 | 08/16/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 76.9 | — | — | 0.053 | mg/L | Y | — | NQ | 12-1506 | CAMO-12-21746 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-50 S2 | 1185 | 05/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 76.7 | — | — | 0.053 | mg/L | Y | — | NQ | 12-1334 | CAMO-12-14030 | GELC |
| R-50 S2 | 1185 | 05/13/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 11 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-841 | CAMO-13-30599 | GELC |
| R-50 S2 | 1185 | 01/31/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 11.2 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-502 | CAMO-13-28419 | GELC |
| R-50 S2 | 1185 | 11/09/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 9.39 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-306 | CAMO-13-24267 | GELC |
| R-50 S2 | 1185 | 08/16/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 10.9 | — | — | 0.1 | mg/L | Y | — | NQ | 12-1506 | CAMO-12-21746 | GELC |
| R-50 S2 | 1185 | 05/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 10.7 | — | — | 0.1 | mg/L | Y | — | NQ | 12-1334 | CAMO-12-14030 | GELC |
| R-50 S2 | 1185 | 05/13/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 136 | — | — | 1 | µS/cm | Y | — | NQ | 2013-841 | CAMO-13-30599 | GELC |
| R-50 S2 | 1185 | 01/31/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 135 | — | — | 1 | µS/cm | Y | — | NQ | 2013-502 | CAMO-13-28419 | GELC |
| R-50 S2 | 1185 | 11/09/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 138 | — | — | 1 | µS/cm | Y | — | NQ | 2013-306 | CAMO-13-24267 | GELC |
| R-50 S2 | 1185 | 08/16/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 135 | — | — | 1 | µS/cm | Y | — | NQ | 12-1506 | CAMO-12-21746 | GELC |
| R-50 S2 | 1185 | 05/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 136 | — | — | 1 | µS/cm | Y | — | NQ | 12-1334 | CAMO-12-14030 | GELC |
| R-50 S2 | 1185 | 05/13/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 53.7 | — | — | 1 | µg/L | Y | — | NQ | 2013-841 | CAMO-13-30599 | GELC |
| R-50 S2 | 1185 | 01/31/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 51.4 | — | — | 1 | µg/L | Y | — | NQ | 2013-502 | CAMO-13-28419 | GELC |
| R-50 S2 | 1185 | 11/09/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 55.4 | — | — | 1 | µg/L | Y | — | NQ | 2013-306 | CAMO-13-24267 | GELC |
| R-50 S2 | 1185 | 08/16/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 50.7 | — | — | 1 | µg/L | Y | — | NQ | 12-1506 | CAMO-12-21746 | GELC |
| R-50 S2 | 1185 | 05/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 50.6 | — | — | 1 | µg/L | Y | — | NQ | 12-1334 | CAMO-12-14030 | GELC |
| R-50 S2 | 1185 | 05/13/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 2.61 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-841 | CAMO-13-30599 | GELC |
| R-50 S2 | 1185 | 01/31/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 2.51 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-502 | CAMO-13-28419 | GELC |
| R-50 S2 | 1185 | 11/09/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 2.59 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-306 | CAMO-13-24267 | GELC |
| R-50 S2 | 1185 | 08/16/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 2.48 | — | — | 0.133 | mg/L | Y | — | NQ | 12-1506 | CAMO-12-21746 | GELC |
| R-50 S2 | 1185 | 05/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 2.49 | — | — | 0.133 | mg/L | Y | — | NQ | 12-1334 | CAMO-12-14030 | GELC |
| R-50 S2 | 1185 | 05/13/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 107 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-841 | CAMO-13-30599 | GELC |
| R-50 S2 | 1185 | 01/31/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 97.1 | — | — | 3.4 | mg/L | Y | — | J | 2013-502 | CAMO-13-28419 | GELC |
| R-50 S2 | 1185 | 11/09/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 137 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-306 | CAMO-13-24267 | GELC |
| R-50 S2 | 1185 | 08/16/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 130 | — | — | 3.4 | mg/L | Y | — | NQ | 12-1506 | CAMO-12-21746 | GELC |
| R-50 S2 | 1185 | 05/31/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 123 | — | — | 3.4 | mg/L | Y | — | NQ | 12-1334 | CAMO-12-14030 | GELC |
| R-50 S2 | 1185 | 05/13/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.717 | — | — | 0.33 | mg/L | Y | J | J | 2013-841 | CAMO-13-30583 | GELC |
| R-50 S2 | 1185 | 01/31/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.934 | — | — | 0.33 | mg/L | Y | J | J | 2013-502 | CAMO-13-28411 | GELC |
| R-50 S2 | 1185 | 11/09/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.761 | — | — | 0.33 | mg/L | Y | J | J | 2013-306 | CAMO-13-24250 | GELC |
| R-50 S2 | 1185 | 08/16/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.534 | — | — | 0.33 | mg/L | Y | J | J | 12-1506 | CAMO-12-21738 | GELC |
| R-50 S2 | 1185 | 05/31/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.663 | — | — | 0.33 | mg/L | Y | J | J | 12-1334 | CAMO-12-14015 | GELC |
| R-50 S2 | 1185 | 05/13/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.544 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-841 | CAMO-13-30599 | GELC |
| R-50 S2 | 1185 | 01/31/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.576 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-502 | CAMO-13-28419 | GELC |
| R-50 S2 | 1185 | 11/09/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.463 | — | — | 0.067 | µg/L | N | — | R | 2013-306 | CAMO-13-24267 | GELC |
| R-50 S2 | 1185 | 11/09/12 | WG | F | RE | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.574 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-306-1 | CAMO-13-24267 | GELC |
| R-50 S2 | 1185 | 08/16/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.62 | — | — | 0.067 | µg/L | Y | — | NQ | 12-1506 | CAMO-12-21746 | GELC |
| R-50 S2 | 1185 | 05/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.603 | — | — | 0.067 | µg/L | Y | — | NQ | 12-1334 | CAMO-12-14030 | GELC |
| R-50 S2 | 1185 | 05/13/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 7.67 | — | — | 1 | µg/L | Y | — | NQ | 2013-841 | CAMO-13-30599 | GELC |
| R-50 S2 | 1185 | 01/31/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 8.01 | — | — | 1 | µg/L | Y | — | NQ | 2013-502 | CAMO-13-28419 | GELC |
| R-50 S2 | 1185 | 11/09/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 4.61 | — | — | 1 | µg/L | Y | J | J | 2013-306 | CAMO-13-24267 | GELC |
| R-50 S2 | 1185 | 08/16/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 7.23 | — | — | 1 | µg/L | Y | — | NQ | 12-1506 | CAMO-12-21746 | GELC |
| R-50 S2 | 1185 | 05/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 7.32 | — | — | 1 | µg/L | Y | — | NQ | 12-1334 | CAMO-12-14030 | GELC |
| R-50 S2 | 1185 | 05/13/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 5.59 | — | — | 3.3 | µg/L | Y | J | J | 2013-841 | CAMO-13-30599 | GELC |
| R-50 S2 | 1185 | 01/31/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 4.09 | — | — | 3.3 | µg/L | Y | J | J | 2013-502 | CAMO-13-28419 | GELC |
| R-50 S2 | 1185 | 11/09/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | N | 10 | — | — | 3.3 | µg/L | Y | U | U | 2013-306 | CAMO-13-24267 | GELC |
| R-50 S2 | 1185 | 08/16/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 3.61 | — | — | 3.3 | µg/L | Y | J | J | 12-1506 | CAMO-12-21746 | GELC |
| R-50 S2 | 1185 | 05/31/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 5.6 | — | — | 3.3 | µg/L | Y | J | J | 12-1334 | CAMO-12-14030 | GELC |
| R-61 S1 | 1125 | 05/17/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 6.93 | — | — | 0.01 | SU | Y | H | NQ | 2013-866 | CAMO-13-30600 | GELC |
| R-61 S1 | 1125 | 02/11/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 6.91 | — | — | 0.01 | SU | Y | H | NQ | 2013-526 | CAMO-13-28420 | GELC |
| R-61 S1 | 1125 | 11/15/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 6.78 | — | — | 0.01 | SU | Y | H | NQ | 2013-334 | CAMO-13-24268 | GELC |
| R-61 S1 | 1125 | 02/07/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.34 | — | — | 0.01 | SU | Y | H | J- | 12-735 | CAMO-12-2230 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.44 | — | — | 0.01 | SU | Y | H | J- | 12-412 | CAMO-12-1510 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.41 | — | — | 0.01 | SU | Y | H | J- | 12-412 | CAMO-12-1515 | GELC |
| R-61 S1 | 1125 | 05/17/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 50.2 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-866 | CAMO-13-30600 | GELC |
| R-61 S1 | 1125 | 02/11/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 47.6 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-526 | CAMO-13-28420 | GELC |
| R-61 S1 | 1125 | 11/15/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 41.7 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-334 | CAMO-13-24268 | GELC |
| R-61 S1 | 1125 | 02/07/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 65.3 | — | — | 0.73 | mg/L | Y | — | NQ | 12-735 | CAMO-12-2230 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 71.7 | — | — | 0.73 | mg/L | Y | — | NQ | 12-412 | CAMO-12-1510 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 71.2 | — | — | 0.73 | mg/L | Y | — | NQ | 12-412 | CAMO-12-1515 | GELC |
| R-61 S1 | 1125 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Aluminum | Al | Y | 143 | — | — | 68 | µg/L | Y | J | J | 2013-866 | CAMO-13-30600 | GELC |
| R-61 S1 | 1125 | 02/11/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Aluminum | Al | Y | 117 | — | — | 68 | µg/L | Y | J | J | 2013-526 | CAMO-13-28420 | GELC |
| R-61 S1 | 1125 | 11/15/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Aluminum | Al | Y | 107 | — | — | 68 | µg/L | Y | J | J | 2013-334 | CAMO-13-24268 | GELC |
| R-61 S1 | 1125 | 02/07/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Aluminum | Al | N | 200 | — | — | 68 | µg/L | Y | U | U | 12-735 | CAMO-12-2230 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Aluminum | Al | N | 200 | — | — | 68 | µg/L | Y | U | U | 12-412 | CAMO-12-1510 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Aluminum | Al | N | 200 | — | — | 68 | µg/L | Y | U | U | 12-412 | CAMO-12-1515 | GELC |
| R-61 S1 | 1125 | 05/17/13 | WG | UF | INIT | REG | RAD | HASL-300:AM-241 | Americium-241 | Am-241 | N | 0.0023 | 0.00513 | 0.0445 | — | pCi/L | Y | U | U | 2013-866 | CAMO-13-30584 | GELC |
| R-61 S1 | 1125 | 11/15/12 | WG | UF | INIT | REG | RAD | HASL-300:AM-241 | Americium-241 | Am-241 | N | 0.00246 | 0.0055 | 0.028 | — | pCi/L | Y | U | U | 2013-334 | CAMO-13-24251 | GELC |
| R-61 S1 | 1125 | 02/07/12 | WG | UF | INIT | REG | RAD | HASL-300:AM-241 | Americium-241 | Am-241 | N | 0.00514 | 0.0036 | 0.052 | — | pCi/L | Y | U | U | 12-735 | CAMO-12-2229 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | UF | INIT | REG | RAD | HASL-300:AM-241 | Americium-241 | Am-241 | N | 0.0104 | 0.0047 | 0.038 | — | pCi/L | Y | U | U | 12-412 | CAMO-12-1511 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | UF | INIT | FD | RAD | HASL-300:AM-241 | Americium-241 | Am-241 | N | 0.00465 | 0.0033 | 0.042 | — | pCi/L | Y | U | U | 12-412 | CAMO-12-1513 | GELC |
| R-61 S1 | 1125 | 08/18/11 | WG | UF | INIT | REG | RAD | HASL-300:AM-241 | Americium-241 | Am-241 | N | 0.0098 | 0.0052 | 0.033 | — | pCi/L | Y | U | U | 11-3263 | CAMO-11-24698 | GELC |
| R-61 S1 | 1125 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 26.8 | — | — | 1 | µg/L | Y | — | NQ | 2013-866 | CAMO-13-30600 | GELC |
| R-61 S1 | 1125 | 02/11/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 26.5 | — | — | 1 | µg/L | Y | — | NQ | 2013-526 | CAMO-13-28420 | GELC |
| R-61 S1 | 1125 | 11/15/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 31.3 | — | — | 1 | µg/L | Y | — | NQ | 2013-334 | CAMO-13-24268 | GELC |
| R-61 S1 | 1125 | 02/07/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 31.5 | — | — | 1 | µg/L | Y | — | NQ | 12-735 | CAMO-12-2230 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 47 | — | — | 1 | µg/L | Y | — | NQ | 12-412 | CAMO-12-1510 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Barium | Ba | Y | 47.6 | — | — | 1 | µg/L | Y | — | NQ | 12-412 | CAMO-12-1515 | GELC |
| R-61 S1 | 1125 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 8.52 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-866 | CAMO-13-30600 | GELC |
| R-61 S1 | 1125 | 02/11/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 6.98 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-526 | CAMO-13-28420 | GELC |
| R-61 S1 | 1125 | 11/15/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 5.88 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-334 | CAMO-13-24268 | GELC |
| R-61 S1 | 1125 | 02/07/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 12 | — | — | 0.05 | mg/L | Y | — | NQ | 12-735 | CAMO-12-2230 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 13.4 | — | — | 0.05 | mg/L | Y | — | NQ | 12-412 | CAMO-12-1510 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 13.5 | — | — | 0.05 | mg/L | Y | — | NQ | 12-412 | CAMO-12-1515 | GELC |
| R-61 S1 | 1125 | 05/17/13 | WG | UF | INIT | REG | RAD | EPA:901.1 | Cesium-137 | Cs-137 | N | -2.71 | 2.04 | 5.53 | — | pCi/L | Y | U | U | 2013-866 | CAMO-13-30584 | GELC |
| R-61 S1 | 1125 | 11/15/12 | WG | UF | INIT | REG | RAD | EPA:901.1 | Cesium-137 | Cs-137 | N | 1.18 | 1.78 | 6.79 | — | pCi/L | Y | U | U | 2013-334 | CAMO-13-24251 | GELC |
| R-61 S1 | 1125 | 02/07/12 | WG | UF | INIT | REG | RAD | EPA:901.1 | Cesium-137 | Cs-137 | N | -1.05 | 1.3 | 4.6 | — | pCi/L | Y | U | U | 12-735 | CAMO-12-2229 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | UF | INIT | REG | RAD | EPA:901.1 | Cesium-137 | Cs-137 | N | 0.572 | 1.5 | 5.6 | — | pCi/L | Y | U | U | 12-412 | CAMO-12-1511 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | UF | INIT | FD | RAD | EPA:901.1 | Cesium-137 | Cs-137 | N | 1.6 | 1.3 | 5.1 | — | pCi/L | Y | U | U | 12-412 | CAMO-12-1513 | GELC |
| R-61 S1 | 1125 | 08/18/11 | WG | UF | INIT | REG | RAD | EPA:901.1 | Cesium-137 | Cs-137 | N | 0.0929 | 1.2 | 3.7 | — | pCi/L | Y | U | U | 11-3263 | CAMO-11-24698 | GELC |
| R-61 S1 | 1125 | 05/17/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 3.1 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-866 | CAMO-13-30600 | GELC |
| R-61 S1 | 1125 | 02/11/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 2.96 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-526 | CAMO-13-28420 | GELC |
| R-61 S1 | 1125 | 11/15/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 3.17 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-334 | CAMO-13-24268 | GELC |
| R-61 S1 | 1125 | 02/07/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 3.05 | — | — | 0.066 | mg/L | Y | — | NQ | 12-735 | CAMO-12-2230 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 3.06 | — | — | 0.066 | mg/L | Y | — | NQ | 12-412 | CAMO-12-1510 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 3.05 | — | — | 0.066 | mg/L | Y | — | NQ | 12-412 | CAMO-12-1515 | GELC |
| R-61 S1 | 1125 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 18.3 | — | — | 2 | µg/L | Y | — | NQ | 2013-866 | CAMO-13-30600 | GELC |
| R-61 S1 | 1125 | 02/11/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 13.8 | — | — | 2 | µg/L | Y | — | NQ | 2013-526 | CAMO-13-28420 | GELC |
| R-61 S1 | 1125 | 11/15/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 16.4 | — | — | 2 | µg/L | Y | — | NQ | 2013-334 | CAMO-13-24268 | GELC |
| R-61 S1 | 1125 | 02/07/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 2.03 | — | — | 2 | µg/L | Y | J | J | 12-735 | CAMO-12-2230 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 2.84 | — | — | 2 | µg/L | Y | J | J | 12-412 | CAMO-12-1510 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 2.68 | — | — | 2 | µg/L | Y | J | J | 12-412 | CAMO-12-1515 | GELC |
| R-61 S1 | 1125 | 05/17/13 | WG | UF | INIT | REG | RAD | EPA:901.1 | Cobalt-60 | Co-60 | N | 0.898 | 1.52 | 6.03 | — | pCi/L | Y | U | U | 2013-866 | CAMO-13-30584 | GELC |
| R-61 S1 | 1125 | 11/15/12 | WG | UF | INIT | REG | RAD | EPA:901.1 | Cobalt-60 | Co-60 | N | -0.487 | 1.39 | 5.2 | — | pCi/L | Y | U | U | 2013-334 | CAMO-13-24251 | GELC |
| R-61 S1 | 1125 | 02/07/12 | WG | UF | INIT | REG | RAD | EPA:901.1 | Cobalt-60 | Co-60 | N | -2.07 | 1.3 | 4.3 | — | pCi/L | Y | U | U | 12-735 | CAMO-12-2229 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-61 S1 | 1125 | 11/21/11 | WG | UF | INIT | REG | RAD | EPA:901.1 | Cobalt-60 | Co-60 | N | 1.3 | 1.5 | 6.4 | — | pCi/L | Y | U | U | 12-412 | CAMO-12-1511 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | UF | INIT | FD | RAD | EPA:901.1 | Cobalt-60 | Co-60 | N | 2.16 | 1.2 | 5.7 | — | pCi/L | Y | U | U | 12-412 | CAMO-12-1513 | GELC |
| R-61 S1 | 1125 | 08/18/11 | WG | UF | INIT | REG | RAD | EPA:901.1 | Cobalt-60 | Co-60 | N | 0.95 | 1.4 | 4.7 | — | pCi/L | Y | U | U | 11-3263 | CAMO-11-24698 | GELC |
| R-61 S1 | 1125 | 05/17/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.444 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-866 | CAMO-13-30600 | GELC |
| R-61 S1 | 1125 | 02/11/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.603 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-526 | CAMO-13-28420 | GELC |
| R-61 S1 | 1125 | 11/15/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.589 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-334 | CAMO-13-24268 | GELC |
| R-61 S1 | 1125 | 02/07/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.329 | — | — | 0.033 | mg/L | Y | — | NQ | 12-735 | CAMO-12-2230 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.326 | — | — | 0.033 | mg/L | Y | — | NQ | 12-412 | CAMO-12-1510 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.318 | — | — | 0.033 | mg/L | Y | — | NQ | 12-412 | CAMO-12-1515 | GELC |
| R-61 S1 | 1125 | 05/17/13 | WG | UF | INIT | REG | RAD | EPA:900 | Gross alpha | GROSSA | Y | 2.26 | 0.386 | 0.99 | — | pCi/L | Y | — | NQ | 2013-866 | CAMO-13-30584 | GELC |
| R-61 S1 | 1125 | 11/15/12 | WG | UF | INIT | REG | RAD | EPA:900 | Gross alpha | GROSSA | Y | 3.93 | 1.18 | 2.28 | — | pCi/L | Y | — | NQ | 2013-334 | CAMO-13-24251 | GELC |
| R-61 S1 | 1125 | 02/07/12 | WG | UF | INIT | REG | RAD | EPA:900 | Gross alpha | GROSSA | N | 2.77 | 1 | 2.3 | — | pCi/L | Y | — | U | 12-735 | CAMO-12-2229 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | UF | INIT | REG | RAD | EPA:900 | Gross alpha | GROSSA | Y | 4.25 | 1.3 | 2.5 | — | pCi/L | Y | — | NQ | 12-412 | CAMO-12-1511 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | UF | INIT | FD | RAD | EPA:900 | Gross alpha | GROSSA | N | 2.35 | 0.97 | 2.4 | — | pCi/L | Y | U | U | 12-412 | CAMO-12-1513 | GELC |
| R-61 S1 | 1125 | 08/18/11 | WG | UF | INIT | REG | RAD | EPA:900 | Gross alpha | GROSSA | N | 1.18 | 0.71 | 2.2 | — | pCi/L | Y | U | U | 11-3263 | CAMO-11-24698 | GELC |
| R-61 S1 | 1125 | 05/17/13 | WG | UF | INIT | REG | RAD | EPA:900 | Gross beta | GROSSB | Y | 10.5 | 1.22 | 2.22 | — | pCi/L | Y | — | NQ | 2013-866 | CAMO-13-30584 | GELC |
| R-61 S1 | 1125 | 11/15/12 | WG | UF | INIT | REG | RAD | EPA:900 | Gross beta | GROSSB | Y | 22.8 | 1.71 | 2.17 | — | pCi/L | Y | — | NQ | 2013-334 | CAMO-13-24251 | GELC |
| R-61 S1 | 1125 | 02/07/12 | WG | UF | INIT | REG | RAD | EPA:900 | Gross beta | GROSSB | N | 0.431 | 0.56 | 2 | — | pCi/L | Y | U | U | 12-735 | CAMO-12-2229 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | UF | INIT | REG | RAD | EPA:900 | Gross beta | GROSSB | N | 1.44 | 0.76 | 2.4 | — | pCi/L | Y | U | U | 12-412 | CAMO-12-1511 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | UF | INIT | FD | RAD | EPA:900 | Gross beta | GROSSB | N | 1.56 | 0.74 | 2.2 | — | pCi/L | Y | U | U | 12-412 | CAMO-12-1513 | GELC |
| R-61 S1 | 1125 | 08/18/11 | WG | UF | INIT | REG | RAD | EPA:900 | Gross beta | GROSSB | N | 2.75 | 0.98 | 2.9 | — | pCi/L | Y | U | U | 11-3263 | CAMO-11-24698 | GELC |
| R-61 S1 | 1125 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 33.7 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-866 | CAMO-13-30600 | GELC |
| R-61 S1 | 1125 | 02/11/13 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 29.3 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-526 | CAMO-13-28420 | GELC |
| R-61 S1 | 1125 | 11/15/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 24.5 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-334 | CAMO-13-24268 | GELC |
| R-61 S1 | 1125 | 02/07/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 46.4 | — | — | 0.45 | mg/L | Y | — | NQ | 12-735 | CAMO-12-2230 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 49.3 | — | — | 0.45 | mg/L | Y | — | NQ | 12-412 | CAMO-12-1510 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | FD | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 49.5 | — | — | 0.45 | mg/L | Y | — | NQ | 12-412 | CAMO-12-1515 | GELC |
| R-61 S1 | 1125 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Iron | Fe | Y | 40.7 | — | — | 30 | µg/L | Y | J | J | 2013-866 | CAMO-13-30600 | GELC |
| R-61 S1 | 1125 | 02/11/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Iron | Fe | Y | 87.6 | — | — | 30 | µg/L | Y | J | J | 2013-526 | CAMO-13-28420 | GELC |
| R-61 S1 | 1125 | 11/15/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Iron | Fe | Y | 72 | — | — | 30 | µg/L | Y | J | J | 2013-334 | CAMO-13-24268 | GELC |
| R-61 S1 | 1125 | 02/07/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Iron | Fe | Y | 1150 | — | — | 30 | µg/L | Y | — | NQ | 12-735 | CAMO-12-2230 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Iron | Fe | Y | 909 | — | — | 30 | µg/L | Y | — | NQ | 12-412 | CAMO-12-1510 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Iron | Fe | Y | 920 | — | — | 30 | µg/L | Y | — | NQ | 12-412 | CAMO-12-1515 | GELC |
| R-61 S1 | 1125 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 3.02 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-866 | CAMO-13-30600 | GELC |
| R-61 S1 | 1125 | 02/11/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 2.88 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-526 | CAMO-13-28420 | GELC |
| R-61 S1 | 1125 | 11/15/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 2.38 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-334 | CAMO-13-24268 | GELC |
| R-61 S1 | 1125 | 02/07/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 4.02 | — | — | 0.11 | mg/L | Y | — | NQ | 12-735 | CAMO-12-2230 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 3.82 | — | — | 0.11 | mg/L | Y | — | NQ | 12-412 | CAMO-12-1510 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 3.83 | — | — | 0.11 | mg/L | Y | — | NQ | 12-412 | CAMO-12-1515 | GELC |
| R-61 S1 | 1125 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Manganese | Mn | Y | 17.2 | — | — | 2 | µg/L | Y | — | NQ | 2013-866 | CAMO-13-30600 | GELC |
| R-61 S1 | 1125 | 02/11/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Manganese | Mn | Y | 16.6 | — | — | 2 | µg/L | Y | — | NQ | 2013-526 | CAMO-13-28420 | GELC |
| R-61 S1 | 1125 | 11/15/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Manganese | Mn | Y | 33.7 | — | — | 2 | µg/L | Y | — | NQ | 2013-334 | CAMO-13-24268 | GELC |
| R-61 S1 | 1125 | 02/07/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Manganese | Mn | Y | 554 | — | — | 2 | µg/L | Y | — | NQ | 12-735 | CAMO-12-2230 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Manganese | Mn | Y | 902 | — | — | 2 | µg/L | Y | — | NQ | 12-412 | CAMO-12-1510 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Manganese | Mn | Y | 914 | — | — | 2 | µg/L | Y | — | NQ | 12-412 | CAMO-12-1515 | GELC |
| R-61 S1 | 1125 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.63 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-866 | CAMO-13-30600 | GELC |
| R-61 S1 | 1125 | 02/11/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 2.22 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-526 | CAMO-13-28420 | GELC |
| R-61 S1 | 1125 | 11/15/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 2.14 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-334 | CAMO-13-24268 | GELC |
| R-61 S1 | 1125 | 02/07/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 3.73 | — | — | 0.17 | µg/L | Y | — | NQ | 12-735 | CAMO-12-2230 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 6.67 | — | — | 0.17 | µg/L | Y | — | NQ | 12-412 | CAMO-12-1510 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 6.49 | — | — | 0.17 | µg/L | Y | — | NQ | 12-412 | CAMO-12-1515 | GELC |
| R-61 S1 | 1125 | 05/17/13 | WG | UF | INIT | REG | RAD | EPA:901.1 | Neptunium-237 | Np-237 | N | -1.95 | 3.36 | 11.8 | — | pCi/L | Y | U | U | 2013-866 | CAMO-13-30584 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-61 S1 | 1125 | 11/15/12 | WG | UF | INIT | REG | RAD | EPA:901.1 | Neptunium-237 | Np-237 | N | 2.8 | 3.36 | 12.2 | — | pCi/L | Y | U | U | 2013-334 | CAMO-13-24251 | GELC |
| R-61 S1 | 1125 | 02/07/12 | WG | UF | INIT | REG | RAD | EPA:901.1 | Neptunium-237 | Np-237 | N | -1.47 | 2.9 | 10 | — | pCi/L | Y | U | U | 12-735 | CAMO-12-2229 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | UF | INIT | REG | RAD | EPA:901.1 | Neptunium-237 | Np-237 | N | 4.51 | 3.2 | 12 | — | pCi/L | Y | U | U | 12-412 | CAMO-12-1511 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | UF | INIT | FD | RAD | EPA:901.1 | Neptunium-237 | Np-237 | N | -2.67 | 2.7 | 9 | — | pCi/L | Y | U | U | 12-412 | CAMO-12-1513 | GELC |
| R-61 S1 | 1125 | 08/18/11 | WG | UF | INIT | REG | RAD | EPA:901.1 | Neptunium-237 | Np-237 | N | 0.9 | 2.6 | 8.3 | — | pCi/L | Y | U | U | 11-3263 | CAMO-11-24698 | GELC |
| R-61 S1 | 1125 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 1.1 | — | — | 0.5 | µg/L | Y | J | J | 2013-866 | CAMO-13-30600 | GELC |
| R-61 S1 | 1125 | 02/11/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 3.22 | — | — | 0.5 | µg/L | Y | — | NQ | 2013-526 | CAMO-13-28420 | GELC |
| R-61 S1 | 1125 | 11/15/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 2.66 | — | — | 0.5 | µg/L | Y | — | NQ | 2013-334 | CAMO-13-24268 | GELC |
| R-61 S1 | 1125 | 02/07/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 3.57 | — | — | 0.5 | µg/L | Y | — | NQ | 12-735 | CAMO-12-2230 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 2.25 | — | — | 0.5 | µg/L | Y | — | NQ | 12-412 | CAMO-12-1510 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 2.34 | — | — | 0.5 | µg/L | Y | — | NQ | 12-412 | CAMO-12-1515 | GELC |
| R-61 S1 | 1125 | 05/17/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 1.63 | — | — | 0.085 | mg/L | Y | — | NQ | 2013-866 | CAMO-13-30600 | GELC |
| R-61 S1 | 1125 | 02/11/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 1.63 | — | — | 0.085 | mg/L | Y | — | NQ | 2013-526 | CAMO-13-28420 | GELC |
| R-61 S1 | 1125 | 11/15/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 1.58 | — | — | 0.085 | mg/L | Y | — | NQ | 2013-334 | CAMO-13-24268 | GELC |
| R-61 S1 | 1125 | 02/07/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 1.68 | — | — | 0.05 | mg/L | Y | — | NQ | 12-734 | CAMO-12-2230 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 1.41 | — | — | 0.05 | mg/L | Y | — | NQ | 12-412 | CAMO-12-1510 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 1.55 | — | — | 0.05 | mg/L | Y | — | NQ | 12-412 | CAMO-12-1515 | GELC |
| R-61 S1 | 1125 | 05/17/13 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 5.82 | — | — | 0.5 | µg/L | Y | — | NQ | 2013-866 | CAMO-13-30600 | GELC |
| R-61 S1 | 1125 | 02/11/13 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 6.22 | — | — | 0.5 | µg/L | Y | — | J | 2013-526 | CAMO-13-28420 | GELC |
| R-61 S1 | 1125 | 11/15/12 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 6.13 | — | — | 0.5 | µg/L | Y | — | NQ | 2013-334 | CAMO-13-24268 | GELC |
| R-61 S1 | 1125 | 02/07/12 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 7.37 | — | — | 0.5 | µg/L | Y | — | NQ | 12-735 | CAMO-12-2230 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 5.9 | — | — | 0.5 | µg/L | Y | — | NQ | 12-412 | CAMO-12-1510 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | FD | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 5.96 | — | — | 0.5 | µg/L | Y | — | NQ | 12-412 | CAMO-12-1515 | GELC |
| R-61 S1 | 1125 | 05/17/13 | WG | UF | INIT | REG | RAD | HASL-300:ISOPU | Plutonium-238 | Pu-238 | N | 0.0189 | 0.00655 | 0.0281 | — | pCi/L | Y | U | U | 2013-866 | CAMO-13-30584 | GELC |
| R-61 S1 | 1125 | 11/15/12 | WG | UF | INIT | REG | RAD | HASL-300:ISOPU | Plutonium-238 | Pu-238 | N | 0.00309 | 0.00535 | 0.0297 | — | pCi/L | Y | U | U | 2013-334 | CAMO-13-24251 | GELC |
| R-61 S1 | 1125 | 02/07/12 | WG | UF | INIT | REG | RAD | HASL-300:ISOPU | Plutonium-238 | Pu-238 | N | 0.00424 | 0.003 | 0.027 | — | pCi/L | Y | U | U | 12-735 | CAMO-12-2229 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | UF | INIT | REG | RAD | HASL-300:ISOPU | Plutonium-238 | Pu-238 | N | 0.0038 | 0.0027 | 0.023 | — | pCi/L | Y | U | U | 12-412 | CAMO-12-1511 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | UF | INIT | FD | RAD | HASL-300:ISOPU | Plutonium-238 | Pu-238 | N | -0.00186 | 0.0032 | 0.022 | — | pCi/L | Y | U | U | 12-412 | CAMO-12-1513 | GELC |
| R-61 S1 | 1125 | 08/18/11 | WG | UF | INIT | REG | RAD | HASL-300:ISOPU | Plutonium-238 | Pu-238 | N | -0.00225 | 0.0039 | 0.021 | — | pCi/L | Y | U | U | 11-3263 | CAMO-11-24698 | GELC |
| R-61 S1 | 1125 | 05/17/13 | WG | UF | INIT | REG | RAD | HASL-300:ISOPU | Plutonium-239/240 | Pu-239/240 | N | 0.0284 | 0.00779 | 0.0339 | — | pCi/L | Y | U | U | 2013-866 | CAMO-13-30584 | GELC |
| R-61 S1 | 1125 | 11/15/12 | WG | UF | INIT | REG | RAD | HASL-300:ISOPU | Plutonium-239/240 | Pu-239/240 | N | 0.00309 | 0.0069 | 0.0493 | — | pCi/L | Y | U | U | 2013-334 | CAMO-13-24251 | GELC |
| R-61 S1 | 1125 | 02/07/12 | WG | UF | INIT | REG | RAD | HASL-300:ISOPU | Plutonium-239/240 | Pu-239/240 | N | 0.00212 | 0.0056 | 0.031 | — | pCi/L | Y | U | U | 12-735 | CAMO-12-2229 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | UF | INIT | REG | RAD | HASL-300:ISOPU | Plutonium-239/240 | Pu-239/240 | N | 0.0133 | 0.0051 | 0.024 | — | pCi/L | Y | U | U | 12-412 | CAMO-12-1511 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | UF | INIT | FD | RAD | HASL-300:ISOPU | Plutonium-239/240 | Pu-239/240 | N | 0.00558 | 0.0032 | 0.023 | — | pCi/L | Y | U | U | 12-412 | CAMO-12-1513 | GELC |
| R-61 S1 | 1125 | 08/18/11 | WG | UF | INIT | REG | RAD | HASL-300:ISOPU | Plutonium-239/240 | Pu-239/240 | N | 0.00225 | 0.0087 | 0.034 | — | pCi/L | Y | U | U | 11-3263 | CAMO-11-24698 | GELC |
| R-61 S1 | 1125 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 13.5 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-866 | CAMO-13-30600 | GELC |
| R-61 S1 | 1125 | 02/11/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 22.5 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-526 | CAMO-13-28420 | GELC |
| R-61 S1 | 1125 | 11/15/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 27.4 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-334 | CAMO-13-24268 | GELC |
| R-61 S1 | 1125 | 02/07/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.96 | — | — | 0.05 | mg/L | Y | — | NQ | 12-735 | CAMO-12-2230 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.62 | — | — | 0.05 | mg/L | Y | — | NQ | 12-412 | CAMO-12-1510 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.59 | — | — | 0.05 | mg/L | Y | — | NQ | 12-412 | CAMO-12-1515 | GELC |
| R-61 S1 | 1125 | 05/17/13 | WG | UF | INIT | REG | RAD | EPA:901.1 | Potassium-40 | K-40 | N | 31.2 | 29.3 | 63.3 | — | pCi/L | Y | U | U | 2013-866 | CAMO-13-30584 | GELC |
| R-61 S1 | 1125 | 11/15/12 | WG | UF | INIT | REG | RAD | EPA:901.1 | Potassium-40 | K-40 | N | 41.1 | 19.1 | 80.4 | — | pCi/L | Y | U | U | 2013-334 | CAMO-13-24251 | GELC |
| R-61 S1 | 1125 | 02/07/12 | WG | UF | INIT | REG | RAD | EPA:901.1 | Potassium-40 | K-40 | N | 37 | 17 | 70 | — | pCi/L | Y | U | U | 12-735 | CAMO-12-2229 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | UF | INIT | REG | RAD | EPA:901.1 | Potassium-40 | K-40 | N | 26.4 | 20 | 82 | — | pCi/L | Y | U | U | 12-412 | CAMO-12-1511 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | UF | INIT | FD | RAD | EPA:901.1 | Potassium-40 | K-40 | N | -23.9 | 15 | 56 | — | pCi/L | Y | U | U | 12-412 | CAMO-12-1513 | GELC |
| R-61 S1 | 1125 | 08/18/11 | WG | UF | INIT | REG | RAD | EPA:901.1 | Potassium-40 | K-40 | N | 1.54 | 14 | 46 | — | pCi/L | Y | U | U | 11-3263 | CAMO-11-24698 | GELC |
| R-61 S1 | 1125 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 84.1 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-866 | CAMO-13-30600 | GELC |
| R-61 S1 | 1125 | 02/11/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 95.4 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-526 | CAMO-13-28420 | GELC |
| R-61 S1 | 1125 | 11/15/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 102 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-334 | CAMO-13-24268 | GELC |
| R-61 S1 | 1125 | 02/07/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 76.3 | — | — | 0.053 | mg/L | Y | — | NQ | 12-735 | CAMO-12-2230 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 62.9 | — | — | 0.053 | mg/L | Y | — | NQ | 12-412 | CAMO-12-1510 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 63.6 | — | — | 0.053 | mg/L | Y | — | NQ | 12-412 | CAMO-12-1515 | GELC |
| R-61 S1 | 1125 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 10.9 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-866 | CAMO-13-30600 | GELC |
| R-61 S1 | 1125 | 02/11/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 11.3 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-526 | CAMO-13-28420 | GELC |
| R-61 S1 | 1125 | 11/15/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 13.3 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-334 | CAMO-13-24268 | GELC |
| R-61 S1 | 1125 | 02/07/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 19.2 | — | — | 0.1 | mg/L | Y | — | NQ | 12-735 | CAMO-12-2230 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 17.9 | — | — | 0.1 | mg/L | Y | — | NQ | 12-412 | CAMO-12-1510 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Sodium | Na | Y | 17.9 | — | — | 0.1 | mg/L | Y | — | NQ | 12-412 | CAMO-12-1515 | GELC |
| R-61 S1 | 1125 | 05/17/13 | WG | UF | INIT | REG | RAD | EPA:901.1 | Sodium-22 | Na-22 | N | -1.32 | 1.7 | 5.92 | — | pCi/L | Y | U | U | 2013-866 | CAMO-13-30584 | GELC |
| R-61 S1 | 1125 | 11/15/12 | WG | UF | INIT | REG | RAD | EPA:901.1 | Sodium-22 | Na-22 | N | 0.865 | 1.45 | 5.25 | — | pCi/L | Y | U | U | 2013-334 | CAMO-13-24251 | GELC |
| R-61 S1 | 1125 | 02/07/12 | WG | UF | INIT | REG | RAD | EPA:901.1 | Sodium-22 | Na-22 | N | 1.11 | 1.3 | 5.1 | — | pCi/L | Y | U | U | 12-735 | CAMO-12-2229 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | UF | INIT | REG | RAD | EPA:901.1 | Sodium-22 | Na-22 | N | -0.291 | 1.3 | 5 | — | pCi/L | Y | U | U | 12-412 | CAMO-12-1511 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | UF | INIT | FD | RAD | EPA:901.1 | Sodium-22 | Na-22 | N | 0.551 | 1.2 | 5 | — | pCi/L | Y | U | U | 12-412 | CAMO-12-1513 | GELC |
| R-61 S1 | 1125 | 08/18/11 | WG | UF | INIT | REG | RAD | EPA:901.1 | Sodium-22 | Na-22 | N | -1.34 | 1.4 | 4.1 | — | pCi/L | Y | U | U | 11-3263 | CAMO-11-24698 | GELC |
| R-61 S1 | 1125 | 05/17/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 157 | — | — | 1 | µS/cm | Y | — | NQ | 2013-866 | CAMO-13-30600 | GELC |
| R-61 S1 | 1125 | 02/11/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 174 | — | — | 1 | µS/cm | Y | — | NQ | 2013-526 | CAMO-13-28420 | GELC |
| R-61 S1 | 1125 | 11/15/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 181 | — | — | 1 | µS/cm | Y | — | NQ | 2013-334 | CAMO-13-24268 | GELC |
| R-61 S1 | 1125 | 02/07/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 165 | — | — | 1 | µS/cm | Y | — | NQ | 12-735 | CAMO-12-2230 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 177 | — | — | 1 | µS/cm | Y | — | NQ | 12-412 | CAMO-12-1510 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 177 | — | — | 1 | µS/cm | Y | — | NQ | 12-412 | CAMO-12-1515 | GELC |
| R-61 S1 | 1125 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 35.2 | — | — | 1 | µg/L | Y | — | NQ | 2013-866 | CAMO-13-30600 | GELC |
| R-61 S1 | 1125 | 02/11/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 29 | — | — | 1 | µg/L | Y | — | NQ | 2013-526 | CAMO-13-28420 | GELC |
| R-61 S1 | 1125 | 11/15/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 25.8 | — | — | 1 | µg/L | Y | — | NQ | 2013-334 | CAMO-13-24268 | GELC |
| R-61 S1 | 1125 | 02/07/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 67.2 | — | — | 1 | µg/L | Y | — | NQ | 12-735 | CAMO-12-2230 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 70.3 | — | — | 1 | µg/L | Y | — | NQ | 12-412 | CAMO-12-1510 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 70.7 | — | — | 1 | µg/L | Y | — | NQ | 12-412 | CAMO-12-1515 | GELC |
| R-61 S1 | 1125 | 05/17/13 | WG | UF | INIT | REG | RAD | EPA:905.0 | Strontium-90 | Sr-90 | N | 0.379 | 0.15 | 0.486 | — | pCi/L | Y | U | U | 2013-866 | CAMO-13-30584 | GELC |
| R-61 S1 | 1125 | 11/15/12 | WG | UF | INIT | REG | RAD | EPA:905.0 | Strontium-90 | Sr-90 | N | -0.0396 | 0.131 | 0.486 | — | pCi/L | Y | U | U | 2013-334 | CAMO-13-24251 | GELC |
| R-61 S1 | 1125 | 02/07/12 | WG | UF | INIT | REG | RAD | EPA:905.0 | Strontium-90 | Sr-90 | N | -0.141 | 0.14 | 0.48 | — | pCi/L | Y | U | U | 12-735 | CAMO-12-2229 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | UF | INIT | REG | RAD | EPA:905.0 | Strontium-90 | Sr-90 | N | -0.216 | 0.13 | 0.49 | — | pCi/L | Y | U | U | 12-412 | CAMO-12-1511 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | UF | INIT | FD | RAD | EPA:905.0 | Strontium-90 | Sr-90 | N | 0.224 | 0.15 | 0.49 | — | pCi/L | Y | U | U | 12-412 | CAMO-12-1513 | GELC |
| R-61 S1 | 1125 | 08/18/11 | WG | UF | INIT | REG | RAD | EPA:905.0 | Strontium-90 | Sr-90 | N | 0.0782 | 0.14 | 0.49 | — | pCi/L | Y | U | U | 11-3263 | CAMO-11-24698 | GELC |
| R-61 S1 | 1125 | 05/17/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 5.55 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-866 | CAMO-13-30600 | GELC |
| R-61 S1 | 1125 | 02/11/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 5.11 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-526 | CAMO-13-28420 | GELC |
| R-61 S1 | 1125 | 11/15/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 5.41 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-334 | CAMO-13-24268 | GELC |
| R-61 S1 | 1125 | 02/07/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 5.04 | — | — | 0.1 | mg/L | Y | — | NQ | 12-735 | CAMO-12-2230 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 4.59 | — | — | 0.1 | mg/L | Y | — | NQ | 12-412 | CAMO-12-1510 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 4.57 | — | — | 0.1 | mg/L | Y | — | NQ | 12-412 | CAMO-12-1515 | GELC |
| R-61 S1 | 1125 | 05/17/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 114 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-866 | CAMO-13-30600 | GELC |
| R-61 S1 | 1125 | 02/11/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 179 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-526 | CAMO-13-28420 | GELC |
| R-61 S1 | 1125 | 11/15/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 203 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-334 | CAMO-13-24268 | GELC |
| R-61 S1 | 1125 | 02/07/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 121 | — | — | 3.4 | mg/L | Y | — | NQ | 12-735 | CAMO-12-2230 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 144 | — | — | 3.4 | mg/L | Y | — | NQ | 12-412 | CAMO-12-1510 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 126 | — | — | 3.4 | mg/L | Y | — | NQ | 12-412 | CAMO-12-1515 | GELC |
| R-61 S1 | 1125 | 05/17/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 1.31 | — | — | 0.33 | mg/L | Y | — | NQ | 2013-866 | CAMO-13-30584 | GELC |
| R-61 S1 | 1125 | 02/11/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 1.18 | — | — | 0.33 | mg/L | Y | — | NQ | 2013-526 | CAMO-13-28412 | GELC |
| R-61 S1 | 1125 | 11/15/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 1.59 | — | — | 0.33 | mg/L | Y | — | NQ | 2013-334 | CAMO-13-24251 | GELC |
| R-61 S1 | 1125 | 02/07/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.86 | — | — | 0.33 | mg/L | Y | J | J | 12-734 | CAMO-12-2229 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 1.14 | — | — | 0.33 | mg/L | Y | — | NQ | 12-412 | CAMO-12-1511 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | UF | INIT | FD | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 1.08 | — | — | 0.33 | mg/L | Y | — | NQ | 12-411 | CAMO-12-1513 | GELC |
| R-61 S1 | 1125 | 05/17/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 3.23 | — | — | 0.085 | mg/L | Y | — | NQ | 2013-866 | CAMO-13-30600 | GELC |
| R-61 S1 | 1125 | 02/11/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 8.84 | — | — | 0.17 | mg/L | Y | — | NQ | 2013-526 | CAMO-13-28420 | GELC |
| R-61 S1 | 1125 | 11/15/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 11.8 | — | — | 0.17 | mg/L | Y | — | NQ | 2013-334 | CAMO-13-24268 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-61 S1 | 1125 | 02/07/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 0.0531 | — | — | 0.015 | mg/L | Y | — | NQ | 12-734 | CAMO-12-2230 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | N | 0.05 | — | — | 0.015 | mg/L | Y | U | U | 12-412 | CAMO-12-1510 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | N | 0.05 | — | — | 0.015 | mg/L | Y | U | UJ | 12-412 | CAMO-12-1515 | GELC |
| R-61 S1 | 1125 | 05/17/13 | WG | UF | INIT | REG | RAD | Generic:Low_Level_Tritium | Tritium | H-3 | Y | 20.895 | 3.297 | 2.267 | — | pCi/L | Y | — | J- | 2013-876 | CAMO-13-30584 | ARSL |
| R-61 S1 | 1125 | 11/15/12 | WG | UF | INIT | REG | RAD | Generic:Low_Level_Tritium | Tritium | H-3 | Y | 30.976 | 4.788 | 2.404 | — | pCi/L | Y | — | NQ | 2013-360 | CAMO-13-24251 | ARSL |
| R-61 S1 | 1125 | 02/07/12 | WG | UF | INIT | REG | RAD | Generic:Low_Level_Tritium | Tritium | H-3 | Y | 31.26 | 4.8 | 1.85 | — | pCi/L | Y | — | NQ | 12-736 | CAMO-12-2229 | ARSL |
| R-61 S1 | 1125 | 11/21/11 | WG | UF | INIT | REG | RAD | Generic:Low_Level_Tritium | Tritium | H-3 | Y | 33.63 | 5.19 | 2.46 | — | pCi/L | Y | — | NQ | 12-436 | CAMO-12-1511 | ARSL |
| R-61 S1 | 1125 | 11/21/11 | WG | UF | INIT | FD | RAD | Generic:Low_Level_Tritium | Tritium | H-3 | Y | 33.26 | 5.1 | 2.05 | — | pCi/L | Y | — | NQ | 12-436 | CAMO-12-1513 | ARSL |
| R-61 S1 | 1125 | 08/18/11 | WG | UF | INIT | REG | RAD | Generic:Low_Level_Tritium | Tritium | H-3 | Y | 15.0374 | 2.4472 | 2.2862 | — | pCi/L | Y | — | NQ | 11-3305 | CAMO-11-24698 | ARSL |
| R-61 S1 | 1125 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.193 | — | — | 0.067 | µg/L | Y | J | J | 2013-866 | CAMO-13-30600 | GELC |
| R-61 S1 | 1125 | 02/11/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.229 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-526 | CAMO-13-28420 | GELC |
| R-61 S1 | 1125 | 11/15/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.255 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-334 | CAMO-13-24268 | GELC |
| R-61 S1 | 1125 | 02/07/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 1 | — | — | 0.067 | µg/L | Y | — | NQ | 12-735 | CAMO-12-2230 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.73 | — | — | 0.067 | µg/L | Y | — | NQ | 12-412 | CAMO-12-1510 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.736 | — | — | 0.067 | µg/L | Y | — | NQ | 12-412 | CAMO-12-1515 | GELC |
| R-61 S1 | 1125 | 05/17/13 | WG | UF | INIT | REG | RAD | HASL-300:ISOU | Uranium-234 | U-234 | Y | 0.113 | 0.0215 | 0.0761 | — | pCi/L | Y | — | J | 2013-866 | CAMO-13-30584 | GELC |
| R-61 S1 | 1125 | 11/15/12 | WG | UF | INIT | REG | RAD | HASL-300:ISOU | Uranium-234 | U-234 | Y | 0.168 | 0.0276 | 0.0695 | — | pCi/L | Y | — | NQ | 2013-334 | CAMO-13-24251 | GELC |
| R-61 S1 | 1125 | 02/07/12 | WG | UF | INIT | REG | RAD | HASL-300:ISOU | Uranium-234 | U-234 | Y | 0.813 | 0.066 | 0.048 | — | pCi/L | Y | — | NQ | 12-735 | CAMO-12-2229 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | UF | INIT | REG | RAD | HASL-300:ISOU | Uranium-234 | U-234 | Y | 0.483 | 0.045 | 0.049 | — | pCi/L | Y | — | NQ | 12-412 | CAMO-12-1511 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | UF | INIT | FD | RAD | HASL-300:ISOU | Uranium-234 | U-234 | Y | 0.526 | 0.047 | 0.045 | — | pCi/L | Y | — | NQ | 12-412 | CAMO-12-1513 | GELC |
| R-61 S1 | 1125 | 08/18/11 | WG | UF | INIT | REG | RAD | HASL-300:ISOU | Uranium-234 | U-234 | Y | 0.576 | 0.065 | 0.073 | — | pCi/L | Y | — | NQ | 11-3263 | CAMO-11-24698 | GELC |
| R-61 S1 | 1125 | 05/17/13 | WG | UF | INIT | REG | RAD | HASL-300:ISOU | Uranium-235/236 | U-235/236 | N | 0.0041 | 0.0109 | 0.0353 | — | pCi/L | Y | U | U | 2013-866 | CAMO-13-30584 | GELC |
| R-61 S1 | 1125 | 11/15/12 | WG | UF | INIT | REG | RAD | HASL-300:ISOU | Uranium-235/236 | U-235/236 | N | 0.0037 | 0.00979 | 0.0434 | — | pCi/L | Y | U | U | 2013-334 | CAMO-13-24251 | GELC |
| R-61 S1 | 1125 | 02/07/12 | WG | UF | INIT | REG | RAD | HASL-300:ISOU | Uranium-235/236 | U-235/236 | N | 0.0234 | 0.0087 | 0.026 | — | pCi/L | Y | U | U | 12-735 | CAMO-12-2229 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | UF | INIT | REG | RAD | HASL-300:ISOU | Uranium-235/236 | U-235/236 | N | 0.0186 | 0.0074 | 0.027 | — | pCi/L | Y | U | U | 12-412 | CAMO-12-1511 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | UF | INIT | FD | RAD | HASL-300:ISOU | Uranium-235/236 | U-235/236 | N | 0.021 | 0.008 | 0.025 | — | pCi/L | Y | U | U | 12-412 | CAMO-12-1513 | GELC |
| R-61 S1 | 1125 | 08/18/11 | WG | UF | INIT | REG | RAD | HASL-300:ISOU | Uranium-235/236 | U-235/236 | N | 0.0198 | 0.01 | 0.052 | — | pCi/L | Y | U | U | 11-3263 | CAMO-11-24698 | GELC |
| R-61 S1 | 1125 | 05/17/13 | WG | UF | INIT | REG | RAD | HASL-300:ISOU | Uranium-238 | U-238 | Y | 0.0796 | 0.0176 | 0.046 | — | pCi/L | Y | — | J | 2013-866 | CAMO-13-30584 | GELC |
| R-61 S1 | 1125 | 11/15/12 | WG | UF | INIT | REG | RAD | HASL-300:ISOU | Uranium-238 | U-238 | Y | 0.102 | 0.0189 | 0.0472 | — | pCi/L | Y | — | NQ | 2013-334 | CAMO-13-24251 | GELC |
| R-61 S1 | 1125 | 02/07/12 | WG | UF | INIT | REG | RAD | HASL-300:ISOU | Uranium-238 | U-238 | Y | 0.361 | 0.036 | 0.037 | — | pCi/L | Y | — | NQ | 12-735 | CAMO-12-2229 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | UF | INIT | REG | RAD | HASL-300:ISOU | Uranium-238 | U-238 | Y | 0.248 | 0.028 | 0.027 | — | pCi/L | Y | — | NQ | 12-412 | CAMO-12-1511 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | UF | INIT | FD | RAD | HASL-300:ISOU | Uranium-238 | U-238 | Y | 0.251 | 0.027 | 0.024 | — | pCi/L | Y | — | NQ | 12-412 | CAMO-12-1513 | GELC |
| R-61 S1 | 1125 | 08/18/11 | WG | UF | INIT | REG | RAD | HASL-300:ISOU | Uranium-238 | U-238 | Y | 0.312 | 0.043 | 0.063 | — | pCi/L | Y | — | NQ | 11-3263 | CAMO-11-24698 | GELC |
| R-61 S1 | 1125 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 5.35 | — | — | 1 | µg/L | Y | — | NQ | 2013-866 | CAMO-13-30600 | GELC |
| R-61 S1 | 1125 | 02/11/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 4.46 | — | — | 1 | µg/L | Y | J | J | 2013-526 | CAMO-13-28420 | GELC |
| R-61 S1 | 1125 | 11/15/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 4.21 | — | — | 1 | µg/L | Y | J | J | 2013-334 | CAMO-13-24268 | GELC |
| R-61 S1 | 1125 | 02/07/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 2.99 | — | — | 1 | µg/L | Y | J | J | 12-735 | CAMO-12-2230 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | N | 5 | — | — | 1 | µg/L | Y | U | U | 12-412 | CAMO-12-1510 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Vanadium | V | N | 5 | — | — | 1 | µg/L | Y | U | U | 12-412 | CAMO-12-1515 | GELC |
| R-61 S1 | 1125 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 6.61 | — | — | 3.3 | µg/L | Y | J | J | 2013-866 | CAMO-13-30600 | GELC |
| R-61 S1 | 1125 | 02/11/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 5.32 | — | — | 3.3 | µg/L | Y | J | J | 2013-526 | CAMO-13-28420 | GELC |
| R-61 S1 | 1125 | 11/15/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 22.1 | — | — | 3.3 | µg/L | Y | — | NQ | 2013-334 | CAMO-13-24268 | GELC |
| R-61 S1 | 1125 | 02/07/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | N | 10 | — | — | 3.3 | µg/L | Y | U | U | 12-735 | CAMO-12-2230 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | N | 10 | — | — | 3.3 | µg/L | Y | U | U | 12-412 | CAMO-12-1510 | GELC |
| R-61 S1 | 1125 | 11/21/11 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Zinc | Zn | N | 10 | — | — | 3.3 | µg/L | Y | U | U | 12-412 | CAMO-12-1515 | GELC |
| R-61 S2 | 1220.4 | 05/22/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.02 | — | — | 0.01 | SU | Y | H | NQ | 2013-886 | CAMO-13-30601 | GELC |
| R-61 S2 | 1220.4 | 02/12/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 6.68 | — | — | 0.01 | SU | Y | H | NQ | 2013-532 | CAMO-13-28421 | GELC |
| R-61 S2 | 1220.4 | 11/15/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 6.69 | — | — | 0.01 | SU | Y | H | NQ | 2013-334 | CAMO-13-24269 | GELC |
| R-61 S2 | 1220.4 | 02/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.25 | — | — | 0.01 | SU | Y | H | J- | 12-745 | CAMO-12-2231 | GELC |
| R-61 S2 | 1220.4 | 11/18/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.2 | — | — | 0.01 | SU | Y | H | J- | 12-399 | CAMO-12-1518 | GELC |
| R-61 S2 | 1220.4 | 05/22/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 59.9 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-886 | CAMO-13-30601 | GELC |
| R-61 S2 | 1220.4 | 02/12/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 68 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-532 | CAMO-13-28421 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-61 S2 | 1220.4 | 11/15/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 51.5 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-334 | CAMO-13-24269 | GELC |
| R-61 S2 | 1220.4 | 02/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 75.3 | — | — | 0.73 | mg/L | Y | — | NQ | 12-745 | CAMO-12-2231 | GELC |
| R-61 S2 | 1220.4 | 11/18/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 75.8 | — | — | 0.73 | mg/L | Y | — | NQ | 12-399 | CAMO-12-1518 | GELC |
| R-61 S2 | 1220.4 | 05/22/13 | WG | UF | INIT | REG | RAD | HASL-300:AM-241 | Americium-241 | Am-241 | N | 0.0173 | 0.0096 | 0.0376 | — | pCi/L | Y | U | U | 2013-886 | CAMO-13-30585 | GELC |
| R-61 S2 | 1220.4 | 11/15/12 | WG | UF | INIT | REG | RAD | HASL-300:AM-241 | Americium-241 | Am-241 | N | 0.00325 | 0.0086 | 0.037 | — | pCi/L | Y | U | U | 2013-334 | CAMO-13-24252 | GELC |
| R-61 S2 | 1220.4 | 02/08/12 | WG | UF | INIT | REG | RAD | HASL-300:AM-241 | Americium-241 | Am-241 | N | 0.00204 | 0.0079 | 0.041 | — | pCi/L | Y | U | U | 12-745 | CAMO-12-2232 | GELC |
| R-61 S2 | 1220.4 | 11/18/11 | WG | UF | INIT | REG | RAD | HASL-300:AM-241 | Americium-241 | Am-241 | N | 0.00192 | 0.0051 | 0.035 | — | pCi/L | Y | U | U | 12-399 | CAMO-12-1516 | GELC |
| R-61 S2 | 1220.4 | 08/19/11 | WG | UF | INIT | REG | RAD | HASL-300:AM-241 | Americium-241 | Am-241 | N | 0.00587 | 0.0059 | 0.049 | — | pCi/L | Y | U | U | 11-3277 | CAMO-11-24703 | GELC |
| R-61 S2 | 1220.4 | 05/22/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 19.3 | — | — | 1 | µg/L | Y | — | NQ | 2013-886 | CAMO-13-30601 | GELC |
| R-61 S2 | 1220.4 | 02/12/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 24.1 | — | — | 1 | µg/L | Y | — | NQ | 2013-532 | CAMO-13-28421 | GELC |
| R-61 S2 | 1220.4 | 11/15/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 32.6 | — | — | 1 | µg/L | Y | — | NQ | 2013-334 | CAMO-13-24269 | GELC |
| R-61 S2 | 1220.4 | 02/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 44.7 | — | — | 1 | µg/L | Y | — | NQ | 12-745 | CAMO-12-2231 | GELC |
| R-61 S2 | 1220.4 | 11/18/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 31.4 | — | — | 1 | µg/L | Y | — | NQ | 12-399 | CAMO-12-1518 | GELC |
| R-61 S2 | 1220.4 | 05/22/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 20.5 | — | — | 15 | µg/L | Y | J | J | 2013-886 | CAMO-13-30601 | GELC |
| R-61 S2 | 1220.4 | 02/12/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 39.1 | — | — | 15 | µg/L | Y | J | J | 2013-532 | CAMO-13-28421 | GELC |
| R-61 S2 | 1220.4 | 11/15/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 29 | — | — | 15 | µg/L | Y | J | J | 2013-334 | CAMO-13-24269 | GELC |
| R-61 S2 | 1220.4 | 02/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 17.5 | — | — | 15 | µg/L | Y | J | J | 12-745 | CAMO-12-2231 | GELC |
| R-61 S2 | 1220.4 | 11/18/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 22.2 | — | — | 15 | µg/L | Y | J | J | 12-399 | CAMO-12-1518 | GELC |
| R-61 S2 | 1220.4 | 05/22/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 7.69 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-886 | CAMO-13-30601 | GELC |
| R-61 S2 | 1220.4 | 02/12/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 9.24 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-532 | CAMO-13-28421 | GELC |
| R-61 S2 | 1220.4 | 11/15/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 7.99 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-334 | CAMO-13-24269 | GELC |
| R-61 S2 | 1220.4 | 02/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 12 | — | — | 0.05 | mg/L | Y | — | NQ | 12-745 | CAMO-12-2231 | GELC |
| R-61 S2 | 1220.4 | 11/18/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 11.9 | — | — | 0.05 | mg/L | Y | — | NQ | 12-399 | CAMO-12-1518 | GELC |
| R-61 S2 | 1220.4 | 05/22/13 | WG | UF | INIT | REG | RAD | EPA:901.1 | Cesium-137 | Cs-137 | N | -3.04 | 1.21 | 3.75 | — | pCi/L | Y | U | U | 2013-886 | CAMO-13-30585 | GELC |
| R-61 S2 | 1220.4 | 11/15/12 | WG | UF | INIT | REG | RAD | EPA:901.1 | Cesium-137 | Cs-137 | N | 1.02 | 1.61 | 6 | — | pCi/L | Y | U | U | 2013-334 | CAMO-13-24252 | GELC |
| R-61 S2 | 1220.4 | 02/08/12 | WG | UF | INIT | REG | RAD | EPA:901.1 | Cesium-137 | Cs-137 | N | 1.37 | 1.2 | 4.6 | — | pCi/L | Y | U | U | 12-745 | CAMO-12-2232 | GELC |
| R-61 S2 | 1220.4 | 11/18/11 | WG | UF | INIT | REG | RAD | EPA:901.1 | Cesium-137 | Cs-137 | N | 1.76 | 1.5 | 5.7 | — | pCi/L | Y | U | U | 12-399 | CAMO-12-1516 | GELC |
| R-61 S2 | 1220.4 | 08/19/11 | WG | UF | INIT | REG | RAD | EPA:901.1 | Cesium-137 | Cs-137 | N | -6.3 | 2.2 | 7.7 | — | pCi/L | Y | U | U | 11-3277 | CAMO-11-24703 | GELC |
| R-61 S2 | 1220.4 | 05/22/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 1.98 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-886 | CAMO-13-30601 | GELC |
| R-61 S2 | 1220.4 | 02/12/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 2.28 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-532 | CAMO-13-28421 | GELC |
| R-61 S2 | 1220.4 | 11/15/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 2.63 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-334 | CAMO-13-24269 | GELC |
| R-61 S2 | 1220.4 | 02/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 2.01 | — | — | 0.066 | mg/L | Y | — | NQ | 12-745 | CAMO-12-2231 | GELC |
| R-61 S2 | 1220.4 | 11/18/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 1.95 | — | — | 0.066 | mg/L | Y | — | NQ | 12-399 | CAMO-12-1518 | GELC |
| R-61 S2 | 1220.4 | 05/22/13 | WG | UF | INIT | REG | RAD | EPA:901.1 | Cobalt-60 | Co-60 | N | 1.06 | 0.972 | 3.79 | — | pCi/L | Y | U | U | 2013-886 | CAMO-13-30585 | GELC |
| R-61 S2 | 1220.4 | 11/15/12 | WG | UF | INIT | REG | RAD | EPA:901.1 | Cobalt-60 | Co-60 | N | 2.88 | 1.47 | 6.47 | — | pCi/L | Y | U | U | 2013-334 | CAMO-13-24252 | GELC |
| R-61 S2 | 1220.4 | 02/08/12 | WG | UF | INIT | REG | RAD | EPA:901.1 | Cobalt-60 | Co-60 | N | 2.08 | 1.2 | 5.2 | — | pCi/L | Y | U | U | 12-745 | CAMO-12-2232 | GELC |
| R-61 S2 | 1220.4 | 11/18/11 | WG | UF | INIT | REG | RAD | EPA:901.1 | Cobalt-60 | Co-60 | N | 2.05 | 1.7 | 7 | — | pCi/L | Y | U | U | 12-399 | CAMO-12-1516 | GELC |
| R-61 S2 | 1220.4 | 08/19/11 | WG | UF | INIT | REG | RAD | EPA:901.1 | Cobalt-60 | Co-60 | N | -0.515 | 1.6 | 5.2 | — | pCi/L | Y | U | U | 11-3277 | CAMO-11-24703 | GELC |
| R-61 S2 | 1220.4 | 05/22/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.521 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-886 | CAMO-13-30601 | GELC |
| R-61 S2 | 1220.4 | 02/12/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.851 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-532 | CAMO-13-28421 | GELC |
| R-61 S2 | 1220.4 | 11/15/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.739 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-334 | CAMO-13-24269 | GELC |
| R-61 S2 | 1220.4 | 02/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.342 | — | — | 0.033 | mg/L | Y | — | NQ | 12-745 | CAMO-12-2231 | GELC |
| R-61 S2 | 1220.4 | 11/18/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.31 | — | — | 0.033 | mg/L | Y | — | NQ | 12-399 | CAMO-12-1518 | GELC |
| R-61 S2 | 1220.4 | 05/22/13 | WG | UF | INIT | REG | RAD | EPA:900 | Gross alpha | GROSSA | Y | 1.26 | 0.31 | 0.845 | — | pCi/L | Y | — | J | 2013-886 | CAMO-13-30585 | GELC |
| R-61 S2 | 1220.4 | 11/15/12 | WG | UF | INIT | REG | RAD | EPA:900 | Gross alpha | GROSSA | Y | 5.49 | 1.45 | 2.39 | — | pCi/L | Y | — | NQ | 2013-334 | CAMO-13-24252 | GELC |
| R-61 S2 | 1220.4 | 02/08/12 | WG | UF | INIT | REG | RAD | EPA:900 | Gross alpha | GROSSA | N | -0.147 | 0.42 | 2.4 | — | pCi/L | Y | U | U | 12-745 | CAMO-12-2232 | GELC |
| R-61 S2 | 1220.4 | 11/18/11 | WG | UF | INIT | REG | RAD | EPA:900 | Gross alpha | GROSSA | N | 0.293 | 0.49 | 2 | — | pCi/L | Y | U | U | 12-399 | CAMO-12-1516 | GELC |
| R-61 S2 | 1220.4 | 08/19/11 | WG | UF | INIT | REG | RAD | EPA:900 | Gross alpha | GROSSA | N | 1.14 | 0.61 | 1.7 | — | pCi/L | Y | U | U | 11-3277 | CAMO-11-24703 | GELC |
| R-61 S2 | 1220.4 | 05/22/13 | WG | UF | INIT | REG | RAD | EPA:900 | Gross beta | GROSSB | Y | 10.9 | 1.27 | 2.35 | — | pCi/L | Y | — | J | 2013-886 | CAMO-13-30585 | GELC |
| R-61 S2 | 1220.4 | 11/15/12 | WG | UF | INIT | REG | RAD | EPA:900 | Gross beta | GROSSB | Y | 18.7 | 1.6 | 2.24 | — | pCi/L | Y | — | NQ | 2013-334 | CAMO-13-24252 | GELC |
| R-61 S2 | 1220.4 | 02/08/12 | WG | UF | INIT | REG | RAD | EPA:900 | Gross beta | GROSSB | N | 0.757 | 0.64 | 2.2 | — | pCi/L | Y | U | U | 12-745 | CAMO-12-2232 | GELC |
| R-61 S2 | 1220.4 | 11/18/11 | WG | UF | INIT | REG | RAD | EPA:900 | Gross beta | GROSSB | Y | 2.81 | 0.87 | 2.3 | — | pCi/L | Y | — | NQ | 12-399 | CAMO-12-1516 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-61 S2 | 1220.4 | 08/19/11 | WG | UF | INIT | REG | RAD | EPA:900 | Gross beta | GROSSB | Y | 2.69 | 0.82 | 2.2 | — | pCi/L | Y | — | NQ | 11-3277 | CAMO-11-24703 | GELC |
| R-61 S2 | 1220.4 | 05/22/13 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 32.2 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-886 | CAMO-13-30601 | GELC |
| R-61 S2 | 1220.4 | 02/12/13 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 38.9 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-532 | CAMO-13-28421 | GELC |
| R-61 S2 | 1220.4 | 11/15/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 33.8 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-334 | CAMO-13-24269 | GELC |
| R-61 S2 | 1220.4 | 02/08/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 44.7 | — | — | 0.45 | mg/L | Y | — | NQ | 12-745 | CAMO-12-2231 | GELC |
| R-61 S2 | 1220.4 | 11/18/11 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 45.2 | — | — | 0.45 | mg/L | Y | — | NQ | 12-399 | CAMO-12-1518 | GELC |
| R-61 S2 | 1220.4 | 05/22/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Iron | Fe | Y | 167 | — | — | 30 | µg/L | Y | — | NQ | 2013-886 | CAMO-13-30601 | GELC |
| R-61 S2 | 1220.4 | 02/12/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Iron | Fe | Y | 1760 | — | — | 30 | µg/L | Y | — | NQ | 2013-532 | CAMO-13-28421 | GELC |
| R-61 S2 | 1220.4 | 11/15/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Iron | Fe | Y | 331 | — | — | 30 | µg/L | Y | — | NQ | 2013-334 | CAMO-13-24269 | GELC |
| R-61 S2 | 1220.4 | 02/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Iron | Fe | Y | 148 | — | — | 30 | µg/L | Y | — | NQ | 12-745 | CAMO-12-2231 | GELC |
| R-61 S2 | 1220.4 | 11/18/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Iron | Fe | Y | 1750 | — | — | 30 | µg/L | Y | — | NQ | 12-399 | CAMO-12-1518 | GELC |
| R-61 S2 | 1220.4 | 05/22/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 3.15 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-886 | CAMO-13-30601 | GELC |
| R-61 S2 | 1220.4 | 02/12/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 3.85 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-532 | CAMO-13-28421 | GELC |
| R-61 S2 | 1220.4 | 11/15/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 3.37 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-334 | CAMO-13-24269 | GELC |
| R-61 S2 | 1220.4 | 02/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 3.59 | — | — | 0.11 | mg/L | Y | — | NQ | 12-745 | CAMO-12-2231 | GELC |
| R-61 S2 | 1220.4 | 11/18/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 3.78 | — | — | 0.11 | mg/L | Y | — | NQ | 12-399 | CAMO-12-1518 | GELC |
| R-61 S2 | 1220.4 | 05/22/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Manganese | Mn | Y | 71.4 | — | — | 2 | µg/L | Y | — | NQ | 2013-886 | CAMO-13-30601 | GELC |
| R-61 S2 | 1220.4 | 02/12/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Manganese | Mn | Y | 174 | — | — | 2 | µg/L | Y | — | NQ | 2013-532 | CAMO-13-28421 | GELC |
| R-61 S2 | 1220.4 | 11/15/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Manganese | Mn | Y | 91.5 | — | — | 2 | µg/L | Y | — | NQ | 2013-334 | CAMO-13-24269 | GELC |
| R-61 S2 | 1220.4 | 02/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Manganese | Mn | Y | 744 | — | — | 2 | µg/L | Y | — | NQ | 12-745 | CAMO-12-2231 | GELC |
| R-61 S2 | 1220.4 | 11/18/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Manganese | Mn | Y | 566 | — | — | 2 | µg/L | Y | — | NQ | 12-399 | CAMO-12-1518 | GELC |
| R-61 S2 | 1220.4 | 05/22/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 3.34 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-886 | CAMO-13-30601 | GELC |
| R-61 S2 | 1220.4 | 02/12/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 6.79 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-532 | CAMO-13-28421 | GELC |
| R-61 S2 | 1220.4 | 11/15/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 6.81 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-334 | CAMO-13-24269 | GELC |
| R-61 S2 | 1220.4 | 02/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 4.71 | — | — | 0.17 | µg/L | Y | — | NQ | 12-745 | CAMO-12-2231 | GELC |
| R-61 S2 | 1220.4 | 11/18/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 5.76 | — | — | 0.17 | µg/L | Y | — | NQ | 12-399 | CAMO-12-1518 | GELC |
| R-61 S2 | 1220.4 | 05/22/13 | WG | UF | INIT | REG | RAD | EPA:901.1 | Neptunium-237 | Np-237 | N | 0.771 | 3.39 | 7.44 | — | pCi/L | Y | U | U | 2013-886 | CAMO-13-30585 | GELC |
| R-61 S2 | 1220.4 | 11/15/12 | WG | UF | INIT | REG | RAD | EPA:901.1 | Neptunium-237 | Np-237 | N | -1 | 3.22 | 11 | — | pCi/L | Y | U | U | 2013-334 | CAMO-13-24252 | GELC |
| R-61 S2 | 1220.4 | 02/08/12 | WG | UF | INIT | REG | RAD | EPA:901.1 | Neptunium-237 | Np-237 | N | 0.431 | 2.8 | 9.6 | — | pCi/L | Y | U | U | 12-745 | CAMO-12-2232 | GELC |
| R-61 S2 | 1220.4 | 11/18/11 | WG | UF | INIT | REG | RAD | EPA:901.1 | Neptunium-237 | Np-237 | N | -2.61 | 3.1 | 10 | — | pCi/L | Y | U | U | 12-399 | CAMO-12-1516 | GELC |
| R-61 S2 | 1220.4 | 08/19/11 | WG | UF | INIT | REG | RAD | EPA:901.1 | Neptunium-237 | Np-237 | N | -2.24 | 2.7 | 8.9 | — | pCi/L | Y | U | U | 11-3277 | CAMO-11-24703 | GELC |
| R-61 S2 | 1220.4 | 05/22/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 1.01 | — | — | 0.5 | µg/L | Y | J | J | 2013-886 | CAMO-13-30601 | GELC |
| R-61 S2 | 1220.4 | 02/12/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 3.09 | — | — | 0.5 | µg/L | Y | — | NQ | 2013-532 | CAMO-13-28421 | GELC |
| R-61 S2 | 1220.4 | 11/15/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 1.84 | — | — | 0.5 | µg/L | Y | J | J | 2013-334 | CAMO-13-24269 | GELC |
| R-61 S2 | 1220.4 | 02/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 1.34 | — | — | 0.5 | µg/L | Y | J | J | 12-745 | CAMO-12-2231 | GELC |
| R-61 S2 | 1220.4 | 11/18/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 1.38 | — | — | 0.5 | µg/L | Y | J | J | 12-399 | CAMO-12-1518 | GELC |
| R-61 S2 | 1220.4 | 05/22/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 0.242 | — | — | 0.017 | mg/L | Y | — | NQ | 2013-886 | CAMO-13-30601 | GELC |
| R-61 S2 | 1220.4 | 02/12/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 0.262 | — | — | 0.017 | mg/L | Y | — | NQ | 2013-532 | CAMO-13-28421 | GELC |
| R-61 S2 | 1220.4 | 11/15/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 0.27 | — | — | 0.017 | mg/L | Y | — | NQ | 2013-334 | CAMO-13-24269 | GELC |
| R-61 S2 | 1220.4 | 02/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | N | 0.05 | — | — | 0.01 | mg/L | Y | U | U | 12-744 | CAMO-12-2231 | GELC |
| R-61 S2 | 1220.4 | 11/18/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 0.313 | — | — | 0.05 | mg/L | Y | — | NQ | 12-399 | CAMO-12-1518 | GELC |
| R-61 S2 | 1220.4 | 05/22/13 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.235 | — | — | 0.05 | µg/L | Y | — | NQ | 2013-886 | CAMO-13-30601 | GELC |
| R-61 S2 | 1220.4 | 02/12/13 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.208 | — | — | 0.05 | µg/L | Y | — | NQ | 2013-532 | CAMO-13-28421 | GELC |
| R-61 S2 | 1220.4 | 11/15/12 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.253 | — | — | 0.05 | µg/L | Y | — | NQ | 2013-334 | CAMO-13-24269 | GELC |
| R-61 S2 | 1220.4 | 02/08/12 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.278 | — | — | 0.05 | µg/L | Y | — | NQ | 12-745 | CAMO-12-2231 | GELC |
| R-61 S2 | 1220.4 | 11/18/11 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.265 | — | — | 0.05 | µg/L | Y | — | NQ | 12-399 | CAMO-12-1518 | GELC |
| R-61 S2 | 1220.4 | 05/22/13 | WG | UF | INIT | REG | RAD | HASL-300:ISOPU | Plutonium-238 | Pu-238 | N | 0.00432 | 0.00529 | 0.0202 | — | pCi/L | Y | U | U | 2013-886 | CAMO-13-30585 | GELC |
| R-61 S2 | 1220.4 | 11/15/12 | WG | UF | INIT | REG | RAD | HASL-300:ISOPU | Plutonium-238 | Pu-238 | N | 0.00786 | 0.00694 | 0.0252 | — | pCi/L | Y | U | U | 2013-334 | CAMO-13-24252 | GELC |
| R-61 S2 | 1220.4 | 02/08/12 | WG | UF | INIT | REG | RAD | HASL-300:ISOPU | Plutonium-238 | Pu-238 | N | 0.00629 | 0.007 | 0.026 | — | pCi/L | Y | U | U | 12-745 | CAMO-12-2232 | GELC |
| R-61 S2 | 1220.4 | 11/18/11 | WG | UF | INIT | REG | RAD | HASL-300:ISOPU | Plutonium-238 | Pu-238 | N | -0.0154 | 0.0066 | 0.021 | — | pCi/L | Y | U | U | 12-399 | CAMO-12-1516 | GELC |
| R-61 S2 | 1220.4 | 08/19/11 | WG | UF | INIT | REG | RAD | HASL-300:ISOPU | Plutonium-238 | Pu-238 | N | 0.00255 | 0.0044 | 0.026 | — | pCi/L | Y | U | U | 11-3277 | CAMO-11-24703 | GELC |
| R-61 S2 | 1220.4 | 05/22/13 | WG | UF | INIT | REG | RAD | HASL-300:ISOPU | Plutonium-239/240 | Pu-239/240 | N | 0.0173 | 0.00748 | 0.0425 | — | pCi/L | Y | U | U | 2013-886 | CAMO-13-30585 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-61 S2 | 1220.4 | 11/15/12 | WG | UF | INIT | REG | RAD | HASL-300:ISOPU | Plutonium-239/240 | Pu-239/240 | N | 0.0105 | 0.00741 | 0.0418 | — | pCi/L | Y | U | U | 2013-334 | CAMO-13-24252 | GELC |
| R-61 S2 | 1220.4 | 02/08/12 | WG | UF | INIT | REG | RAD | HASL-300:ISOPU | Plutonium-239/240 | Pu-239/240 | N | 0.00839 | 0.0066 | 0.031 | — | pCi/L | Y | U | U | 12-745 | CAMO-12-2232 | GELC |
| R-61 S2 | 1220.4 | 11/18/11 | WG | UF | INIT | REG | RAD | HASL-300:ISOPU | Plutonium-239/240 | Pu-239/240 | N | 0.00683 | 0.0034 | 0.021 | — | pCi/L | Y | U | U | 12-399 | CAMO-12-1516 | GELC |
| R-61 S2 | 1220.4 | 08/19/11 | WG | UF | INIT | REG | RAD | HASL-300:ISOPU | Plutonium-239/240 | Pu-239/240 | N | 0.0051 | 0.0062 | 0.049 | — | pCi/L | Y | U | U | 11-3277 | CAMO-11-24703 | GELC |
| R-61 S2 | 1220.4 | 05/22/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 12.5 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-886 | CAMO-13-30601 | GELC |
| R-61 S2 | 1220.4 | 02/12/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 24.4 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-532 | CAMO-13-28421 | GELC |
| R-61 S2 | 1220.4 | 11/15/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 21.8 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-334 | CAMO-13-24269 | GELC |
| R-61 S2 | 1220.4 | 02/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.51 | — | — | 0.05 | mg/L | Y | — | NQ | 12-745 | CAMO-12-2231 | GELC |
| R-61 S2 | 1220.4 | 11/18/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.83 | — | — | 0.05 | mg/L | Y | — | NQ | 12-399 | CAMO-12-1518 | GELC |
| R-61 S2 | 1220.4 | 05/22/13 | WG | UF | INIT | REG | RAD | EPA:901.1 | Potassium-40 | K-40 | N | 25.9 | 13.4 | 50.5 | — | pCi/L | Y | U | U | 2013-886 | CAMO-13-30585 | GELC |
| R-61 S2 | 1220.4 | 11/15/12 | WG | UF | INIT | REG | RAD | EPA:901.1 | Potassium-40 | K-40 | N | 17.7 | 22 | 85.5 | — | pCi/L | Y | U | U | 2013-334 | CAMO-13-24252 | GELC |
| R-61 S2 | 1220.4 | 02/08/12 | WG | UF | INIT | REG | RAD | EPA:901.1 | Potassium-40 | K-40 | N | -35.6 | 17 | 57 | — | pCi/L | Y | U | U | 12-745 | CAMO-12-2232 | GELC |
| R-61 S2 | 1220.4 | 11/18/11 | WG | UF | INIT | REG | RAD | EPA:901.1 | Potassium-40 | K-40 | N | -6.14 | 20 | 74 | — | pCi/L | Y | U | U | 12-399 | CAMO-12-1516 | GELC |
| R-61 S2 | 1220.4 | 08/19/11 | WG | UF | INIT | REG | RAD | EPA:901.1 | Potassium-40 | K-40 | N | 8.24 | 21 | 74 | — | pCi/L | Y | U | U | 11-3277 | CAMO-11-24703 | GELC |
| R-61 S2 | 1220.4 | 05/22/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 91 | — | — | 0.053 | mg/L | Y | — | J- | 2013-886 | CAMO-13-30601 | GELC |
| R-61 S2 | 1220.4 | 02/12/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 115 | — | — | 0.265 | mg/L | Y | — | NQ | 2013-532 | CAMO-13-28421 | GELC |
| R-61 S2 | 1220.4 | 11/15/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 120 | — | — | 0.53 | mg/L | Y | — | NQ | 2013-334 | CAMO-13-24269 | GELC |
| R-61 S2 | 1220.4 | 02/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 64.1 | — | — | 0.053 | mg/L | Y | — | NQ | 12-745 | CAMO-12-2231 | GELC |
| R-61 S2 | 1220.4 | 11/18/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 69.8 | — | — | 0.053 | mg/L | Y | — | NQ | 12-399 | CAMO-12-1518 | GELC |
| R-61 S2 | 1220.4 | 05/22/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 14.2 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-886 | CAMO-13-30601 | GELC |
| R-61 S2 | 1220.4 | 02/12/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 20.5 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-532 | CAMO-13-28421 | GELC |
| R-61 S2 | 1220.4 | 11/15/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 20.7 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-334 | CAMO-13-24269 | GELC |
| R-61 S2 | 1220.4 | 02/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 16.6 | — | — | 0.1 | mg/L | Y | — | NQ | 12-745 | CAMO-12-2231 | GELC |
| R-61 S2 | 1220.4 | 11/18/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 17.9 | — | — | 0.1 | mg/L | Y | — | NQ | 12-399 | CAMO-12-1518 | GELC |
| R-61 S2 | 1220.4 | 05/22/13 | WG | UF | INIT | REG | RAD | EPA:901.1 | Sodium-22 | Na-22 | N | 1.58 | 0.957 | 3.84 | — | pCi/L | Y | U | U | 2013-886 | CAMO-13-30585 | GELC |
| R-61 S2 | 1220.4 | 11/15/12 | WG | UF | INIT | REG | RAD | EPA:901.1 | Sodium-22 | Na-22 | N | -0.572 | 1.45 | 5.38 | — | pCi/L | Y | U | U | 2013-334 | CAMO-13-24252 | GELC |
| R-61 S2 | 1220.4 | 02/08/12 | WG | UF | INIT | REG | RAD | EPA:901.1 | Sodium-22 | Na-22 | N | -0.323 | 1.2 | 4.2 | — | pCi/L | Y | U | U | 12-745 | CAMO-12-2232 | GELC |
| R-61 S2 | 1220.4 | 11/18/11 | WG | UF | INIT | REG | RAD | EPA:901.1 | Sodium-22 | Na-22 | N | -1.05 | 1.3 | 4.9 | — | pCi/L | Y | U | U | 12-399 | CAMO-12-1516 | GELC |
| R-61 S2 | 1220.4 | 08/19/11 | WG | UF | INIT | REG | RAD | EPA:901.1 | Sodium-22 | Na-22 | N | -0.0637 | 1.6 | 5.2 | — | pCi/L | Y | U | U | 11-3277 | CAMO-11-24703 | GELC |
| R-61 S2 | 1220.4 | 05/22/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 149 | — | — | 1 | µS/cm | Y | — | NQ | 2013-886 | CAMO-13-30601 | GELC |
| R-61 S2 | 1220.4 | 02/12/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 224 | — | — | 1 | µS/cm | Y | — | NQ | 2013-532 | CAMO-13-28421 | GELC |
| R-61 S2 | 1220.4 | 11/15/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 197 | — | — | 1 | µS/cm | Y | — | NQ | 2013-334 | CAMO-13-24269 | GELC |
| R-61 S2 | 1220.4 | 02/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 159 | — | — | 1 | µS/cm | Y | — | NQ | 12-745 | CAMO-12-2231 | GELC |
| R-61 S2 | 1220.4 | 11/18/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 164 | — | — | 1 | µS/cm | Y | — | NQ | 12-399 | CAMO-12-1518 | GELC |
| R-61 S2 | 1220.4 | 05/22/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 31.9 | — | — | 1 | µg/L | Y | — | NQ | 2013-886 | CAMO-13-30601 | GELC |
| R-61 S2 | 1220.4 | 02/12/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 40.8 | — | — | 1 | µg/L | Y | — | NQ | 2013-532 | CAMO-13-28421 | GELC |
| R-61 S2 | 1220.4 | 11/15/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 33.6 | — | — | 1 | µg/L | Y | — | NQ | 2013-334 | CAMO-13-24269 | GELC |
| R-61 S2 | 1220.4 | 02/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 63.4 | — | — | 1 | µg/L | Y | — | NQ | 12-745 | CAMO-12-2231 | GELC |
| R-61 S2 | 1220.4 | 11/18/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 65.1 | — | — | 1 | µg/L | Y | — | NQ | 12-399 | CAMO-12-1518 | GELC |
| R-61 S2 | 1220.4 | 05/22/13 | WG | UF | INIT | REG | RAD | EPA:905.0 | Strontium-90 | Sr-90 | N | -0.0161 | 0.139 | 0.472 | — | pCi/L | Y | U | U | 2013-886 | CAMO-13-30585 | GELC |
| R-61 S2 | 1220.4 | 11/15/12 | WG | UF | INIT | REG | RAD | EPA:905.0 | Strontium-90 | Sr-90 | N | 0.122 | 0.143 | 0.499 | — | pCi/L | Y | U | U | 2013-334 | CAMO-13-24252 | GELC |
| R-61 S2 | 1220.4 | 02/08/12 | WG | UF | INIT | REG | RAD | EPA:905.0 | Strontium-90 | Sr-90 | N | 0.0985 | 0.14 | 0.47 | — | pCi/L | Y | U | U | 12-745 | CAMO-12-2232 | GELC |
| R-61 S2 | 1220.4 | 11/18/11 | WG | UF | INIT | REG | RAD | EPA:905.0 | Strontium-90 | Sr-90 | N | 0.294 | 0.15 | 0.49 | — | pCi/L | Y | U | U | 12-399 | CAMO-12-1516 | GELC |
| R-61 S2 | 1220.4 | 08/19/11 | WG | UF | INIT | REG | RAD | EPA:905.0 | Strontium-90 | Sr-90 | N | 0.144 | 0.15 | 0.5 | — | pCi/L | Y | U | U | 11-3277 | CAMO-11-24703 | GELC |
| R-61 S2 | 1220.4 | 05/22/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 2.16 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-886 | CAMO-13-30601 | GELC |
| R-61 S2 | 1220.4 | 02/12/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 1.87 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-532 | CAMO-13-28421 | GELC |
| R-61 S2 | 1220.4 | 11/15/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 2.16 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-334 | CAMO-13-24269 | GELC |
| R-61 S2 | 1220.4 | 02/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 2.2 | — | — | 0.1 | mg/L | Y | — | NQ | 12-745 | CAMO-12-2231 | GELC |
| R-61 S2 | 1220.4 | 11/18/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 2.13 | — | — | 0.1 | mg/L | Y | — | NQ | 12-399 | CAMO-12-1518 | GELC |
| R-61 S2 | 1220.4 | 05/22/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 136 | — | — | 3.4 | mg/L | Y | — | J | 2013-886 | CAMO-13-30601 | GELC |
| R-61 S2 | 1220.4 | 02/12/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 239 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-532 | CAMO-13-28421 | GELC |
| R-61 S2 | 1220.4 | 11/15/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 256 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-334 | CAMO-13-24269 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-61 S2 | 1220.4 | 02/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 143 | — | — | 3.4 | mg/L | Y | — | NQ | 12-745 | CAMO-12-2231 | GELC |
| R-61 S2 | 1220.4 | 11/18/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 147 | — | — | 3.4 | mg/L | Y | — | NQ | 12-399 | CAMO-12-1518 | GELC |
| R-61 S2 | 1220.4 | 05/22/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | EPA:351.2 | Total Kjeldahl Nitrogen | TKN | Y | 0.205 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-886 | CAMO-13-30585 | GELC |
| R-61 S2 | 1220.4 | 02/12/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | EPA:351.2 | Total Kjeldahl Nitrogen | TKN | Y | 0.0995 | — | — | 0.033 | mg/L | Y | J | J | 2013-532 | CAMO-13-28413 | GELC |
| R-61 S2 | 1220.4 | 11/15/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | EPA:351.2 | Total Kjeldahl Nitrogen | TKN | Y | 0.14 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-334 | CAMO-13-24252 | GELC |
| R-61 S2 | 1220.4 | 02/08/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | EPA:351.2 | Total Kjeldahl Nitrogen | TKN | Y | 0.113 | — | — | 0.035 | mg/L | Y | — | NQ | 12-744 | CAMO-12-2232 | GELC |
| R-61 S2 | 1220.4 | 11/18/11 | WG | UF | INIT | REG | GENERAL CHEMISTRY | EPA:351.2 | Total Kjeldahl Nitrogen | TKN | N | 0.1 | — | — | 0.035 | mg/L | Y | U | U | 12-399 | CAMO-12-1516 | GELC |
| R-61 S2 | 1220.4 | 05/22/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 1.5 | — | — | 0.33 | mg/L | Y | — | NQ | 2013-886 | CAMO-13-30585 | GELC |
| R-61 S2 | 1220.4 | 02/12/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 5.5 | — | — | 0.33 | mg/L | Y | — | NQ | 2013-532 | CAMO-13-28413 | GELC |
| R-61 S2 | 1220.4 | 11/15/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 3.65 | — | — | 0.33 | mg/L | Y | — | NQ | 2013-334 | CAMO-13-24252 | GELC |
| R-61 S2 | 1220.4 | 02/08/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.864 | — | — | 0.33 | mg/L | Y | J | J | 12-744 | CAMO-12-2232 | GELC |
| R-61 S2 | 1220.4 | 11/18/11 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 2.49 | — | — | 0.33 | mg/L | Y | — | NQ | 12-399 | CAMO-12-1516 | GELC |
| R-61 S2 | 1220.4 | 05/22/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 4.67 | — | — | 0.085 | mg/L | Y | — | NQ | 2013-886 | CAMO-13-30601 | GELC |
| R-61 S2 | 1220.4 | 02/12/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 19.7 | — | — | 0.17 | mg/L | Y | — | NQ | 2013-532 | CAMO-13-28421 | GELC |
| R-61 S2 | 1220.4 | 11/15/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 19.1 | — | — | 0.17 | mg/L | Y | — | NQ | 2013-334 | CAMO-13-24269 | GELC |
| R-61 S2 | 1220.4 | 02/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 0.0389 | — | — | 0.015 | mg/L | Y | J | J | 12-744 | CAMO-12-2231 | GELC |
| R-61 S2 | 1220.4 | 11/18/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | N | 0.05 | — | — | 0.015 | mg/L | Y | U | U | 12-399 | CAMO-12-1518 | GELC |
| R-61 S2 | 1220.4 | 05/22/13 | WG | UF | INIT | REG | RAD | Generic:Low_Level_Tritium | Tritium | H-3 | N | 0.575 | 0.69 | 2.289 | — | pCi/L | Y | U | U | 2013-877 | CAMO-13-30585 | ARSL |
| R-61 S2 | 1220.4 | 11/15/12 | WG | UF | INIT | REG | RAD | Generic:Low_Level_Tritium | Tritium | H-3 | N | 2.122 | 0.786 | 2.307 | — | pCi/L | Y | U | U | 2013-360 | CAMO-13-24252 | ARSL |
| R-61 S2 | 1220.4 | 02/08/12 | WG | UF | INIT | REG | RAD | Generic:Low_Level_Tritium | Tritium | H-3 | N | 1.97 | 0.67 | 1.89 | — | pCi/L | Y | — | U | 12-746 | CAMO-12-2232 | ARSL |
| R-61 S2 | 1220.4 | 11/18/11 | WG | UF | INIT | REG | RAD | Generic:Low_Level_Tritium | Tritium | H-3 | N | -1.25 | 0.64 | 2.17 | — | pCi/L | Y | U | U | 12-436 | CAMO-12-1516 | ARSL |
| R-61 S2 | 1220.4 | 08/19/11 | WG | UF | INIT | REG | RAD | Generic:Low_Level_Tritium | Tritium | H-3 | N | 0.2898 | 0.7084 | 2.3506 | — | pCi/L | Y | U | U | 11-3305 | CAMO-11-24703 | ARSL |
| R-61 S2 | 1220.4 | 05/22/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.087 | — | — | 0.067 | µg/L | Y | J | J | 2013-886 | CAMO-13-30601 | GELC |
| R-61 S2 | 1220.4 | 02/12/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | N | 0.2 | — | — | 0.067 | µg/L | Y | U | U | 2013-532 | CAMO-13-28421 | GELC |
| R-61 S2 | 1220.4 | 11/15/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.224 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-334 | CAMO-13-24269 | GELC |
| R-61 S2 | 1220.4 | 02/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.719 | — | — | 0.067 | µg/L | Y | — | NQ | 12-745 | CAMO-12-2231 | GELC |
| R-61 S2 | 1220.4 | 11/18/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.759 | — | — | 0.067 | µg/L | Y | — | NQ | 12-399 | CAMO-12-1518 | GELC |
| R-61 S2 | 1220.4 | 05/22/13 | WG | UF | INIT | REG | RAD | HASL-300:ISOU | Uranium-234 | U-234 | Y | 0.212 | 0.0313 | 0.0912 | — | pCi/L | Y | — | J | 2013-886 | CAMO-13-30585 | GELC |
| R-61 S2 | 1220.4 | 11/15/12 | WG | UF | INIT | REG | RAD | HASL-300:ISOU | Uranium-234 | U-234 | Y | 0.215 | 0.0315 | 0.0761 | — | pCi/L | Y | — | NQ | 2013-334 | CAMO-13-24252 | GELC |
| R-61 S2 | 1220.4 | 02/08/12 | WG | UF | INIT | REG | RAD | HASL-300:ISOU | Uranium-234 | U-234 | Y | 0.497 | 0.045 | 0.047 | — | pCi/L | Y | — | NQ | 12-745 | CAMO-12-2232 | GELC |
| R-61 S2 | 1220.4 | 11/18/11 | WG | UF | INIT | REG | RAD | HASL-300:ISOU | Uranium-234 | U-234 | Y | 0.472 | 0.044 | 0.047 | — | pCi/L | Y | — | NQ | 12-399 | CAMO-12-1516 | GELC |
| R-61 S2 | 1220.4 | 08/19/11 | WG | UF | INIT | REG | RAD | HASL-300:ISOU | Uranium-234 | U-234 | Y | 0.4 | 0.047 | 0.06 | — | pCi/L | Y | — | NQ | 11-3277 | CAMO-11-24703 | GELC |
| R-61 S2 | 1220.4 | 05/22/13 | WG | UF | INIT | REG | RAD | HASL-300:ISOU | Uranium-235/236 | U-235/236 | N | 0.0103 | 0.0126 | 0.0709 | — | pCi/L | Y | U | U | 2013-886 | CAMO-13-30585 | GELC |
| R-61 S2 | 1220.4 | 11/15/12 | WG | UF | INIT | REG | RAD | HASL-300:ISOU | Uranium-235/236 | U-235/236 | N | 0 | 0.00811 | 0.0475 | — | pCi/L | Y | U | U | 2013-334 | CAMO-13-24252 | GELC |
| R-61 S2 | 1220.4 | 02/08/12 | WG | UF | INIT | REG | RAD | HASL-300:ISOU | Uranium-235/236 | U-235/236 | N | 0.0229 | 0.0086 | 0.025 | — | pCi/L | Y | U | U | 12-745 | CAMO-12-2232 | GELC |
| R-61 S2 | 1220.4 | 11/18/11 | WG | UF | INIT | REG | RAD | HASL-300:ISOU | Uranium-235/236 | U-235/236 | N | 0.0155 | 0.0067 | 0.026 | — | pCi/L | Y | U | U | 12-399 | CAMO-12-1516 | GELC |
| R-61 S2 | 1220.4 | 08/19/11 | WG | UF | INIT | REG | RAD | HASL-300:ISOU | Uranium-235/236 | U-235/236 | N | 0.0244 | 0.01 | 0.043 | — | pCi/L | Y | U | U | 11-3277 | CAMO-11-24703 | GELC |
| R-61 S2 | 1220.4 | 05/22/13 | WG | UF | INIT | REG | RAD | HASL-300:ISOU | Uranium-238 | U-238 | Y | 0.124 | 0.0242 | 0.0582 | — | pCi/L | Y | — | J | 2013-886 | CAMO-13-30585 | GELC |
| R-61 S2 | 1220.4 | 11/15/12 | WG | UF | INIT | REG | RAD | HASL-300:ISOU | Uranium-238 | U-238 | Y | 0.197 | 0.0262 | 0.0516 | — | pCi/L | Y | — | NQ | 2013-334 | CAMO-13-24252 | GELC |
| R-61 S2 | 1220.4 | 02/08/12 | WG | UF | INIT | REG | RAD | HASL-300:ISOU | Uranium-238 | U-238 | Y | 0.294 | 0.031 | 0.036 | — | pCi/L | Y | — | NQ | 12-745 | CAMO-12-2232 | GELC |
| R-61 S2 | 1220.4 | 11/18/11 | WG | UF | INIT | REG | RAD | HASL-300:ISOU | Uranium-238 | U-238 | Y | 0.208 | 0.025 | 0.026 | — | pCi/L | Y | — | NQ | 12-399 | CAMO-12-1516 | GELC |
| R-61 S2 | 1220.4 | 08/19/11 | WG | UF | INIT | REG | RAD | HASL-300:ISOU | Uranium-238 | U-238 | Y | 0.266 | 0.037 | 0.051 | — | pCi/L | Y | — | NQ | 11-3277 | CAMO-11-24703 | GELC |
| R-61 S2 | 1220.4 | 05/22/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 7.88 | — | — | 1 | µg/L | Y | — | NQ | 2013-886 | CAMO-13-30601 | GELC |
| R-61 S2 | 1220.4 | 02/12/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 2.16 | — | — | 1 | µg/L | Y | J | J | 2013-532 | CAMO-13-28421 | GELC |
| R-61 S2 | 1220.4 | 11/15/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 5.11 | — | — | 1 | µg/L | Y | — | NQ | 2013-334 | CAMO-13-24269 | GELC |
| R-61 S2 | 1220.4 | 02/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 3.51 | — | — | 1 | µg/L | Y | J | J | 12-745 | CAMO-12-2231 | GELC |
| R-61 S2 | 1220.4 | 11/18/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 2.07 | — | — | 1 | µg/L | Y | J | J | 12-399 | CAMO-12-1518 | GELC |
| R-61 S2 | 1220.4 | 05/22/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 3.42 | — | — | 3.3 | µg/L | Y | J | J | 2013-886 | CAMO-13-30601 | GELC |
| R-61 S2 | 1220.4 | 02/12/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 4.57 | — | — | 3.3 | µg/L | Y | J | J | 2013-532 | CAMO-13-28421 | GELC |
| R-61 S2 | 1220.4 | 11/15/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 10.4 | — | — | 3.3 | µg/L | Y | — | NQ | 2013-334 | CAMO-13-24269 | GELC |
| R-61 S2 | 1220.4 | 02/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | N | 10 | — | — | 3.3 | µg/L | Y | U | U | 12-745 | CAMO-12-2231 | GELC |
| R-61 S2 | 1220.4 | 11/18/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | N | 10 | — | — | 3.3 | µg/L | Y | U | U | 12-399 | CAMO-12-1518 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.64 | — | — | 0.01 | SU | Y | H | NQ | 2013-822 | CAMO-13-30602 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.63 | — | — | 0.01 | SU | Y | H | NQ | 2013-822 | CAMO-13-30564 | GELC |
| R-62 | 1158.4 | 02/05/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.69 | — | — | 0.01 | SU | Y | H | NQ | 2013-511 | CAMO-13-28422 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.74 | — | — | 0.01 | SU | Y | H | NQ | 2013-297 | CAMO-13-24270 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.74 | — | — | 0.01 | SU | Y | H | NQ | 2013-297 | CAMO-13-24229 | GELC |
| R-62 | 1158.4 | 08/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.45 | — | — | 0.01 | SU | Y | H | NQ | 12-1482 | CAMO-12-21749 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.48 | — | — | 0.01 | SU | Y | H | NQ | 12-1349 | CAMO-12-14033 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 8.49 | — | — | 0.01 | SU | Y | H | NQ | 12-1349 | CAMO-12-14000 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3 | ALK-CO3 | Y | 2.03 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-822 | CAMO-13-30602 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3 | ALK-CO3 | Y | 2.03 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-822 | CAMO-13-30564 | GELC |
| R-62 | 1158.4 | 02/05/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3 | ALK-CO3 | Y | 2.09 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-511 | CAMO-13-28422 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3 | ALK-CO3 | N | 1 | — | — | 0.725 | mg/L | Y | U | U | 2013-297 | CAMO-13-24270 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3 | ALK-CO3 | N | 1 | — | — | 0.725 | mg/L | Y | U | U | 2013-297 | CAMO-13-24229 | GELC |
| R-62 | 1158.4 | 08/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3 | ALK-CO3 | Y | 2.12 | — | — | 0.725 | mg/L | Y | — | NQ | 12-1482 | CAMO-12-21749 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3 | ALK-CO3 | Y | 3.98 | — | — | 0.725 | mg/L | Y | — | NQ | 12-1349 | CAMO-12-14033 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3 | ALK-CO3 | N | 1 | — | — | 0.725 | mg/L | Y | U | U | 12-1349 | CAMO-12-14000 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 59.9 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-822 | CAMO-13-30602 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 60.4 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-822 | CAMO-13-30564 | GELC |
| R-62 | 1158.4 | 02/05/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 62.2 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-511 | CAMO-13-28422 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 63.8 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-297 | CAMO-13-24270 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 62.2 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-297 | CAMO-13-24229 | GELC |
| R-62 | 1158.4 | 08/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 64.5 | — | — | 0.725 | mg/L | Y | — | NQ | 12-1482 | CAMO-12-21749 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 63.6 | — | — | 0.725 | mg/L | Y | — | NQ | 12-1349 | CAMO-12-14033 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 62.7 | — | — | 0.725 | mg/L | Y | — | NQ | 12-1349 | CAMO-12-14000 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | UF | INIT | REG | RAD | HASL-300:AM-241 | Americium-241 | Am-241 | N | -0.00325 | 0.00562 | 0.0629 | — | pCi/L | Y | U | U | 2013-822 | CAMO-13-30586 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | UF | INIT | FD | RAD | HASL-300:AM-241 | Americium-241 | Am-241 | N | 0 | 0.00452 | 0.062 | — | pCi/L | Y | U | U | 2013-822 | CAMO-13-30562 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | UF | INIT | REG | RAD | HASL-300:AM-241 | Americium-241 | Am-241 | N | 3.43E-10 | 0.00411 | 0.0234 | — | pCi/L | Y | U | U | 2013-297 | CAMO-13-24253 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | UF | INIT | FD | RAD | HASL-300:AM-241 | Americium-241 | Am-241 | N | 0.00436 | 0.00534 | 0.0248 | — | pCi/L | Y | U | U | 2013-297 | CAMO-13-24228 | GELC |
| R-62 | 1158.4 | 08/08/12 | WG | UF | INIT | REG | RAD | HASL-300:AM-241 | Americium-241 | Am-241 | N | 0.00885 | 0.0078 | 0.0404 | — | pCi/L | Y | U | U | 12-1482 | CAMO-12-21741 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | UF | INIT | REG | RAD | HASL-300:AM-241 | Americium-241 | Am-241 | N | 0.00691 | 0.00949 | 0.0393 | — | pCi/L | Y | U | U | 12-1349 | CAMO-12-14018 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | UF | INIT | FD | RAD | HASL-300:AM-241 | Americium-241 | Am-241 | N | 0 | 0.00273 | 0.0466 | — | pCi/L | Y | U | U | 12-1349 | CAMO-12-13999 | GELC |
| R-62 | 1158.4 | 03/26/12 | WG | UF | INIT | REG | RAD | HASL-300:AM-241 | Americium-241 | Am-241 | N | 0.00871 | 0.00435 | 0.0392 | — | pCi/L | Y | U | U | 12-1149 | CAMO-12-12025 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Arsenic | As | Y | 2.98 | — | — | 1.7 | µg/L | Y | J | J | 2013-822 | CAMO-13-30602 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Arsenic | As | N | 5 | — | — | 1.7 | µg/L | Y | U | U | 2013-822 | CAMO-13-30564 | GELC |
| R-62 | 1158.4 | 02/05/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Arsenic | As | N | 5 | — | — | 1.7 | µg/L | Y | U | U | 2013-511 | CAMO-13-28422 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Arsenic | As | N | 5 | — | — | 1.7 | µg/L | Y | U | U | 2013-297 | CAMO-13-24270 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Arsenic | As | N | 5 | — | — | 1.7 | µg/L | Y | U | U | 2013-297 | CAMO-13-24229 | GELC |
| R-62 | 1158.4 | 08/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Arsenic | As | N | 5 | — | — | 1.7 | µg/L | Y | U | U | 12-1482 | CAMO-12-21749 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Arsenic | As | N | 5 | — | — | 1.7 | µg/L | Y | U | U | 12-1349 | CAMO-12-14033 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Arsenic | As | N | 5 | — | — | 1.7 | µg/L | Y | U | U | 12-1349 | CAMO-12-14000 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 25.2 | — | — | 1 | µg/L | Y | — | NQ | 2013-822 | CAMO-13-30602 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Barium | Ba | Y | 27.7 | — | — | 1 | µg/L | Y | — | NQ | 2013-822 | CAMO-13-30564 | GELC |
| R-62 | 1158.4 | 02/05/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 25.2 | — | — | 1 | µg/L | Y | — | NQ | 2013-511 | CAMO-13-28422 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 25.6 | — | — | 1 | µg/L | Y | — | NQ | 2013-297 | CAMO-13-24270 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Barium | Ba | Y | 24.4 | — | — | 1 | µg/L | Y | — | NQ | 2013-297 | CAMO-13-24229 | GELC |
| R-62 | 1158.4 | 08/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 23 | — | — | 1 | µg/L | Y | — | NQ | 12-1482 | CAMO-12-21749 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 22.9 | — | — | 1 | µg/L | Y | — | NQ | 12-1349 | CAMO-12-14033 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Barium | Ba | Y | 22.5 | — | — | 1 | µg/L | Y | — | NQ | 12-1349 | CAMO-12-14000 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.0717 | — | — | 0.067 | mg/L | Y | J | J | 2013-822 | CAMO-13-30602 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.179 | — | — | 0.067 | mg/L | Y | J | J | 2013-822 | CAMO-13-30564 | GELC |
| R-62 | 1158.4 | 02/05/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | N | 0.2 | — | — | 0.067 | mg/L | Y | U | U | 2013-511 | CAMO-13-28422 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.106 | — | — | 0.067 | mg/L | Y | J | J | 2013-297 | CAMO-13-24270 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.137 | — | — | 0.067 | mg/L | Y | J | J | 2013-297 | CAMO-13-24229 | GELC |
| R-62 | 1158.4 | 08/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.118 | — | — | 0.067 | mg/L | Y | J | J | 12-1482 | CAMO-12-21749 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | N | 0.2 | — | — | 0.067 | mg/L | Y | U | U | 12-1349 | CAMO-12-14033 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.075 | — | — | 0.067 | mg/L | Y | J | J | 12-1349 | CAMO-12-14000 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 16.8 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-822 | CAMO-13-30602 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 17.4 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-822 | CAMO-13-30564 | GELC |
| R-62 | 1158.4 | 02/05/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 16.7 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-511 | CAMO-13-28422 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 18.1 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-297 | CAMO-13-24270 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 17.6 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-297 | CAMO-13-24229 | GELC |
| R-62 | 1158.4 | 08/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 16.1 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1482 | CAMO-12-21749 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 16 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1349 | CAMO-12-14033 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 15.8 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1349 | CAMO-12-14000 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | UF | INIT | REG | RAD | EPA:901.1 | Cesium-137 | Cs-137 | N | 0.346 | 1.4 | 4.95 | — | pCi/L | Y | U | U | 2013-822 | CAMO-13-30586 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | UF | INIT | FD | RAD | EPA:901.1 | Cesium-137 | Cs-137 | N | 4.24 | 1.72 | 4.42 | — | pCi/L | Y | U | U | 2013-822 | CAMO-13-30562 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | UF | INIT | REG | RAD | EPA:901.1 | Cesium-137 | Cs-137 | N | -0.881 | 1.89 | 6.96 | — | pCi/L | Y | U | U | 2013-297 | CAMO-13-24253 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | UF | INIT | FD | RAD | EPA:901.1 | Cesium-137 | Cs-137 | N | 2.46 | 1.47 | 6.07 | — | pCi/L | Y | U | U | 2013-297 | CAMO-13-24228 | GELC |
| R-62 | 1158.4 | 08/08/12 | WG | UF | INIT | REG | RAD | EPA:901.1 | Cesium-137 | Cs-137 | N | 3.55 | 1.38 | 6.11 | — | pCi/L | Y | U | U | 12-1482 | CAMO-12-21741 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | UF | INIT | REG | RAD | EPA:901.1 | Cesium-137 | Cs-137 | N | 0.239 | 1.45 | 5.45 | — | pCi/L | Y | U | U | 12-1349 | CAMO-12-14018 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | UF | INIT | FD | RAD | EPA:901.1 | Cesium-137 | Cs-137 | N | -1.07 | 1.55 | 5.26 | — | pCi/L | Y | U | U | 12-1349 | CAMO-12-13999 | GELC |
| R-62 | 1158.4 | 03/26/12 | WG | UF | INIT | REG | RAD | EPA:901.1 | Cesium-137 | Cs-137 | N | -0.714 | 1.39 | 4.99 | — | pCi/L | Y | U | U | 12-1149 | CAMO-12-12025 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 7.71 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-822 | CAMO-13-30602 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 7.73 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-822 | CAMO-13-30564 | GELC |
| R-62 | 1158.4 | 02/05/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 7.43 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-511 | CAMO-13-28422 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 7.83 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-297 | CAMO-13-24270 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 7.85 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-297 | CAMO-13-24229 | GELC |
| R-62 | 1158.4 | 08/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 8.74 | — | — | 0.067 | mg/L | Y | — | NQ | 12-1482 | CAMO-12-21749 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 8.26 | — | — | 0.067 | mg/L | Y | — | NQ | 12-1349 | CAMO-12-14033 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 8.26 | — | — | 0.067 | mg/L | Y | — | NQ | 12-1349 | CAMO-12-14000 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 131 | — | — | 2 | µg/L | Y | — | NQ | 2013-822 | CAMO-13-30602 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 139 | — | — | 2 | µg/L | Y | — | NQ | 2013-822 | CAMO-13-30564 | GELC |
| R-62 | 1158.4 | 02/05/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 123 | — | — | 10 | µg/L | Y | — | NQ | 2013-511 | CAMO-13-28422 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 128 | — | — | 10 | µg/L | Y | — | NQ | 2013-297 | CAMO-13-24270 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 133 | — | — | 10 | µg/L | Y | — | NQ | 2013-297 | CAMO-13-24229 | GELC |
| R-62 | 1158.4 | 08/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 175 | — | — | 2 | µg/L | Y | — | NQ | 12-1482 | CAMO-12-21749 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 135 | — | — | 10 | µg/L | Y | — | NQ | 12-1349 | CAMO-12-14033 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 129 | — | — | 10 | µg/L | Y | — | NQ | 12-1349 | CAMO-12-14000 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | UF | INIT | REG | RAD | EPA:901.1 | Cobalt-60 | Co-60 | N | 0.776 | 1.4 | 5.86 | — | pCi/L | Y | U | U | 2013-822 | CAMO-13-30586 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | UF | INIT | FD | RAD | EPA:901.1 | Cobalt-60 | Co-60 | N | -0.0409 | 1.9 | 7.09 | — | pCi/L | Y | U | U | 2013-822 | CAMO-13-30562 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | UF | INIT | REG | RAD | EPA:901.1 | Cobalt-60 | Co-60 | N | -2.34 | 2.11 | 7.35 | — | pCi/L | Y | U | U | 2013-297 | CAMO-13-24253 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | UF | INIT | FD | RAD | EPA:901.1 | Cobalt-60 | Co-60 | N | 0.877 | 1.64 | 6.63 | — | pCi/L | Y | U | U | 2013-297 | CAMO-13-24228 | GELC |
| R-62 | 1158.4 | 08/08/12 | WG | UF | INIT | REG | RAD | EPA:901.1 | Cobalt-60 | Co-60 | N | 0.822 | 1.39 | 5.96 | — | pCi/L | Y | U | U | 12-1482 | CAMO-12-21741 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | UF | INIT | REG | RAD | EPA:901.1 | Cobalt-60 | Co-60 | N | 1.67 | 1.94 | 8.1 | — | pCi/L | Y | U | U | 12-1349 | CAMO-12-14018 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | UF | INIT | FD | RAD | EPA:901.1 | Cobalt-60 | Co-60 | N | 0.255 | 1.22 | 4.81 | — | pCi/L | Y | U | U | 12-1349 | CAMO-12-13999 | GELC |
| R-62 | 1158.4 | 03/26/12 | WG | UF | INIT | REG | RAD | EPA:901.1 | Cobalt-60 | Co-60 | N | -0.51 | 1.16 | 4.41 | — | pCi/L | Y | U | U | 12-1149 | CAMO-12-12025 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.181 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-822 | CAMO-13-30602 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.194 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-822 | CAMO-13-30564 | GELC |
| R-62 | 1158.4 | 02/05/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.181 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-511 | CAMO-13-28422 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.244 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-297 | CAMO-13-24270 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.246 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-297 | CAMO-13-24229 | GELC |
| R-62 | 1158.4 | 08/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.202 | — | — | 0.033 | mg/L | Y | — | NQ | 12-1482 | CAMO-12-21749 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.242 | — | — | 0.033 | mg/L | Y | — | NQ | 12-1349 | CAMO-12-14033 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.246 | — | — | 0.033 | mg/L | Y | — | NQ | 12-1349 | CAMO-12-14000 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-62 | 1158.4 | 05/08/13 | WG | UF | INIT | REG | RAD | EPA:900 | Gross alpha | GROSSA | N | 1.38 | 0.856 | 2.75 | — | pCi/L | Y | U | U | 2013-822 | CAMO-13-30586 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | UF | INIT | FD | RAD | EPA:900 | Gross alpha | GROSSA | N | -0.0718 | 0.668 | 2.97 | — | pCi/L | Y | U | U | 2013-822 | CAMO-13-30562 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | UF | INIT | REG | RAD | EPA:900 | Gross alpha | GROSSA | N | -0.256 | 0.631 | 2.88 | — | pCi/L | Y | U | U | 2013-297 | CAMO-13-24253 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | UF | INIT | FD | RAD | EPA:900 | Gross alpha | GROSSA | N | 0.671 | 0.626 | 2.32 | — | pCi/L | Y | U | U | 2013-297 | CAMO-13-24228 | GELC |
| R-62 | 1158.4 | 08/08/12 | WG | UF | INIT | REG | RAD | EPA:900 | Gross alpha | GROSSA | N | 1.91 | 0.822 | 2.24 | — | pCi/L | Y | U | U | 12-1482 | CAMO-12-21741 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | UF | INIT | REG | RAD | EPA:900 | Gross alpha | GROSSA | N | 0.861 | 0.757 | 2.5 | — | pCi/L | Y | U | U | 12-1349 | CAMO-12-14018 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | UF | INIT | FD | RAD | EPA:900 | Gross alpha | GROSSA | N | 1.89 | 0.87 | 2.34 | — | pCi/L | Y | U | U | 12-1349 | CAMO-12-13999 | GELC |
| R-62 | 1158.4 | 03/26/12 | WG | UF | INIT | REG | RAD | EPA:900 | Gross alpha | GROSSA | N | 1.45 | 0.772 | 2.25 | — | pCi/L | Y | U | U | 12-1149 | CAMO-12-12025 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | UF | INIT | REG | RAD | EPA:900 | Gross beta | GROSSB | Y | 4.15 | 0.985 | 2.83 | — | pCi/L | Y | — | NQ | 2013-822 | CAMO-13-30586 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | UF | INIT | FD | RAD | EPA:900 | Gross beta | GROSSB | Y | 2.93 | 0.873 | 2.48 | — | pCi/L | Y | — | NQ | 2013-822 | CAMO-13-30562 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | UF | INIT | REG | RAD | EPA:900 | Gross beta | GROSSB | Y | 3.03 | 0.917 | 2.64 | — | pCi/L | Y | — | NQ | 2013-297 | CAMO-13-24253 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | UF | INIT | FD | RAD | EPA:900 | Gross beta | GROSSB | N | 1.04 | 0.678 | 2.26 | — | pCi/L | Y | U | U | 2013-297 | CAMO-13-24228 | GELC |
| R-62 | 1158.4 | 08/08/12 | WG | UF | INIT | REG | RAD | EPA:900 | Gross beta | GROSSB | N | 1.2 | 0.677 | 2.17 | — | pCi/L | Y | U | U | 12-1482 | CAMO-12-21741 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | UF | INIT | REG | RAD | EPA:900 | Gross beta | GROSSB | N | 2.39 | 0.789 | 2.47 | — | pCi/L | Y | U | U | 12-1349 | CAMO-12-14018 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | UF | INIT | FD | RAD | EPA:900 | Gross beta | GROSSB | Y | 3.17 | 0.864 | 2.65 | — | pCi/L | Y | — | NQ | 12-1349 | CAMO-12-13999 | GELC |
| R-62 | 1158.4 | 03/26/12 | WG | UF | INIT | REG | RAD | EPA:900 | Gross beta | GROSSB | N | 1.72 | 0.794 | 2.49 | — | pCi/L | Y | U | U | 12-1149 | CAMO-12-12025 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 60.2 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-822 | CAMO-13-30602 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | FD | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 62.2 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-822 | CAMO-13-30564 | GELC |
| R-62 | 1158.4 | 02/05/13 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 60.6 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-511 | CAMO-13-28422 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 65.6 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-297 | CAMO-13-24270 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | FD | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 64 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-297 | CAMO-13-24229 | GELC |
| R-62 | 1158.4 | 08/08/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 58.3 | — | — | 0.453 | mg/L | Y | — | NQ | 12-1482 | CAMO-12-21749 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 57.7 | — | — | 0.453 | mg/L | Y | — | NQ | 12-1349 | CAMO-12-14033 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | FD | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 57.1 | — | — | 0.453 | mg/L | Y | — | NQ | 12-1349 | CAMO-12-14000 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 4.45 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-822 | CAMO-13-30602 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 4.59 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-822 | CAMO-13-30564 | GELC |
| R-62 | 1158.4 | 02/05/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 4.61 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-511 | CAMO-13-28422 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 4.96 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-297 | CAMO-13-24270 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 4.88 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-297 | CAMO-13-24229 | GELC |
| R-62 | 1158.4 | 08/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 4.4 | — | — | 0.11 | mg/L | Y | — | NQ | 12-1482 | CAMO-12-21749 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 4.32 | — | — | 0.11 | mg/L | Y | — | NQ | 12-1349 | CAMO-12-14033 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 4.31 | — | — | 0.11 | mg/L | Y | — | NQ | 12-1349 | CAMO-12-14000 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.53 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-822 | CAMO-13-30602 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.58 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-822 | CAMO-13-30564 | GELC |
| R-62 | 1158.4 | 02/05/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.58 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-511 | CAMO-13-28422 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.91 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-297 | CAMO-13-24270 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.92 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-297 | CAMO-13-24229 | GELC |
| R-62 | 1158.4 | 08/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 1.61 | — | — | 0.165 | µg/L | Y | — | NQ | 12-1482 | CAMO-12-21749 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 2.14 | — | — | 0.165 | µg/L | Y | — | NQ | 12-1349 | CAMO-12-14033 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 2.09 | — | — | 0.165 | µg/L | Y | — | NQ | 12-1349 | CAMO-12-14000 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | UF | INIT | REG | RAD | EPA:901.1 | Neptunium-237 | Np-237 | N | -0.32 | 3.01 | 10.7 | — | pCi/L | Y | U | U | 2013-822 | CAMO-13-30586 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | UF | INIT | FD | RAD | EPA:901.1 | Neptunium-237 | Np-237 | N | 0.359 | 3.25 | 11.5 | — | pCi/L | Y | U | U | 2013-822 | CAMO-13-30562 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | UF | INIT | REG | RAD | EPA:901.1 | Neptunium-237 | Np-237 | N | 2.32 | 3.63 | 13.5 | — | pCi/L | Y | U | U | 2013-297 | CAMO-13-24253 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | UF | INIT | FD | RAD | EPA:901.1 | Neptunium-237 | Np-237 | N | -2.39 | 3.6 | 12.2 | — | pCi/L | Y | U | U | 2013-297 | CAMO-13-24228 | GELC |
| R-62 | 1158.4 | 08/08/12 | WG | UF | INIT | REG | RAD | EPA:901.1 | Neptunium-237 | Np-237 | N | 4.26 | 2.75 | 10.8 | — | pCi/L | Y | U | U | 12-1482 | CAMO-12-21741 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | UF | INIT | REG | RAD | EPA:901.1 | Neptunium-237 | Np-237 | N | 3.58 | 2.85 | 11.1 | — | pCi/L | Y | U | U | 12-1349 | CAMO-12-14018 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | UF | INIT | FD | RAD | EPA:901.1 | Neptunium-237 | Np-237 | N | -0.0449 | 2.58 | 9.3 | — | pCi/L | Y | U | U | 12-1349 | CAMO-12-13999 | GELC |
| R-62 | 1158.4 | 03/26/12 | WG | UF | INIT | REG | RAD | EPA:901.1 | Neptunium-237 | Np-237 | N | -0.985 | 2.55 | 8.96 | — | pCi/L | Y | U | U | 12-1149 | CAMO-12-12025 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 1.96 | — | — | 0.5 | µg/L | Y | J | J | 2013-822 | CAMO-13-30602 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 2.11 | — | — | 0.5 | µg/L | Y | — | NQ | 2013-822 | CAMO-13-30564 | GELC |
| R-62 | 1158.4 | 02/05/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 2.14 | — | — | 0.5 | µg/L | Y | — | NQ | 2013-511 | CAMO-13-28422 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 1.96 | — | — | 0.5 | µg/L | Y | J | J | 2013-297 | CAMO-13-24270 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 2.01 | — | — | 0.5 | µg/L | Y | — | NQ | 2013-297 | CAMO-13-24229 | GELC |
| R-62 | 1158.4 | 08/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 2.15 | — | — | 0.5 | µg/L | Y | — | NQ | 12-1482 | CAMO-12-21749 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 2.09 | — | — | 0.5 | µg/L | Y | — | NQ | 12-1349 | CAMO-12-14033 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 2.11 | — | — | 0.5 | µg/L | Y | — | NQ | 12-1349 | CAMO-12-14000 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 1.01 | — | — | 0.017 | mg/L | Y | — | NQ | 2013-822 | CAMO-13-30602 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 1.02 | — | — | 0.017 | mg/L | Y | — | NQ | 2013-822 | CAMO-13-30564 | GELC |
| R-62 | 1158.4 | 02/05/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 0.947 | — | — | 0.017 | mg/L | Y | — | NQ | 2013-511 | CAMO-13-28422 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 1.02 | — | — | 0.017 | mg/L | Y | — | NQ | 2013-297 | CAMO-13-24270 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 0.99 | — | — | 0.085 | mg/L | Y | — | NQ | 2013-297 | CAMO-13-24229 | GELC |
| R-62 | 1158.4 | 08/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 1.33 | — | — | 0.085 | mg/L | Y | — | NQ | 12-1482 | CAMO-12-21749 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 1.08 | — | — | 0.085 | mg/L | Y | — | NQ | 12-1349 | CAMO-12-14033 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 1.1 | — | — | 0.085 | mg/L | Y | — | NQ | 12-1349 | CAMO-12-14000 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.739 | — | — | 0.05 | µg/L | Y | — | NQ | 2013-822 | CAMO-13-30602 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | FD | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.725 | — | — | 0.05 | µg/L | Y | — | NQ | 2013-822 | CAMO-13-30564 | GELC |
| R-62 | 1158.4 | 02/05/13 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.79 | — | — | 0.05 | µg/L | Y | — | NQ | 2013-511 | CAMO-13-28422 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.771 | — | — | 0.05 | µg/L | Y | — | NQ | 2013-297 | CAMO-13-24270 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | FD | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.764 | — | — | 0.05 | µg/L | Y | — | NQ | 2013-297 | CAMO-13-24229 | GELC |
| R-62 | 1158.4 | 08/08/12 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.819 | — | — | 0.05 | µg/L | Y | — | NQ | 12-1482 | CAMO-12-21749 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.775 | — | — | 0.05 | µg/L | Y | — | NQ | 12-1349 | CAMO-12-14033 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | FD | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.765 | — | — | 0.05 | µg/L | Y | — | NQ | 12-1349 | CAMO-12-14000 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | UF | INIT | REG | RAD | HASL-300:ISOPU | Plutonium-238 | Pu-238 | N | -0.00923 | 0.00863 | 0.0343 | — | pCi/L | Y | U | U | 2013-822 | CAMO-13-30586 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | UF | INIT | FD | RAD | HASL-300:ISOPU | Plutonium-238 | Pu-238 | N | 0 | 0.00965 | 0.0586 | — | pCi/L | Y | U | U | 2013-822 | CAMO-13-30562 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | UF | INIT | REG | RAD | HASL-300:ISOPU | Plutonium-238 | Pu-238 | N | -0.0029 | 0.00502 | 0.0278 | — | pCi/L | Y | U | U | 2013-297 | CAMO-13-24253 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | UF | INIT | FD | RAD | HASL-300:ISOPU | Plutonium-238 | Pu-238 | N | -0.0125 | 0.00969 | 0.024 | — | pCi/L | Y | U | U | 2013-297 | CAMO-13-24228 | GELC |
| R-62 | 1158.4 | 08/08/12 | WG | UF | INIT | REG | RAD | HASL-300:ISOPU | Plutonium-238 | Pu-238 | N | 0 | 0.00414 | 0.0197 | — | pCi/L | Y | U | U | 12-1482 | CAMO-12-21741 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | UF | INIT | REG | RAD | HASL-300:ISOPU | Plutonium-238 | Pu-238 | N | 0 | 0.00799 | 0.0642 | — | pCi/L | Y | U | U | 12-1349 | CAMO-12-14018 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | UF | INIT | FD | RAD | HASL-300:ISOPU | Plutonium-238 | Pu-238 | N | 0.00834 | 0.016 | 0.0632 | — | pCi/L | Y | U | U | 12-1349 | CAMO-12-13999 | GELC |
| R-62 | 1158.4 | 03/26/12 | WG | UF | INIT | REG | RAD | HASL-300:ISOPU | Plutonium-238 | Pu-238 | N | -0.0142 | 0.00884 | 0.037 | — | pCi/L | Y | U | U | 12-1149 | CAMO-12-12025 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | UF | INIT | REG | RAD | HASL-300:ISOPU | Plutonium-239/240 | Pu-239/240 | N | 0 | 0.00652 | 0.0413 | — | pCi/L | Y | U | U | 2013-822 | CAMO-13-30586 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | UF | INIT | FD | RAD | HASL-300:ISOPU | Plutonium-239/240 | Pu-239/240 | N | 0.0158 | 0.00965 | 0.0706 | — | pCi/L | Y | U | U | 2013-822 | CAMO-13-30562 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | UF | INIT | REG | RAD | HASL-300:ISOPU | Plutonium-239/240 | Pu-239/240 | N | -0.0029 | 0.00766 | 0.0462 | — | pCi/L | Y | U | U | 2013-297 | CAMO-13-24253 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | UF | INIT | FD | RAD | HASL-300:ISOPU | Plutonium-239/240 | Pu-239/240 | N | -0.0025 | 0.00662 | 0.0399 | — | pCi/L | Y | U | U | 2013-297 | CAMO-13-24228 | GELC |
| R-62 | 1158.4 | 08/08/12 | WG | UF | INIT | REG | RAD | HASL-300:ISOPU | Plutonium-239/240 | Pu-239/240 | N | 0.0117 | 0.00926 | 0.0353 | — | pCi/L | Y | U | U | 12-1482 | CAMO-12-21741 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | UF | INIT | REG | RAD | HASL-300:ISOPU | Plutonium-239/240 | Pu-239/240 | N | 0.00565 | 0.00799 | 0.0634 | — | pCi/L | Y | U | U | 12-1349 | CAMO-12-14018 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | UF | INIT | FD | RAD | HASL-300:ISOPU | Plutonium-239/240 | Pu-239/240 | N | 0.0167 | 0.00681 | 0.0624 | — | pCi/L | Y | U | U | 12-1349 | CAMO-12-13999 | GELC |
| R-62 | 1158.4 | 03/26/12 | WG | UF | INIT | REG | RAD | HASL-300:ISOPU | Plutonium-239/240 | Pu-239/240 | N | -0.00608 | 0.00731 | 0.0286 | — | pCi/L | Y | U | U | 12-1149 | CAMO-12-12025 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.47 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-822 | CAMO-13-30602 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.55 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-822 | CAMO-13-30564 | GELC |
| R-62 | 1158.4 | 02/05/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.45 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-511 | CAMO-13-28422 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.54 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-297 | CAMO-13-24270 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.49 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-297 | CAMO-13-24229 | GELC |
| R-62 | 1158.4 | 08/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.42 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1482 | CAMO-12-21749 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.47 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1349 | CAMO-12-14033 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.47 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1349 | CAMO-12-14000 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | UF | INIT | REG | RAD | EPA:901.1 | Potassium-40 | K-40 | N | -2.88 | 18.7 | 72.8 | — | pCi/L | Y | U | U | 2013-822 | CAMO-13-30586 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | UF | INIT | FD | RAD | EPA:901.1 | Potassium-40 | K-40 | N | 9.73 | 19.1 | 63.1 | — | pCi/L | Y | U | U | 2013-822 | CAMO-13-30562 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | UF | INIT | REG | RAD | EPA:901.1 | Potassium-40 | K-40 | N | -31.7 | 23.8 | 89.2 | — | pCi/L | Y | U | U | 2013-297 | CAMO-13-24253 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | UF | INIT | FD | RAD | EPA:901.1 | Potassium-40 | K-40 | N | -36 | 19.7 | 64.7 | — | pCi/L | Y | U | U | 2013-297 | CAMO-13-24228 | GELC |
| R-62 | 1158.4 | 08/08/12 | WG | UF | INIT | REG | RAD | EPA:901.1 | Potassium-40 | K-40 | N | 16.9 | 17 | 71.7 | — | pCi/L | Y | U | U | 12-1482 | CAMO-12-21741 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | UF | INIT | REG | RAD | EPA:901.1 | Potassium-40 | K-40 | N | 39 | 22.2 | 95.2 | — | pCi/L | Y | U | U | 12-1349 | CAMO-12-14018 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | UF | INIT | FD | RAD | EPA:901.1 | Potassium-40 | K-40 | N | -8.52 | 17.6 | 67.4 | — | pCi/L | Y | U | U | 12-1349 | CAMO-12-13999 | GELC |
| R-62 | 1158.4 | 03/26/12 | WG | UF | INIT | REG | RAD | EPA:901.1 | Potassium-40 | K-40 | N | 12.1 | 15.7 | 65.6 | — | pCi/L | Y | U | U | 12-1149 | CAMO-12-12025 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 57.9 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-822 | CAMO-13-30602 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 59.5 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-822 | CAMO-13-30564 | GELC |
| R-62 | 1158.4 | 02/05/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 59.8 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-511 | CAMO-13-28422 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 64.5 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-297 | CAMO-13-24270 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 63 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-297 | CAMO-13-24229 | GELC |
| R-62 | 1158.4 | 08/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 0.0609 | — | — | 0.053 | mg/L | Y | — | NQ | 12-1482 | CAMO-12-21749 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 61.4 | — | — | 0.053 | mg/L | Y | — | NQ | 12-1349 | CAMO-12-14033 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 60.7 | — | — | 0.053 | mg/L | Y | — | NQ | 12-1349 | CAMO-12-14000 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 12 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-822 | CAMO-13-30602 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Sodium | Na | Y | 12.2 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-822 | CAMO-13-30564 | GELC |
| R-62 | 1158.4 | 02/05/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 13.1 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-511 | CAMO-13-28422 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 13.9 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-297 | CAMO-13-24270 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Sodium | Na | Y | 13.6 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-297 | CAMO-13-24229 | GELC |
| R-62 | 1158.4 | 08/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 13.3 | — | — | 0.1 | mg/L | Y | — | NQ | 12-1482 | CAMO-12-21749 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 16.1 | — | — | 0.1 | mg/L | Y | — | NQ | 12-1349 | CAMO-12-14033 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Sodium | Na | Y | 15.8 | — | — | 0.1 | mg/L | Y | — | NQ | 12-1349 | CAMO-12-14000 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | UF | INIT | REG | RAD | EPA:901.1 | Sodium-22 | Na-22 | N | -1.33 | 1.54 | 5.41 | — | pCi/L | Y | U | U | 2013-822 | CAMO-13-30586 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | UF | INIT | FD | RAD | EPA:901.1 | Sodium-22 | Na-22 | N | 2.3 | 1.61 | 6.94 | — | pCi/L | Y | U | U | 2013-822 | CAMO-13-30562 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | UF | INIT | REG | RAD | EPA:901.1 | Sodium-22 | Na-22 | N | 1.35 | 2.08 | 8.82 | — | pCi/L | Y | U | U | 2013-297 | CAMO-13-24253 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | UF | INIT | FD | RAD | EPA:901.1 | Sodium-22 | Na-22 | N | -1.12 | 1.8 | 6.46 | — | pCi/L | Y | U | U | 2013-297 | CAMO-13-24228 | GELC |
| R-62 | 1158.4 | 08/08/12 | WG | UF | INIT | REG | RAD | EPA:901.1 | Sodium-22 | Na-22 | N | 1.09 | 1.3 | 5.73 | — | pCi/L | Y | U | U | 12-1482 | CAMO-12-21741 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | UF | INIT | REG | RAD | EPA:901.1 | Sodium-22 | Na-22 | N | 3.33 | 1.74 | 7.95 | — | pCi/L | Y | U | U | 12-1349 | CAMO-12-14018 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | UF | INIT | FD | RAD | EPA:901.1 | Sodium-22 | Na-22 | N | 0.706 | 1.16 | 4.62 | — | pCi/L | Y | U | U | 12-1349 | CAMO-12-13999 | GELC |
| R-62 | 1158.4 | 03/26/12 | WG | UF | INIT | REG | RAD | EPA:901.1 | Sodium-22 | Na-22 | N | -1.65 | 1.49 | 4.95 | — | pCi/L | Y | U | U | 12-1149 | CAMO-12-12025 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 186 | — | — | 1 | µS/cm | Y | — | NQ | 2013-822 | CAMO-13-30602 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 188 | — | — | 1 | µS/cm | Y | — | NQ | 2013-822 | CAMO-13-30564 | GELC |
| R-62 | 1158.4 | 02/05/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 187 | — | — | 1 | µS/cm | Y | — | NQ | 2013-511 | CAMO-13-28422 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 188 | — | — | 1 | µS/cm | Y | — | NQ | 2013-297 | CAMO-13-24270 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 189 | — | — | 1 | µS/cm | Y | — | NQ | 2013-297 | CAMO-13-24229 | GELC |
| R-62 | 1158.4 | 08/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 192 | — | — | 1 | µS/cm | Y | — | NQ | 12-1482 | CAMO-12-21749 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 18.4 | — | — | 1 | µS/cm | Y | — | NQ | 12-1349 | CAMO-12-14033 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 188 | — | — | 1 | µS/cm | Y | — | NQ | 12-1349 | CAMO-12-14000 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 98.5 | — | — | 1 | µg/L | Y | — | NQ | 2013-822 | CAMO-13-30602 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 102 | — | — | 1 | µg/L | Y | — | NQ | 2013-822 | CAMO-13-30564 | GELC |
| R-62 | 1158.4 | 02/05/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 93.9 | — | — | 1 | µg/L | Y | — | NQ | 2013-511 | CAMO-13-28422 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 98.9 | — | — | 1 | µg/L | Y | — | NQ | 2013-297 | CAMO-13-24270 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 96.3 | — | — | 1 | µg/L | Y | — | NQ | 2013-297 | CAMO-13-24229 | GELC |
| R-62 | 1158.4 | 08/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 77.5 | — | — | 1 | µg/L | Y | — | NQ | 12-1482 | CAMO-12-21749 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 80.3 | — | — | 1 | µg/L | Y | — | NQ | 12-1349 | CAMO-12-14033 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 79.1 | — | — | 1 | µg/L | Y | — | NQ | 12-1349 | CAMO-12-14000 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | UF | INIT | REG | RAD | EPA:905.0 | Strontium-90 | Sr-90 | N | 0.162 | 0.145 | 0.494 | — | pCi/L | Y | U | U | 2013-822 | CAMO-13-30586 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | UF | INIT | FD | RAD | EPA:905.0 | Strontium-90 | Sr-90 | N | 0.0627 | 0.141 | 0.497 | — | pCi/L | Y | U | U | 2013-822 | CAMO-13-30562 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | UF | INIT | REG | RAD | EPA:905.0 | Strontium-90 | Sr-90 | N | 0.0275 | 0.123 | 0.462 | — | pCi/L | Y | U | U | 2013-297 | CAMO-13-24253 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | UF | INIT | FD | RAD | EPA:905.0 | Strontium-90 | Sr-90 | N | 0.0518 | 0.138 | 0.486 | — | pCi/L | Y | U | U | 2013-297 | CAMO-13-24228 | GELC |
| R-62 | 1158.4 | 08/08/12 | WG | UF | INIT | REG | RAD | EPA:905.0 | Strontium-90 | Sr-90 | N | -0.232 | 0.131 | 0.482 | — | pCi/L | Y | U | U | 12-1482 | CAMO-12-21741 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | UF | INIT | REG | RAD | EPA:905.0 | Strontium-90 | Sr-90 | N | -0.386 | 0.13 | 0.478 | — | pCi/L | Y | U | U | 12-1349 | CAMO-12-14018 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | UF | INIT | FD | RAD | EPA:905.0 | Strontium-90 | Sr-90 | N | -0.019 | 0.132 | 0.487 | — | pCi/L | Y | U | U | 12-1349 | CAMO-12-13999 | GELC |
| R-62 | 1158.4 | 03/26/12 | WG | UF | INIT | REG | RAD | EPA:905.0 | Strontium-90 | Sr-90 | N | -0.103 | 0.108 | 0.414 | — | pCi/L | Y | U | U | 12-1149 | CAMO-12-12025 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 13.1 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-822 | CAMO-13-30602 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 13.1 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-822 | CAMO-13-30564 | GELC |
| R-62 | 1158.4 | 02/05/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 12.7 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-511 | CAMO-13-28422 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 13.2 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-297 | CAMO-13-24270 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 13.1 | — | — | 0.133 | mg/L | Y | — | NQ | 2013-297 | CAMO-13-24229 | GELC |
| R-62 | 1158.4 | 08/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 14.6 | — | — | 0.133 | mg/L | Y | — | NQ | 12-1482 | CAMO-12-21749 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 13.8 | — | — | 0.133 | mg/L | Y | — | NQ | 12-1349 | CAMO-12-14033 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 13.8 | — | — | 0.133 | mg/L | Y | — | NQ | 12-1349 | CAMO-12-14000 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 141 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-822 | CAMO-13-30602 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 154 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-822 | CAMO-13-30564 | GELC |
| R-62 | 1158.4 | 02/05/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 147 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-511 | CAMO-13-28422 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 126 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-297 | CAMO-13-24270 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 141 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-297 | CAMO-13-24229 | GELC |
| R-62 | 1158.4 | 08/08/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 141 | — | — | 3.4 | mg/L | Y | — | NQ | 12-1482 | CAMO-12-21749 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 140 | — | — | 3.4 | mg/L | Y | — | NQ | 12-1349 | CAMO-12-14033 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 151 | — | — | 3.4 | mg/L | Y | — | NQ | 12-1349 | CAMO-12-14000 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.51 | — | — | 0.33 | mg/L | Y | J | J | 2013-822 | CAMO-13-30586 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | UF | INIT | FD | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.703 | — | — | 0.33 | mg/L | Y | J | J | 2013-822 | CAMO-13-30562 | GELC |
| R-62 | 1158.4 | 02/05/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.486 | — | — | 0.33 | mg/L | Y | J | J | 2013-511 | CAMO-13-28414 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.641 | — | — | 0.33 | mg/L | Y | J | J | 2013-297 | CAMO-13-24253 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | UF | INIT | FD | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.573 | — | — | 0.33 | mg/L | Y | J | J | 2013-297 | CAMO-13-24228 | GELC |
| R-62 | 1158.4 | 08/08/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.589 | — | — | 0.33 | mg/L | Y | J | J | 12-1482 | CAMO-12-21741 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.928 | — | — | 0.33 | mg/L | Y | J | J | 12-1349 | CAMO-12-14018 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | UF | INIT | FD | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.889 | — | — | 0.33 | mg/L | Y | J | J | 12-1349 | CAMO-12-13999 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | UF | INIT | REG | RAD | Generic:Low_Level_Tritium | Tritium | H-3 | Y | 4.46 | 1.03 | 2.36 | — | pCi/L | Y | — | J- | 2013-818 | CAMO-13-30586 | ARSL |
| R-62 | 1158.4 | 05/08/13 | WG | UF | INIT | FD | RAD | Generic:Low_Level_Tritium | Tritium | H-3 | Y | 3.95 | 0.98 | 2.37 | — | pCi/L | Y | — | J- | 2013-818 | CAMO-13-30562 | ARSL |
| R-62 | 1158.4 | 11/08/12 | WG | UF | INIT | REG | RAD | Generic:Low_Level_Tritium | Tritium | H-3 | Y | 5.878 | 1.245 | 2.593 | — | pCi/L | Y | — | NQ | 2013-282 | CAMO-13-24253 | ARSL |
| R-62 | 1158.4 | 11/08/12 | WG | UF | INIT | FD | RAD | Generic:Low_Level_Tritium | Tritium | H-3 | N | 2.12 | 0.83 | 2.46 | — | pCi/L | Y | U | U | 2013-282 | CAMO-13-24228 | ARSL |
| R-62 | 1158.4 | 08/08/12 | WG | UF | INIT | REG | RAD | Generic:Low_Level_Tritium | Tritium | H-3 | N | 7.009 | 1.284 | 2.032 | — | pCi/L | Y | — | U | 12-1497 | CAMO-12-21741 | ARSL |
| R-62 | 1158.4 | 06/06/12 | WG | UF | INIT | REG | RAD | Generic:Low_Level_Tritium | Tritium | H-3 | Y | 4.822 | 0.993 | 1.993 | — | pCi/L | Y | — | NQ | 12-1361 | CAMO-12-14018 | ARSL |
| R-62 | 1158.4 | 06/06/12 | WG | UF | INIT | FD | RAD | Generic:Low_Level_Tritium | Tritium | H-3 | Y | 4.663 | 0.978 | 2.015 | — | pCi/L | Y | — | NQ | 12-1361 | CAMO-12-13999 | ARSL |
| R-62 | 1158.4 | 03/26/12 | WG | UF | INIT | REG | RAD | Generic:Low_Level_Tritium | Tritium | H-3 | Y | 6.638 | 1.215 | 1.943 | — | pCi/L | Y | — | NQ | 12-1152 | CAMO-12-12025 | ARSL |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.84 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-822 | CAMO-13-30602 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.858 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-822 | CAMO-13-30564 | GELC |
| R-62 | 1158.4 | 02/05/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.802 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-511 | CAMO-13-28422 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.991 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-297 | CAMO-13-24270 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.995 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-297 | CAMO-13-24229 | GELC |
| R-62 | 1158.4 | 08/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.957 | — | — | 0.067 | µg/L | Y | — | NQ | 12-1482 | CAMO-12-21749 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.991 | — | — | 0.067 | µg/L | Y | — | NQ | 12-1349 | CAMO-12-14033 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Uranium | U | Y | 0.945 | — | — | 0.067 | µg/L | Y | — | NQ | 12-1349 | CAMO-12-14000 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | UF | INIT | REG | RAD | HASL-300:ISOU | Uranium-234 | U-234 | Y | 0.563 | 0.0497 | 0.0949 | — | pCi/L | Y | — | NQ | 2013-822 | CAMO-13-30586 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | UF | INIT | FD | RAD | HASL-300:ISOU | Uranium-234 | U-234 | Y | 0.701 | 0.0471 | 0.0696 | — | pCi/L | Y | — | NQ | 2013-822 | CAMO-13-30562 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | UF | INIT | REG | RAD | HASL-300:ISOU | Uranium-234 | U-234 | Y | 0.707 | 0.0483 | 0.0713 | — | pCi/L | Y | — | NQ | 2013-297 | CAMO-13-24253 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | UF | INIT | FD | RAD | HASL-300:ISOU | Uranium-234 | U-234 | Y | 0.783 | 0.0494 | 0.0666 | — | pCi/L | Y | — | NQ | 2013-297 | CAMO-13-24228 | GELC |
| R-62 | 1158.4 | 08/08/12 | WG | UF | INIT | REG | RAD | HASL-300:ISOU | Uranium-234 | U-234 | Y | 0.605 | 0.0359 | 0.0538 | — | pCi/L | Y | — | J | 12-1482 | CAMO-12-21741 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | UF | INIT | REG | RAD | HASL-300:ISOU | Uranium-234 | U-234 | Y | 0.661 | 0.0612 | 0.131 | — | pCi/L | Y | — | J | 12-1349 | CAMO-12-14018 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | UF | INIT | FD | RAD | HASL-300:ISOU | Uranium-234 | U-234 | Y | 0.586 | 0.0472 | 0.093 | — | pCi/L | Y | — | NQ | 12-1349 | CAMO-12-13999 | GELC |
| R-62 | 1158.4 | 03/26/12 | WG | UF | INIT | REG | RAD | HASL-300:ISOU | Uranium-234 | U-234 | Y | 0.8 | 0.0437 | 0.0561 | — | pCi/L | Y | — | J | 12-1149 | CAMO-12-12025 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | UF | INIT | REG | RAD | HASL-300:ISOU | Uranium-235/236 | U-235/236 | N | 0.0512 | 0.0177 | 0.0441 | — | pCi/L | Y | — | U | 2013-822 | CAMO-13-30586 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | UF | INIT | FD | RAD | HASL-300:ISOU | Uranium-235/236 | U-235/236 | N | 0.0225 | 0.0106 | 0.0323 | — | pCi/L | Y | U | U | 2013-822 | CAMO-13-30562 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | UF | INIT | REG | RAD | HASL-300:ISOU | Uranium-235/236 | U-235/236 | N | 0.0304 | 0.0132 | 0.0445 | — | pCi/L | Y | U | U | 2013-297 | CAMO-13-24253 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | UF | INIT | FD | RAD | HASL-300:ISOU | Uranium-235/236 | U-235/236 | N | 0.0319 | 0.0128 | 0.0416 | — | pCi/L | Y | U | U | 2013-297 | CAMO-13-24228 | GELC |
| R-62 | 1158.4 | 08/08/12 | WG | UF | INIT | REG | RAD | HASL-300:ISOU | Uranium-235/236 | U-235/236 | N | 0.00995 | 0.00609 | 0.0347 | — | pCi/L | Y | U | U | 12-1482 | CAMO-12-21741 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | UF | INIT | REG | RAD | HASL-300:ISOU | Uranium-235/236 | U-235/236 | N | 0.00661 | 0.0106 | 0.0743 | — | pCi/L | Y | U | U | 12-1349 | CAMO-12-14018 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | UF | INIT | FD | RAD | HASL-300:ISOU | Uranium-235/236 | U-235/236 | N | 0.0359 | 0.0136 | 0.0522 | — | pCi/L | Y | U | U | 12-1349 | CAMO-12-13999 | GELC |
| R-62 | 1158.4 | 03/26/12 | WG | UF | INIT | REG | RAD | HASL-300:ISOU | Uranium-235/236 | U-235/236 | N | 0.0199 | 0.00944 | 0.0324 | — | pCi/L | Y | U | U | 12-1149 | CAMO-12-12025 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-62 | 1158.4 | 05/08/13 | WG | UF | INIT | REG | RAD | HASL-300:ISOU | Uranium-238 | U-238 | Y | 0.286 | 0.0358 | 0.0573 | — | pCi/L | Y | — | J | 2013-822 | CAMO-13-30586 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | UF | INIT | FD | RAD | HASL-300:ISOU | Uranium-238 | U-238 | Y | 0.392 | 0.0347 | 0.042 | — | pCi/L | Y | — | NQ | 2013-822 | CAMO-13-30562 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | UF | INIT | REG | RAD | HASL-300:ISOU | Uranium-238 | U-238 | Y | 0.261 | 0.0299 | 0.0484 | — | pCi/L | Y | — | NQ | 2013-297 | CAMO-13-24253 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | UF | INIT | FD | RAD | HASL-300:ISOU | Uranium-238 | U-238 | Y | 0.33 | 0.0313 | 0.0452 | — | pCi/L | Y | — | NQ | 2013-297 | CAMO-13-24228 | GELC |
| R-62 | 1158.4 | 08/08/12 | WG | UF | INIT | REG | RAD | HASL-300:ISOU | Uranium-238 | U-238 | Y | 0.268 | 0.0236 | 0.0273 | — | pCi/L | Y | — | J | 12-1482 | CAMO-12-21741 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | UF | INIT | REG | RAD | HASL-300:ISOU | Uranium-238 | U-238 | Y | 0.313 | 0.0427 | 0.0687 | — | pCi/L | Y | — | J | 12-1349 | CAMO-12-14018 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | UF | INIT | FD | RAD | HASL-300:ISOU | Uranium-238 | U-238 | Y | 0.301 | 0.0327 | 0.0485 | — | pCi/L | Y | — | NQ | 12-1349 | CAMO-12-13999 | GELC |
| R-62 | 1158.4 | 03/26/12 | WG | UF | INIT | REG | RAD | HASL-300:ISOU | Uranium-238 | U-238 | Y | 0.341 | 0.029 | 0.036 | — | pCi/L | Y | — | J | 12-1149 | CAMO-12-12025 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 2.47 | — | — | 1 | µg/L | Y | J | J | 2013-822 | CAMO-13-30602 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Vanadium | V | Y | 2.52 | — | — | 1 | µg/L | Y | J | J | 2013-822 | CAMO-13-30564 | GELC |
| R-62 | 1158.4 | 02/05/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 2.79 | — | — | 1 | µg/L | Y | J | J | 2013-511 | CAMO-13-28422 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 3.27 | — | — | 1 | µg/L | Y | J | J | 2013-297 | CAMO-13-24270 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Vanadium | V | Y | 3.17 | — | — | 1 | µg/L | Y | J | J | 2013-297 | CAMO-13-24229 | GELC |
| R-62 | 1158.4 | 08/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 2.95 | — | — | 1 | µg/L | Y | J | J | 12-1482 | CAMO-12-21749 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 3.67 | — | — | 1 | µg/L | Y | J | J | 12-1349 | CAMO-12-14033 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Vanadium | V | Y | 3.49 | — | — | 1 | µg/L | Y | J | J | 12-1349 | CAMO-12-14000 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 5.09 | — | — | 3.3 | µg/L | Y | J | J | 2013-822 | CAMO-13-30602 | GELC |
| R-62 | 1158.4 | 05/08/13 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 6.86 | — | — | 3.3 | µg/L | Y | J | J | 2013-822 | CAMO-13-30564 | GELC |
| R-62 | 1158.4 | 02/05/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 7.34 | — | — | 3.3 | µg/L | Y | J | J | 2013-511 | CAMO-13-28422 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 5.83 | — | — | 3.3 | µg/L | Y | J | J | 2013-297 | CAMO-13-24270 | GELC |
| R-62 | 1158.4 | 11/08/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 5.04 | — | — | 3.3 | µg/L | Y | J | J | 2013-297 | CAMO-13-24229 | GELC |
| R-62 | 1158.4 | 08/08/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 16.8 | — | — | 3.3 | µg/L | Y | — | NQ | 12-1482 | CAMO-12-21749 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 14.9 | — | — | 3.3 | µg/L | Y | — | NQ | 12-1349 | CAMO-12-14033 | GELC |
| R-62 | 1158.4 | 06/06/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 14.1 | — | — | 3.3 | µg/L | Y | — | NQ | 12-1349 | CAMO-12-14000 | GELC |
| SCI-1 | 358.4 | 05/17/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.38 | — | — | 0.01 | SU | Y | H | NQ | 2013-868 | CASA-13-30556 | GELC |
| SCI-1 | 358.4 | 11/02/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.84 | — | — | 0.01 | SU | Y | H | NQ | 2013-264 | CASA-13-24223 | GELC |
| SCI-1 | 358.4 | 05/21/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.56 | — | — | 0.01 | SU | Y | H | NQ | 12-1311 | CASA-12-14065 | GELC |
| SCI-1 | 358.4 | 11/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.29 | — | — | 0.01 | SU | Y | H | NQ | 12-352 | CASA-12-1374 | GELC |
| SCI-1 | 358.4 | 08/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.46 | — | — | 0.01 | SU | Y | H | J- | 11-3243 | CASA-11-24763 | GELC |
| SCI-1 | 358.4 | 05/17/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 105 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-868 | CASA-13-30556 | GELC |
| SCI-1 | 358.4 | 11/02/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 105 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-264 | CASA-13-24223 | GELC |
| SCI-1 | 358.4 | 05/21/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 111 | — | — | 0.725 | mg/L | Y | — | NQ | 12-1311 | CASA-12-14065 | GELC |
| SCI-1 | 358.4 | 11/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 112 | — | — | 0.73 | mg/L | Y | — | NQ | 12-352 | CASA-12-1374 | GELC |
| SCI-1 | 358.4 | 08/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 105 | — | — | 0.73 | mg/L | Y | — | NQ | 11-3243 | CASA-11-24763 | GELC |
| SCI-1 | 358.4 | 05/17/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | NH3-N | Y | 0.127 | — | — | 0.017 | mg/L | Y | — | NQ | 2013-868 | CASA-13-30556 | GELC |
| SCI-1 | 358.4 | 11/02/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | NH3-N | Y | 0.0197 | — | — | 0.017 | mg/L | Y | J | J | 2013-264 | CASA-13-24223 | GELC |
| SCI-1 | 358.4 | 05/21/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | NH3-N | Y | 0.135 | — | — | 0.017 | mg/L | Y | — | NQ | 12-1311 | CASA-12-14065 | GELC |
| SCI-1 | 358.4 | 11/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | NH3-N | N | 0.05 | — | — | 0.016 | mg/L | Y | U | U | 12-352 | CASA-12-1374 | GELC |
| SCI-1 | 358.4 | 08/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | NH3-N | N | 0.05 | — | — | 0.016 | mg/L | Y | U | U | 11-3243 | CASA-11-24763 | GELC |
| SCI-1 | 358.4 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Arsenic | As | Y | 2.31 | — | — | 1.7 | µg/L | Y | J | J | 2013-868 | CASA-13-30556 | GELC |
| SCI-1 | 358.4 | 11/02/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Arsenic | As | N | 5 | — | — | 1.7 | µg/L | Y | U | U | 2013-264 | CASA-13-24223 | GELC |
| SCI-1 | 358.4 | 05/21/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Arsenic | As | Y | 1.83 | — | — | 1.7 | µg/L | Y | J | J | 12-1311 | CASA-12-14065 | GELC |
| SCI-1 | 358.4 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Arsenic | As | Y | 16.5 | — | — | 8.5 | µg/L | N | J | R | 12-352 | CASA-12-1374 | GELC |
| SCI-1 | 358.4 | 11/16/11 | WG | F | RE | REG | INORGANIC | SW-846:6020 | Arsenic | As | N | 5 | — | — | 1.7 | µg/L | Y | U | U | 12-352 | CASA-12-1374 | GELC |
| SCI-1 | 358.4 | 08/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Arsenic | As | N | 5 | — | — | 1.7 | µg/L | Y | U | U | 11-3243 | CASA-11-24763 | GELC |
| SCI-1 | 358.4 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 41 | — | — | 1 | µg/L | Y | — | NQ | 2013-868 | CASA-13-30556 | GELC |
| SCI-1 | 358.4 | 11/02/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 33.7 | — | — | 1 | µg/L | Y | — | NQ | 2013-264 | CASA-13-24223 | GELC |
| SCI-1 | 358.4 | 05/21/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 38.9 | — | — | 1 | µg/L | Y | — | NQ | 12-1311 | CASA-12-14065 | GELC |
| SCI-1 | 358.4 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 34.7 | — | — | 1 | µg/L | Y | — | NQ | 12-352 | CASA-12-1374 | GELC |
| SCI-1 | 358.4 | 08/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 51.3 | — | — | 1 | µg/L | Y | — | NQ | 11-3243 | CASA-11-24763 | GELC |
| SCI-1 | 358.4 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 80.6 | — | — | 15 | µg/L | Y | — | NQ | 2013-868 | CASA-13-30556 | GELC |
| SCI-1 | 358.4 | 11/02/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 85.8 | — | — | 15 | µg/L | Y | — | NQ | 2013-264 | CASA-13-24223 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SCI-1 | 358.4 | 05/21/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 84.9 | — | — | 15 | µg/L | Y | — | NQ | 12-1311 | CASA-12-14065 | GELC |
| SCI-1 | 358.4 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 85.8 | — | — | 15 | µg/L | Y | — | NQ | 12-352 | CASA-12-1374 | GELC |
| SCI-1 | 358.4 | 08/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 99.4 | — | — | 15 | µg/L | Y | — | NQ | 11-3243 | CASA-11-24763 | GELC |
| SCI-1 | 358.4 | 05/17/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.818 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-868 | CASA-13-30556 | GELC |
| SCI-1 | 358.4 | 11/02/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.781 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-264 | CASA-13-24223 | GELC |
| SCI-1 | 358.4 | 05/21/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.793 | — | — | 0.067 | mg/L | Y | — | NQ | 12-1311 | CASA-12-14065 | GELC |
| SCI-1 | 358.4 | 11/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.838 | — | — | 0.066 | mg/L | Y | — | NQ | 12-352 | CASA-12-1374 | GELC |
| SCI-1 | 358.4 | 08/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.882 | — | — | 0.066 | mg/L | Y | — | NQ | 11-3243 | CASA-11-24763 | GELC |
| SCI-1 | 358.4 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 66.9 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-868 | CASA-13-30556 | GELC |
| SCI-1 | 358.4 | 11/02/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 64.2 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-264 | CASA-13-24223 | GELC |
| SCI-1 | 358.4 | 05/21/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 67.6 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1311 | CASA-12-14065 | GELC |
| SCI-1 | 358.4 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 70.4 | — | — | 0.05 | mg/L | Y | — | NQ | 12-352 | CASA-12-1374 | GELC |
| SCI-1 | 358.4 | 08/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 77.4 | — | — | 0.05 | mg/L | Y | — | NQ | 11-3243 | CASA-11-24763 | GELC |
| SCI-1 | 358.4 | 05/17/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 124 | — | — | 1.34 | mg/L | Y | — | NQ | 2013-868 | CASA-13-30556 | GELC |
| SCI-1 | 358.4 | 11/02/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 97.2 | — | — | 0.67 | mg/L | Y | — | NQ | 2013-264 | CASA-13-24223 | GELC |
| SCI-1 | 358.4 | 05/21/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 94.7 | — | — | 0.67 | mg/L | Y | — | NQ | 12-1311 | CASA-12-14065 | GELC |
| SCI-1 | 358.4 | 11/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 97.6 | — | — | 0.66 | mg/L | Y | — | NQ | 12-352 | CASA-12-1374 | GELC |
| SCI-1 | 358.4 | 08/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 92 | — | — | 0.66 | mg/L | Y | — | J+ | 11-3243 | CASA-11-24763 | GELC |
| SCI-1 | 358.4 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 10.5 | — | — | 2 | µg/L | Y | — | NQ | 2013-868 | CASA-13-30556 | GELC |
| SCI-1 | 358.4 | 11/02/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 10.1 | — | — | 2 | µg/L | Y | — | NQ | 2013-264 | CASA-13-24223 | GELC |
| SCI-1 | 358.4 | 05/21/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 9.9 | — | — | 2 | µg/L | Y | J | J | 12-1311 | CASA-12-14065 | GELC |
| SCI-1 | 358.4 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 48.7 | — | — | 10 | µg/L | N | J | R | 12-352 | CASA-12-1374 | GELC |
| SCI-1 | 358.4 | 11/16/11 | WG | F | RE | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 8.96 | — | — | 2 | µg/L | Y | J | J | 12-352 | CASA-12-1374 | GELC |
| SCI-1 | 358.4 | 08/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 10.5 | — | — | 2 | µg/L | Y | — | NQ | 11-3243 | CASA-11-24763 | GELC |
| SCI-1 | 358.4 | 05/17/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.174 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-868 | CASA-13-30556 | GELC |
| SCI-1 | 358.4 | 11/02/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.202 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-264 | CASA-13-24223 | GELC |
| SCI-1 | 358.4 | 05/21/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.197 | — | — | 0.033 | mg/L | Y | — | NQ | 12-1311 | CASA-12-14065 | GELC |
| SCI-1 | 358.4 | 11/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.192 | — | — | 0.033 | mg/L | Y | — | NQ | 12-352 | CASA-12-1374 | GELC |
| SCI-1 | 358.4 | 08/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.16 | — | — | 0.033 | mg/L | Y | — | NQ | 11-3243 | CASA-11-24763 | GELC |
| SCI-1 | 358.4 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 209 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-868 | CASA-13-30556 | GELC |
| SCI-1 | 358.4 | 11/02/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 201 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-264 | CASA-13-24223 | GELC |
| SCI-1 | 358.4 | 05/21/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 212 | — | — | 0.453 | mg/L | Y | — | NQ | 12-1311 | CASA-12-14065 | GELC |
| SCI-1 | 358.4 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 219 | — | — | 0.45 | mg/L | Y | — | NQ | 12-352 | CASA-12-1374 | GELC |
| SCI-1 | 358.4 | 08/16/11 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 241 | — | — | 0.45 | mg/L | Y | — | NQ | 11-3243 | CASA-11-24763 | GELC |
| SCI-1 | 358.4 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 10.3 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-868 | CASA-13-30556 | GELC |
| SCI-1 | 358.4 | 11/02/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 9.86 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-264 | CASA-13-24223 | GELC |
| SCI-1 | 358.4 | 05/21/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 10.4 | — | — | 0.11 | mg/L | Y | — | NQ | 12-1311 | CASA-12-14065 | GELC |
| SCI-1 | 358.4 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 10.5 | — | — | 0.11 | mg/L | Y | — | NQ | 12-352 | CASA-12-1374 | GELC |
| SCI-1 | 358.4 | 08/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 11.5 | — | — | 0.11 | mg/L | Y | — | NQ | 11-3243 | CASA-11-24763 | GELC |
| SCI-1 | 358.4 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 78.2 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-868 | CASA-13-30556 | GELC |
| SCI-1 | 358.4 | 11/02/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 86.9 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-264 | CASA-13-24223 | GELC |
| SCI-1 | 358.4 | 05/21/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 74.1 | — | — | 0.165 | µg/L | Y | — | NQ | 12-1311 | CASA-12-14065 | GELC |
| SCI-1 | 358.4 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 77 | — | — | 0.17 | µg/L | N | — | R | 12-352 | CASA-12-1374 | GELC |
| SCI-1 | 358.4 | 11/16/11 | WG | F | RE | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 77.3 | — | — | 0.17 | µg/L | Y | — | NQ | 12-352 | CASA-12-1374 | GELC |
| SCI-1 | 358.4 | 08/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 68.9 | — | — | 0.17 | µg/L | Y | — | NQ | 11-3243 | CASA-11-24763 | GELC |
| SCI-1 | 358.4 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 6.33 | — | — | 0.5 | µg/L | Y | — | NQ | 2013-868 | CASA-13-30556 | GELC |
| SCI-1 | 358.4 | 11/02/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 4.02 | — | — | 0.5 | µg/L | Y | — | NQ | 2013-264 | CASA-13-24223 | GELC |
| SCI-1 | 358.4 | 05/21/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 4.26 | — | — | 0.5 | µg/L | Y | — | NQ | 12-1311 | CASA-12-14065 | GELC |
| SCI-1 | 358.4 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 50.8 | — | — | 2.5 | µg/L | N | — | R | 12-352 | CASA-12-1374 | GELC |
| SCI-1 | 358.4 | 11/16/11 | WG | F | RE | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 5.13 | — | — | 0.5 | µg/L | Y | — | NQ | 12-352 | CASA-12-1374 | GELC |
| SCI-1 | 358.4 | 08/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 4.5 | — | — | 0.5 | µg/L | Y | — | NQ | 11-3243 | CASA-11-24763 | GELC |
| SCI-1 | 358.4 | 05/17/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 2.09 | — | — | 0.085 | mg/L | Y | — | NQ | 2013-868 | CASA-13-30556 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SCI-1 | 358.4 | 11/02/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 2.89 | — | — | 0.085 | mg/L | Y | — | NQ | 2013-264 | CASA-13-24223 | GELC |
| SCI-1 | 358.4 | 05/21/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 2.28 | — | — | 0.085 | mg/L | Y | — | NQ | 12-1311 | CASA-12-14065 | GELC |
| SCI-1 | 358.4 | 11/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 2.43 | — | — | 0.05 | mg/L | Y | — | NQ | 12-352 | CASA-12-1374 | GELC |
| SCI-1 | 358.4 | 08/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 2.38 | — | — | 0.1 | mg/L | Y | — | NQ | 11-3243 | CASA-11-24763 | GELC |
| SCI-1 | 358.4 | 05/17/13 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.682 | — | — | 0.05 | µg/L | Y | — | NQ | 2013-868 | CASA-13-30556 | GELC |
| SCI-1 | 358.4 | 11/02/12 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.774 | — | — | 0.05 | µg/L | Y | — | NQ | 2013-264 | CASA-13-24223 | GELC |
| SCI-1 | 358.4 | 05/21/12 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.972 | — | — | 0.05 | µg/L | Y | — | NQ | 12-1311 | CASA-12-14065 | GELC |
| SCI-1 | 358.4 | 11/16/11 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.89 | — | — | 0.05 | µg/L | Y | — | NQ | 12-352 | CASA-12-1374 | GELC |
| SCI-1 | 358.4 | 08/16/11 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.895 | — | — | 0.1 | µg/L | Y | — | NQ | 11-3243 | CASA-11-24763 | GELC |
| SCI-1 | 358.4 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.79 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-868 | CASA-13-30556 | GELC |
| SCI-1 | 358.4 | 11/02/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.4 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-264 | CASA-13-24223 | GELC |
| SCI-1 | 358.4 | 05/21/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.72 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1311 | CASA-12-14065 | GELC |
| SCI-1 | 358.4 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 1.93 | — | — | 0.05 | mg/L | Y | — | NQ | 12-352 | CASA-12-1374 | GELC |
| SCI-1 | 358.4 | 08/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 2.07 | — | — | 0.05 | mg/L | Y | — | NQ | 11-3243 | CASA-11-24763 | GELC |
| SCI-1 | 358.4 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Selenium | Se | Y | 2.75 | — | — | 1.5 | µg/L | Y | J | J | 2013-868 | CASA-13-30556 | GELC |
| SCI-1 | 358.4 | 11/02/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Selenium | Se | N | 5 | — | — | 1.5 | µg/L | Y | U | U | 2013-264 | CASA-13-24223 | GELC |
| SCI-1 | 358.4 | 05/21/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Selenium | Se | N | 5 | — | — | 1.5 | µg/L | Y | U | U | 12-1311 | CASA-12-14065 | GELC |
| SCI-1 | 358.4 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Selenium | Se | N | 5 | — | — | 1.5 | µg/L | N | U | R | 12-352 | CASA-12-1374 | GELC |
| SCI-1 | 358.4 | 11/16/11 | WG | F | RE | REG | INORGANIC | SW-846:6020 | Selenium | Se | N | 5 | — | — | 1.5 | µg/L | Y | U | U | 12-352 | CASA-12-1374 | GELC |
| SCI-1 | 358.4 | 08/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Selenium | Se | N | 5 | — | — | 1.5 | µg/L | Y | U | U | 11-3243 | CASA-11-24763 | GELC |
| SCI-1 | 358.4 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 67.5 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-868 | CASA-13-30556 | GELC |
| SCI-1 | 358.4 | 11/02/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 64.9 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-264 | CASA-13-24223 | GELC |
| SCI-1 | 358.4 | 05/21/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 63.5 | — | — | 0.053 | mg/L | Y | — | NQ | 12-1311 | CASA-12-14065 | GELC |
| SCI-1 | 358.4 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 64.3 | — | — | 0.053 | mg/L | Y | — | NQ | 12-352 | CASA-12-1374 | GELC |
| SCI-1 | 358.4 | 08/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 69.3 | — | — | 0.053 | mg/L | Y | — | NQ | 11-3243 | CASA-11-24763 | GELC |
| SCI-1 | 358.4 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 58.1 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-868 | CASA-13-30556 | GELC |
| SCI-1 | 358.4 | 11/02/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 57.8 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-264 | CASA-13-24223 | GELC |
| SCI-1 | 358.4 | 05/21/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 55.3 | — | — | 0.1 | mg/L | Y | — | NQ | 12-1311 | CASA-12-14065 | GELC |
| SCI-1 | 358.4 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 57.5 | — | — | 0.1 | mg/L | Y | — | NQ | 12-352 | CASA-12-1374 | GELC |
| SCI-1 | 358.4 | 08/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 55.5 | — | — | 0.1 | mg/L | Y | — | NQ | 11-3243 | CASA-11-24763 | GELC |
| SCI-1 | 358.4 | 05/17/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 724 | — | — | 1 | µS/cm | Y | — | NQ | 2013-868 | CASA-13-30556 | GELC |
| SCI-1 | 358.4 | 11/02/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 696 | — | — | 1 | µS/cm | Y | — | NQ | 2013-264 | CASA-13-24223 | GELC |
| SCI-1 | 358.4 | 05/21/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 714 | — | — | 1 | µS/cm | Y | — | NQ | 12-1311 | CASA-12-14065 | GELC |
| SCI-1 | 358.4 | 11/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 719 | — | — | 1 | µS/cm | Y | — | NQ | 12-352 | CASA-12-1374 | GELC |
| SCI-1 | 358.4 | 08/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 651 | — | — | 1 | µS/cm | Y | — | NQ | 11-3243 | CASA-11-24763 | GELC |
| SCI-1 | 358.4 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 309 | — | — | 1 | µg/L | Y | — | NQ | 2013-868 | CASA-13-30556 | GELC |
| SCI-1 | 358.4 | 11/02/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 280 | — | — | 1 | µg/L | Y | — | NQ | 2013-264 | CASA-13-24223 | GELC |
| SCI-1 | 358.4 | 05/21/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 301 | — | — | 1 | µg/L | Y | — | NQ | 12-1311 | CASA-12-14065 | GELC |
| SCI-1 | 358.4 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 314 | — | — | 1 | µg/L | Y | — | NQ | 12-352 | CASA-12-1374 | GELC |
| SCI-1 | 358.4 | 08/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 338 | — | — | 1 | µg/L | Y | — | NQ | 11-3243 | CASA-11-24763 | GELC |
| SCI-1 | 358.4 | 05/17/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 66.7 | — | — | 2.66 | mg/L | Y | — | NQ | 2013-868 | CASA-13-30556 | GELC |
| SCI-1 | 358.4 | 11/02/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 67.3 | — | — | 1.33 | mg/L | Y | — | NQ | 2013-264 | CASA-13-24223 | GELC |
| SCI-1 | 358.4 | 05/21/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 75.5 | — | — | 1.33 | mg/L | Y | — | NQ | 12-1311 | CASA-12-14065 | GELC |
| SCI-1 | 358.4 | 11/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 78.4 | — | — | 1 | mg/L | Y | — | NQ | 12-352 | CASA-12-1374 | GELC |
| SCI-1 | 358.4 | 08/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 79.6 | — | — | 1 | mg/L | Y | — | NQ | 11-3243 | CASA-11-24763 | GELC |
| SCI-1 | 358.4 | 05/17/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 357 | — | — | 3.4 | mg/L | Y | — | J | 2013-868 | CASA-13-30556 | GELC |
| SCI-1 | 358.4 | 11/02/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 456 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-264 | CASA-13-24223 | GELC |
| SCI-1 | 358.4 | 05/21/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 471 | — | — | 3.4 | mg/L | Y | — | NQ | 12-1311 | CASA-12-14065 | GELC |
| SCI-1 | 358.4 | 11/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 491 | — | — | 3.4 | mg/L | Y | — | NQ | 12-352 | CASA-12-1374 | GELC |
| SCI-1 | 358.4 | 08/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 454 | — | — | 3.4 | mg/L | Y | — | NQ | 11-3243 | CASA-11-24763 | GELC |
| SCI-1 | 358.4 | 05/17/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | EPA:351.2 | Total Kjeldahl Nitrogen | TKN | Y | 0.123 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-868 | CASA-13-30548 | GELC |
| SCI-1 | 358.4 | 11/02/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | EPA:351.2 | Total Kjeldahl Nitrogen | TKN | Y | 0.341 | — | — | 0.035 | mg/L | Y | — | NQ | 2013-264 | CASA-13-24215 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SCI-1 | 358.4 | 05/21/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | EPA:351.2 | Total Kjeldahl Nitrogen | TKN | Y | 0.166 | — | — | 0.035 | mg/L | Y | — | NQ | 12-1311 | CASA-12-14060 | GELC |
| SCI-1 | 358.4 | 11/16/11 | WG | UF | INIT | REG | GENERAL CHEMISTRY | EPA:351.2 | Total Kjeldahl Nitrogen | TKN | Y | 0.115 | — | — | 0.035 | mg/L | Y | — | J+ | 12-352 | CASA-12-1373 | GELC |
| SCI-1 | 358.4 | 08/16/11 | WG | UF | INIT | REG | GENERAL CHEMISTRY | EPA:351.2 | Total Kjeldahl Nitrogen | TKN | N | 0.179 | — | — | 0.035 | mg/L | Y | — | U | 11-3243 | CASA-11-24764 | GELC |
| SCI-1 | 358.4 | 05/17/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 1.54 | — | — | 0.33 | mg/L | Y | — | NQ | 2013-868 | CASA-13-30548 | GELC |
| SCI-1 | 358.4 | 11/02/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | N | 1.2 | — | — | 0.33 | mg/L | Y | — | U | 2013-264 | CASA-13-24215 | GELC |
| SCI-1 | 358.4 | 05/21/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 1.36 | — | — | 0.33 | mg/L | Y | — | NQ | 12-1311 | CASA-12-14060 | GELC |
| SCI-1 | 358.4 | 11/16/11 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 1.57 | — | — | 0.33 | mg/L | Y | — | NQ | 12-352 | CASA-12-1373 | GELC |
| SCI-1 | 358.4 | 08/16/11 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.841 | — | — | 0.33 | mg/L | Y | J | J | 11-3243 | CASA-11-24764 | GELC |
| SCI-1 | 358.4 | 05/17/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 0.775 | — | — | 0.017 | mg/L | Y | — | NQ | 2013-868 | CASA-13-30556 | GELC |
| SCI-1 | 358.4 | 11/02/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 1.01 | — | — | 0.017 | mg/L | Y | — | NQ | 2013-264 | CASA-13-24223 | GELC |
| SCI-1 | 358.4 | 05/21/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 0.956 | — | — | 0.017 | mg/L | Y | — | NQ | 12-1311 | CASA-12-14065 | GELC |
| SCI-1 | 358.4 | 11/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 0.842 | — | — | 0.015 | mg/L | Y | — | NQ | 12-352 | CASA-12-1374 | GELC |
| SCI-1 | 358.4 | 08/16/11 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 0.693 | — | — | 0.015 | mg/L | Y | — | J | 11-3243 | CASA-11-24763 | GELC |
| SCI-1 | 358.4 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 2.03 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-868 | CASA-13-30556 | GELC |
| SCI-1 | 358.4 | 11/02/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 2.32 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-264 | CASA-13-24223 | GELC |
| SCI-1 | 358.4 | 05/21/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 2.49 | — | — | 0.067 | µg/L | Y | — | NQ | 12-1311 | CASA-12-14065 | GELC |
| SCI-1 | 358.4 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 2.84 | — | — | 0.067 | µg/L | N | — | R | 12-352 | CASA-12-1374 | GELC |
| SCI-1 | 358.4 | 11/16/11 | WG | F | RE | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 3.09 | — | — | 0.067 | µg/L | Y | — | NQ | 12-352 | CASA-12-1374 | GELC |
| SCI-1 | 358.4 | 08/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 1.95 | — | — | 0.067 | µg/L | Y | — | NQ | 11-3243 | CASA-11-24763 | GELC |
| SCI-1 | 358.4 | 05/17/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 1.32 | — | — | 1 | µg/L | Y | J | J | 2013-868 | CASA-13-30556 | GELC |
| SCI-1 | 358.4 | 11/02/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 2.17 | — | — | 1 | µg/L | Y | J | J | 2013-264 | CASA-13-24223 | GELC |
| SCI-1 | 358.4 | 05/21/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 1.07 | — | — | 1 | µg/L | Y | J | J | 12-1311 | CASA-12-14065 | GELC |
| SCI-1 | 358.4 | 11/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 1.08 | — | — | 1 | µg/L | Y | J | J | 12-352 | CASA-12-1374 | GELC |
| SCI-1 | 358.4 | 08/16/11 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Vanadium | V | Y | 1.13 | — | — | 1 | µg/L | Y | J | J | 11-3243 | CASA-11-24763 | GELC |
| SCI-2 | 548 | 05/21/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.64 | — | — | 0.01 | SU | Y | H | NQ | 2013-874 | CASA-13-30557 | GELC |
| SCI-2 | 548 | 01/31/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.73 | — | — | 0.01 | SU | Y | H | NQ | 2013-497 | CASA-13-28364 | GELC |
| SCI-2 | 548 | 11/05/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.65 | — | — | 0.01 | SU | Y | H | NQ | 2013-270 | CASA-13-24224 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.86 | — | — | 0.01 | SU | Y | H | NQ | 12-1495 | CASA-12-21650 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.78 | — | — | 0.01 | SU | Y | H | NQ | 12-1495 | CASA-12-22310 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.58 | — | — | 0.01 | SU | Y | H | NQ | 12-1318 | CASA-12-14066 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:150.1 | Acidity or Alkalinity of a solution | pH | Y | 7.65 | — | — | 0.01 | SU | Y | H | NQ | 12-1318 | CASA-12-14067 | GELC |
| SCI-2 | 548 | 05/21/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 84.2 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-874 | CASA-13-30557 | GELC |
| SCI-2 | 548 | 01/31/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 87.3 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-497 | CASA-13-28364 | GELC |
| SCI-2 | 548 | 11/05/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 93.3 | — | — | 0.725 | mg/L | Y | — | NQ | 2013-270 | CASA-13-24224 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 83.6 | — | — | 0.725 | mg/L | Y | — | NQ | 12-1495 | CASA-12-21650 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 84.1 | — | — | 0.725 | mg/L | Y | — | NQ | 12-1495 | CASA-12-22310 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 81.8 | — | — | 0.725 | mg/L | Y | — | NQ | 12-1318 | CASA-12-14066 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:310.1 | Alkalinity-CO3+HCO3 | ALK-CO3+HCO3 | Y | 82.3 | — | — | 0.725 | mg/L | Y | — | NQ | 12-1318 | CASA-12-14067 | GELC |
| SCI-2 | 548 | 05/21/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 67.1 | — | — | 1 | µg/L | Y | — | NQ | 2013-874 | CASA-13-30557 | GELC |
| SCI-2 | 548 | 01/31/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 64.5 | — | — | 1 | µg/L | Y | — | NQ | 2013-497 | CASA-13-28364 | GELC |
| SCI-2 | 548 | 11/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 69.8 | — | — | 1 | µg/L | Y | — | NQ | 2013-270 | CASA-13-24224 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 68.5 | — | — | 1 | µg/L | Y | — | NQ | 12-1495 | CASA-12-21650 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Barium | Ba | Y | 69.2 | — | — | 1 | µg/L | Y | — | NQ | 12-1495 | CASA-12-22310 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Barium | Ba | Y | 66.4 | — | — | 1 | µg/L | Y | — | NQ | 12-1318 | CASA-12-14066 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Barium | Ba | Y | 71.7 | — | — | 1 | µg/L | Y | — | NQ | 12-1318 | CASA-12-14067 | GELC |
| SCI-2 | 548 | 05/21/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 19.8 | — | — | 15 | µg/L | Y | J | J | 2013-874 | CASA-13-30557 | GELC |
| SCI-2 | 548 | 01/31/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 19.8 | — | — | 15 | µg/L | Y | J | J | 2013-497 | CASA-13-28364 | GELC |
| SCI-2 | 548 | 11/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 19.6 | — | — | 15 | µg/L | Y | J | J | 2013-270 | CASA-13-24224 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 22.7 | — | — | 15 | µg/L | Y | J | J | 12-1495 | CASA-12-21650 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Boron | B | Y | 23.3 | — | — | 15 | µg/L | Y | J | J | 12-1495 | CASA-12-22310 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Boron | B | Y | 21.8 | — | — | 15 | µg/L | Y | J | J | 12-1318 | CASA-12-14066 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Boron | B | Y | 20.5 | — | — | 15 | µg/L | Y | J | J | 12-1318 | CASA-12-14067 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SCI-2 | 548 | 05/21/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.683 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-874 | CASA-13-30557 | GELC |
| SCI-2 | 548 | 01/31/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.612 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-497 | CASA-13-28364 | GELC |
| SCI-2 | 548 | 11/05/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.639 | — | — | 0.067 | mg/L | Y | — | NQ | 2013-270 | CASA-13-24224 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.59 | — | — | 0.067 | mg/L | Y | — | NQ | 12-1495 | CASA-12-21650 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.581 | — | — | 0.067 | mg/L | Y | — | NQ | 12-1495 | CASA-12-22310 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.55 | — | — | 0.067 | mg/L | Y | — | NQ | 12-1318 | CASA-12-14066 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:300.0 | Bromide | Br(-1) | Y | 0.577 | — | — | 0.067 | mg/L | Y | — | NQ | 12-1318 | CASA-12-14067 | GELC |
| SCI-2 | 548 | 05/21/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 70.7 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-874 | CASA-13-30557 | GELC |
| SCI-2 | 548 | 01/31/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 66.4 | — | — | 0.05 | mg/L | Y | — | J- | 2013-497 | CASA-13-28364 | GELC |
| SCI-2 | 548 | 11/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 70.9 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-270 | CASA-13-24224 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 69.4 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1495 | CASA-12-21650 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 70.3 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1495 | CASA-12-22310 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 70.3 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1318 | CASA-12-14066 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Calcium | Ca | Y | 68.9 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1318 | CASA-12-14067 | GELC |
| SCI-2 | 548 | 05/21/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 68.2 | — | — | 1.34 | mg/L | Y | — | NQ | 2013-874 | CASA-13-30557 | GELC |
| SCI-2 | 548 | 01/31/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 66.6 | — | — | 0.335 | mg/L | Y | — | NQ | 2013-497 | CASA-13-28364 | GELC |
| SCI-2 | 548 | 11/05/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 63.7 | — | — | 0.67 | mg/L | Y | — | NQ | 2013-270 | CASA-13-24224 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 59.8 | — | — | 0.67 | mg/L | Y | — | NQ | 12-1495 | CASA-12-21650 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 61.5 | — | — | 0.67 | mg/L | Y | — | NQ | 12-1495 | CASA-12-22310 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 60.5 | — | — | 0.67 | mg/L | Y | — | NQ | 12-1318 | CASA-12-14066 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:300.0 | Chloride | Cl(-1) | Y | 60.9 | — | — | 0.67 | mg/L | Y | — | NQ | 12-1318 | CASA-12-14067 | GELC |
| SCI-2 | 548 | 05/21/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 427 | — | — | 2 | µg/L | Y | — | NQ | 2013-874 | CASA-13-30557 | GELC |
| SCI-2 | 548 | 01/31/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 435 | — | — | 10 | µg/L | Y | — | NQ | 2013-497 | CASA-13-28364 | GELC |
| SCI-2 | 548 | 11/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 436 | — | — | 2 | µg/L | Y | — | NQ | 2013-270 | CASA-13-24224 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 491 | — | — | 2 | µg/L | Y | — | NQ | 12-1495 | CASA-12-21650 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 453 | — | — | 2 | µg/L | Y | — | NQ | 12-1495 | CASA-12-22310 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 440 | — | — | 2 | µg/L | Y | — | NQ | 12-1318 | CASA-12-14066 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Chromium | Cr | Y | 433 | — | — | 2 | µg/L | Y | — | NQ | 12-1318 | CASA-12-14067 | GELC |
| SCI-2 | 548 | 05/21/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.206 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-874 | CASA-13-30557 | GELC |
| SCI-2 | 548 | 01/31/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.162 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-497 | CASA-13-28364 | GELC |
| SCI-2 | 548 | 11/05/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.225 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-270 | CASA-13-24224 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.186 | — | — | 0.033 | mg/L | Y | — | NQ | 12-1495 | CASA-12-21650 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.185 | — | — | 0.033 | mg/L | Y | — | NQ | 12-1495 | CASA-12-22310 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.201 | — | — | 0.033 | mg/L | Y | — | NQ | 12-1318 | CASA-12-14066 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:300.0 | Fluoride | F(-1) | Y | 0.195 | — | — | 0.033 | mg/L | Y | — | NQ | 12-1318 | CASA-12-14067 | GELC |
| SCI-2 | 548 | 05/21/13 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 245 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-874 | CASA-13-30557 | GELC |
| SCI-2 | 548 | 01/31/13 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 230 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-497 | CASA-13-28364 | GELC |
| SCI-2 | 548 | 11/05/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 246 | — | — | 0.453 | mg/L | Y | — | NQ | 2013-270 | CASA-13-24224 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 240 | — | — | 0.453 | mg/L | Y | — | NQ | 12-1495 | CASA-12-21650 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | FD | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 243 | — | — | 0.453 | mg/L | Y | — | NQ | 12-1495 | CASA-12-22310 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | REG | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 242 | — | — | 0.453 | mg/L | Y | — | NQ | 12-1318 | CASA-12-14066 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | FD | INORGANIC | SM:A2340B | Hardness | HARDNESS | Y | 237 | — | — | 0.453 | mg/L | Y | — | NQ | 12-1318 | CASA-12-14067 | GELC |
| SCI-2 | 548 | 05/21/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 16.7 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-874 | CASA-13-30557 | GELC |
| SCI-2 | 548 | 01/31/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 15.7 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-497 | CASA-13-28364 | GELC |
| SCI-2 | 548 | 11/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 16.7 | — | — | 0.11 | mg/L | Y | — | NQ | 2013-270 | CASA-13-24224 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 16.2 | — | — | 0.11 | mg/L | Y | — | NQ | 12-1495 | CASA-12-21650 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 16.4 | — | — | 0.11 | mg/L | Y | — | NQ | 12-1495 | CASA-12-22310 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 16.1 | — | — | 0.11 | mg/L | Y | — | NQ | 12-1318 | CASA-12-14066 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Magnesium | Mg | Y | 15.9 | — | — | 0.11 | mg/L | Y | — | NQ | 12-1318 | CASA-12-14067 | GELC |
| SCI-2 | 548 | 05/21/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 0.615 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-874 | CASA-13-30557 | GELC |
| SCI-2 | 548 | 01/31/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | N | 0.777 | — | — | 0.165 | µg/L | Y | — | U | 2013-497 | CASA-13-28364 | GELC |
| SCI-2 | 548 | 11/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 0.655 | — | — | 0.165 | µg/L | Y | — | NQ | 2013-270 | CASA-13-24224 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 0.727 | — | — | 0.165 | µg/L | Y | — | NQ | 12-1495 | CASA-12-21650 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 0.676 | — | — | 0.165 | µg/L | Y | — | NQ | 12-1495 | CASA-12-22310 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 0.586 | — | — | 0.165 | µg/L | Y | — | NQ | 12-1318 | CASA-12-14066 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Molybdenum | Mo | Y | 0.559 | — | — | 0.165 | µg/L | Y | — | NQ | 12-1318 | CASA-12-14067 | GELC |
| SCI-2 | 548 | 05/21/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 18.6 | — | — | 0.5 | µg/L | Y | — | NQ | 2013-874 | CASA-13-30557 | GELC |
| SCI-2 | 548 | 01/31/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 17.9 | — | — | 0.5 | µg/L | Y | — | NQ | 2013-497 | CASA-13-28364 | GELC |
| SCI-2 | 548 | 11/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 18.2 | — | — | 0.5 | µg/L | Y | — | NQ | 2013-270 | CASA-13-24224 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 17.6 | — | — | 0.5 | µg/L | Y | — | NQ | 12-1495 | CASA-12-21650 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 15.9 | — | — | 0.5 | µg/L | Y | — | NQ | 12-1495 | CASA-12-22310 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 19 | — | — | 0.5 | µg/L | Y | — | NQ | 12-1318 | CASA-12-14066 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Nickel | Ni | Y | 17.4 | — | — | 0.5 | µg/L | Y | — | NQ | 12-1318 | CASA-12-14067 | GELC |
| SCI-2 | 548 | 05/21/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 3.67 | — | — | 0.085 | mg/L | Y | — | NQ | 2013-874 | CASA-13-30557 | GELC |
| SCI-2 | 548 | 01/31/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 3.99 | — | — | 0.17 | mg/L | Y | — | NQ | 2013-497 | CASA-13-28364 | GELC |
| SCI-2 | 548 | 11/05/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 4.28 | — | — | 0.425 | mg/L | Y | — | NQ | 2013-270 | CASA-13-24224 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 4.89 | — | — | 0.17 | mg/L | Y | — | NQ | 12-1495 | CASA-12-21650 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 4.78 | — | — | 0.17 | mg/L | Y | — | NQ | 12-1495 | CASA-12-22310 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 4.47 | — | — | 0.17 | mg/L | Y | — | NQ | 12-1318 | CASA-12-14066 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:353.2 | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | Y | 4.47 | — | — | 0.17 | mg/L | Y | — | NQ | 12-1318 | CASA-12-14067 | GELC |
| SCI-2 | 548 | 05/21/13 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.938 | — | — | 0.05 | µg/L | Y | — | NQ | 2013-874 | CASA-13-30557 | GELC |
| SCI-2 | 548 | 01/31/13 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.985 | — | — | 0.05 | µg/L | Y | — | NQ | 2013-497 | CASA-13-28364 | GELC |
| SCI-2 | 548 | 11/05/12 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.942 | — | — | 0.05 | µg/L | Y | — | NQ | 2013-270 | CASA-13-24224 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 1.03 | — | — | 0.1 | µg/L | Y | — | NQ | 12-1495 | CASA-12-21650 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | FD | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 1.02 | — | — | 0.1 | µg/L | Y | — | NQ | 12-1495 | CASA-12-22310 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | REG | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.944 | — | — | 0.05 | µg/L | Y | — | NQ | 12-1318 | CASA-12-14066 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | FD | LCMS/MS PERCHLORATE | SW-846:6850 | Perchlorate | ClO4 | Y | 0.943 | — | — | 0.05 | µg/L | Y | — | NQ | 12-1318 | CASA-12-14067 | GELC |
| SCI-2 | 548 | 05/21/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 3.67 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-874 | CASA-13-30557 | GELC |
| SCI-2 | 548 | 01/31/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 3.5 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-497 | CASA-13-28364 | GELC |
| SCI-2 | 548 | 11/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 3.78 | — | — | 0.05 | mg/L | Y | — | NQ | 2013-270 | CASA-13-24224 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 3.73 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1495 | CASA-12-21650 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Potassium | K | Y | 3.73 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1495 | CASA-12-22310 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Potassium | K | Y | 3.64 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1318 | CASA-12-14066 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Potassium | K | Y | 3.59 | — | — | 0.05 | mg/L | Y | — | NQ | 12-1318 | CASA-12-14067 | GELC |
| SCI-2 | 548 | 05/21/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Selenium | Se | Y | 2.1 | — | — | 1.5 | µg/L | Y | J | J | 2013-874 | CASA-13-30557 | GELC |
| SCI-2 | 548 | 01/31/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Selenium | Se | N | 5 | — | — | 1.5 | µg/L | Y | U | U | 2013-497 | CASA-13-28364 | GELC |
| SCI-2 | 548 | 11/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Selenium | Se | N | 5 | — | — | 1.5 | µg/L | Y | U | U | 2013-270 | CASA-13-24224 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Selenium | Se | N | 5 | — | — | 1.5 | µg/L | Y | U | U | 12-1495 | CASA-12-21650 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Selenium | Se | N | 5 | — | — | 1.5 | µg/L | Y | U | U | 12-1495 | CASA-12-22310 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Selenium | Se | N | 5 | — | — | 1.5 | µg/L | Y | U | U | 12-1318 | CASA-12-14066 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Selenium | Se | N | 5 | — | — | 1.5 | µg/L | Y | U | U | 12-1318 | CASA-12-14067 | GELC |
| SCI-2 | 548 | 05/21/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 64.2 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-874 | CASA-13-30557 | GELC |
| SCI-2 | 548 | 01/31/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 63.8 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-497 | CASA-13-28364 | GELC |
| SCI-2 | 548 | 11/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 68.9 | — | — | 0.053 | mg/L | Y | — | NQ | 2013-270 | CASA-13-24224 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 66.7 | — | — | 0.053 | mg/L | Y | — | NQ | 12-1495 | CASA-12-21650 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 67.5 | — | — | 0.053 | mg/L | Y | — | NQ | 12-1495 | CASA-12-22310 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 64.4 | — | — | 0.053 | mg/L | Y | — | NQ | 12-1318 | CASA-12-14066 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Silicon Dioxide | SiO2 | Y | 63.2 | — | — | 0.053 | mg/L | Y | — | NQ | 12-1318 | CASA-12-14067 | GELC |
| SCI-2 | 548 | 05/21/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 23.2 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-874 | CASA-13-30557 | GELC |
| SCI-2 | 548 | 01/31/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 21.8 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-497 | CASA-13-28364 | GELC |
| SCI-2 | 548 | 11/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 24.2 | — | — | 0.1 | mg/L | Y | — | NQ | 2013-270 | CASA-13-24224 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 22.5 | — | — | 0.1 | mg/L | Y | — | NQ | 12-1495 | CASA-12-21650 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Sodium | Na | Y | 22.5 | — | — | 0.1 | mg/L | Y | — | NQ | 12-1495 | CASA-12-22310 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Sodium | Na | Y | 22.7 | — | — | 0.1 | mg/L | Y | — | NQ | 12-1318 | CASA-12-14066 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Sodium | Na | Y | 22.4 | — | — | 0.1 | mg/L | Y | — | NQ | 12-1318 | CASA-12-14067 | GELC |
| SCI-2 | 548 | 05/21/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 624 | — | — | 1 | µS/cm | Y | — | NQ | 2013-874 | CASA-13-30557 | GELC |
| SCI-2 | 548 | 01/31/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 607 | — | — | 1 | µS/cm | Y | — | NQ | 2013-497 | CASA-13-28364 | GELC |
| SCI-2 | 548 | 11/05/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 618 | — | — | 1 | µS/cm | Y | — | NQ | 2013-270 | CASA-13-24224 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 600 | — | — | 1 | µS/cm | Y | — | NQ | 12-1495 | CASA-12-21650 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 596 | — | — | 1 | µS/cm | Y | — | NQ | 12-1495 | CASA-12-22310 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 600 | — | — | 1 | µS/cm | Y | — | NQ | 12-1318 | CASA-12-14066 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:120.1 | Specific Conductance | SPEC_CONDC | Y | 601 | — | — | 1 | µS/cm | Y | — | NQ | 12-1318 | CASA-12-14067 | GELC |
| SCI-2 | 548 | 05/21/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 338 | — | — | 1 | µg/L | Y | — | NQ | 2013-874 | CASA-13-30557 | GELC |
| SCI-2 | 548 | 01/31/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 330 | — | — | 1 | µg/L | Y | — | NQ | 2013-497 | CASA-13-28364 | GELC |
| SCI-2 | 548 | 11/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 344 | — | — | 1 | µg/L | Y | — | NQ | 2013-270 | CASA-13-24224 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 336 | — | — | 1 | µg/L | Y | — | NQ | 12-1495 | CASA-12-21650 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 338 | — | — | 1 | µg/L | Y | — | NQ | 12-1495 | CASA-12-22310 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 334 | — | — | 1 | µg/L | Y | — | NQ | 12-1318 | CASA-12-14066 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Strontium | Sr | Y | 329 | — | — | 1 | µg/L | Y | — | NQ | 12-1318 | CASA-12-14067 | GELC |
| SCI-2 | 548 | 05/21/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 103 | — | — | 2.66 | mg/L | Y | — | NQ | 2013-874 | CASA-13-30557 | GELC |
| SCI-2 | 548 | 01/31/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 91 | — | — | 0.665 | mg/L | Y | — | NQ | 2013-497 | CASA-13-28364 | GELC |
| SCI-2 | 548 | 11/05/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 91.7 | — | — | 1.33 | mg/L | Y | — | NQ | 2013-270 | CASA-13-24224 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 85.4 | — | — | 1.33 | mg/L | Y | — | NQ | 12-1495 | CASA-12-21650 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 88 | — | — | 1.33 | mg/L | Y | — | NQ | 12-1495 | CASA-12-22310 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 84.9 | — | — | 1.33 | mg/L | Y | — | NQ | 12-1318 | CASA-12-14066 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:300.0 | Sulfate | SO4(-2) | Y | 86.2 | — | — | 1.33 | mg/L | Y | — | NQ | 12-1318 | CASA-12-14067 | GELC |
| SCI-2 | 548 | 05/21/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 421 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-874 | CASA-13-30557 | GELC |
| SCI-2 | 548 | 01/31/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 419 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-497 | CASA-13-28364 | GELC |
| SCI-2 | 548 | 11/05/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 429 | — | — | 3.4 | mg/L | Y | — | NQ | 2013-270 | CASA-13-24224 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 396 | — | — | 3.4 | mg/L | Y | — | NQ | 12-1495 | CASA-12-21650 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 400 | — | — | 3.4 | mg/L | Y | — | NQ | 12-1495 | CASA-12-22310 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 411 | — | — | 3.4 | mg/L | Y | — | NQ | 12-1318 | CASA-12-14066 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | TDS | Y | 433 | — | — | 3.4 | mg/L | Y | — | NQ | 12-1318 | CASA-12-14067 | GELC |
| SCI-2 | 548 | 05/21/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | EPA:351.2 | Total Kjeldahl Nitrogen | TKN | Y | 0.101 | — | — | 0.033 | mg/L | Y | — | NQ | 2013-874 | CASA-13-30549 | GELC |
| SCI-2 | 548 | 01/31/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | EPA:351.2 | Total Kjeldahl Nitrogen | TKN | Y | 0.149 | — | — | 0.033 | mg/L | Y | — | J+ | 2013-497 | CASA-13-28360 | GELC |
| SCI-2 | 548 | 11/05/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | EPA:351.2 | Total Kjeldahl Nitrogen | TKN | Y | 0.088 | — | — | 0.035 | mg/L | Y | J | J | 2013-270 | CASA-13-24216 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | EPA:351.2 | Total Kjeldahl Nitrogen | TKN | N | 0.1 | — | — | 0.035 | mg/L | Y | U | U | 12-1495 | CASA-12-21646 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | UF | INIT | FD | GENERAL CHEMISTRY | EPA:351.2 | Total Kjeldahl Nitrogen | TKN | Y | 0.0591 | — | — | 0.035 | mg/L | Y | J | J | 12-1495 | CASA-12-22309 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | EPA:351.2 | Total Kjeldahl Nitrogen | TKN | Y | 0.111 | — | — | 0.035 | mg/L | Y | — | NQ | 12-1318 | CASA-12-14061 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | UF | INIT | FD | GENERAL CHEMISTRY | EPA:351.2 | Total Kjeldahl Nitrogen | TKN | Y | 0.126 | — | — | 0.035 | mg/L | Y | — | NQ | 12-1318 | CASA-12-14068 | GELC |
| SCI-2 | 548 | 05/21/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 1.37 | — | — | 0.33 | mg/L | Y | — | NQ | 2013-874 | CASA-13-30549 | GELC |
| SCI-2 | 548 | 01/31/13 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 1.15 | — | — | 0.33 | mg/L | Y | — | NQ | 2013-497 | CASA-13-28360 | GELC |
| SCI-2 | 548 | 11/05/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | N | 1.05 | — | — | 0.33 | mg/L | Y | — | U | 2013-270 | CASA-13-24216 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 1.37 | — | — | 0.33 | mg/L | Y | — | NQ | 12-1495 | CASA-12-21646 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | UF | INIT | FD | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 1.38 | — | — | 0.33 | mg/L | Y | — | NQ | 12-1495 | CASA-12-22309 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | UF | INIT | REG | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.975 | — | — | 0.33 | mg/L | Y | J | J | 12-1318 | CASA-12-14061 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | UF | INIT | FD | GENERAL CHEMISTRY | SW-846:9060 | Total Organic Carbon | TOC | Y | 0.956 | — | — | 0.33 | mg/L | Y | J | J | 12-1318 | CASA-12-14068 | GELC |
| SCI-2 | 548 | 05/21/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 0.0348 | — | — | 0.017 | mg/L | Y | J | J | 2013-874 | CASA-13-30557 | GELC |
| SCI-2 | 548 | 01/31/13 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 0.0452 | — | — | 0.017 | mg/L | Y | J | J | 2013-497 | CASA-13-28364 | GELC |
| SCI-2 | 548 | 11/05/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 0.0773 | — | — | 0.017 | mg/L | Y | — | NQ | 2013-270 | CASA-13-24224 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 0.0429 | — | — | 0.017 | mg/L | Y | J | J | 12-1495 | CASA-12-21650 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 0.0593 | — | — | 0.017 | mg/L | Y | — | NQ | 12-1495 | CASA-12-22310 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | REG | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 0.0441 | — | — | 0.017 | mg/L | Y | J | J | 12-1318 | CASA-12-14066 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | FD | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | PO4-P | Y | 0.0374 | — | — | 0.017 | mg/L | Y | J | J | 12-1318 | CASA-12-14067 | GELC |
| SCI-2 | 548 | 05/21/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 2.05 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-874 | CASA-13-30557 | GELC |
| SCI-2 | 548 | 01/31/13 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 2.11 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-497 | CASA-13-28364 | GELC |

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

| Location | Depth (ft) | Date | Field Matrix | Field Prep | Lab Sample Type | Field QC Type | Suite | Method | Analyte | Analyte Code | Detect Flag | Result | 1-sigma TPU | MDA | MDL | Unit | Best Value Flag | Lab Qual | 2nd Qual | Request | Sample | Lab |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SCI-2 | 548 | 11/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 2.06 | — | — | 0.067 | µg/L | Y | — | NQ | 2013-270 | CASA-13-24224 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 1.83 | — | — | 0.067 | µg/L | Y | — | NQ | 12-1495 | CASA-12-21650 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Uranium | U | Y | 1.63 | — | — | 0.067 | µg/L | Y | — | NQ | 12-1495 | CASA-12-22310 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | REG | INORGANIC | SW-846:6020 | Uranium | U | Y | 1.96 | — | — | 0.067 | µg/L | Y | — | NQ | 12-1318 | CASA-12-14066 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | FD | INORGANIC | SW-846:6020 | Uranium | U | Y | 1.86 | — | — | 0.067 | µg/L | Y | — | NQ | 12-1318 | CASA-12-14067 | GELC |
| SCI-2 | 548 | 05/21/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | Y | 4.22 | — | — | 3.3 | µg/L | Y | J | J | 2013-874 | CASA-13-30557 | GELC |
| SCI-2 | 548 | 01/31/13 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | N | 10 | — | — | 3.3 | µg/L | Y | U | U | 2013-497 | CASA-13-28364 | GELC |
| SCI-2 | 548 | 11/05/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | N | 10 | — | — | 3.3 | µg/L | Y | U | U | 2013-270 | CASA-13-24224 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | N | 10 | — | — | 3.3 | µg/L | Y | U | U | 12-1495 | CASA-12-21650 | GELC |
| SCI-2 | 548 | 08/13/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Zinc | Zn | N | 10 | — | — | 3.3 | µg/L | Y | U | U | 12-1495 | CASA-12-22310 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | REG | INORGANIC | SW-846:6010B | Zinc | Zn | N | 10 | — | — | 3.3 | µg/L | Y | U | U | 12-1318 | CASA-12-14066 | GELC |
| SCI-2 | 548 | 05/23/12 | WG | F | INIT | FD | INORGANIC | SW-846:6010B | Zinc | Zn | N | 10 | — | — | 3.3 | µg/L | Y | U | U | 12-1318 | CASA-12-14067 | GELC |

# Appendix D

*Groundwater Results Greater Than Half of Screening Levels*

| Zone | Location | Screen Top Depth (ft) | Sample Date | Analysis Suite | Parameter Name | Parameter Code | Field Prep Code | Analysis Type Code | Field Quality Control Code | Detect Flag | Report Result | Method Detection Limit | Unit | Dilution Factor | Lab Qualifier | Validation Qualifier | Validation Reason | Best Value Flag | Analytical Method | Lab ID | Screening Level | Reporting Level Code | Result/Screening Level |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Intermediate | MCOI-6 | 686 | 05/08/13 | General Inorganic | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | F[a] | INIT[b] | REG[c] | Y[d] | 8.19 | 0.17 | mg/L | 10 | —[e] | NQ[f] | NQ | Y | EPA:353.2 | GELC[g] | 10 | EPA MCL[h] | 0.82 |
| Regional | R-11 | 855 | 05/13/13 | General Inorganic | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | F | INIT | REG | Y | 5.15 | 0.085 | mg/L | 5 | — | NQ | NQ | Y | EPA:353.2 | GELC | 10 | EPA MCL | 0.52 |
| Regional | R-11 | 855 | 05/13/13 | General Inorganic | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | F | INIT | FD[i] | Y | 5.05 | 0.085 | mg/L | 5 | — | NQ | NQ | Y | EPA:353.2 | GELC | 10 | EPA MCL | 0.51 |
| Regional | R-42 | 931.8 | 05/06/13 | General Inorganic | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | F | INIT | REG | Y | 5.65 | 0.17 | mg/L | 10 | — | NQ | NQ | Y | EPA:353.2 | GELC | 10 | EPA MCL | 0.57 |
| Regional | R-43 S1 | 903.9 | 05/15/13 | General Inorganic | Nitrate-Nitrite as Nitrogen | NO3+NO2-N | F | INIT | REG | Y | 5.38 | 0.17 | mg/L | 10 | — | NQ | NQ | Y | EPA:353.2 | GELC | 10 | EPA MCL | 0.54 |
| Intermediate | MCOI-6 | 686 | 05/08/13 | Metals | Chromium | Cr | F | INIT | REG | Y | 73.2 | 2 | µg/L | 1 | — | NQ | NQ | Y | SW-846:6020 | GELC | 50 | NMWQCC Groundwater Standard[j] | 1.46 |
| Intermediate | SCI-2 | 548 | 05/21/13 | Metals | Chromium | Cr | F | INIT | REG | Y | 427 | 2 | µg/L | 1 | — | NQ | NQ | Y | SW-846:6020 | GELC | 50 | NMWQCC Groundwater Standard | 8.54 |
| Regional | R-11 | 855 | 05/13/13 | Metals | Chromium | Cr | F | INIT | REG | Y | 31.9 | 2 | µg/L | 1 | — | NQ | NQ | Y | SW-846:6020 | GELC | 50 | NMWQCC Groundwater Standard | 0.64 |
| Regional | R-11 | 855 | 05/13/13 | Metals | Chromium | Cr | F | INIT | FD | Y | 31.5 | 2 | µg/L | 1 | — | NQ | NQ | Y | SW-846:6020 | GELC | 50 | NMWQCC Groundwater Standard | 0.63 |
| Regional | R-28 | 934.3 | 05/06/13 | Metals | Chromium | Cr | F | INIT | REG | Y | 404 | 2 | µg/L | 1 | — | NQ | NQ | Y | SW-846:6020 | GELC | 50 | NMWQCC Groundwater Standard | 8.08 |
| Regional | R-42 | 931.8 | 05/06/13 | Metals | Chromium | Cr | F | INIT | REG | Y | 932 | 2 | µg/L | 1 | — | NQ | NQ | Y | SW-846:6020 | GELC | 50 | NMWQCC Groundwater Standard | 18.64 |
| Regional | R-43 S1 | 903.9 | 05/15/13 | Metals | Chromium | Cr | F | INIT | REG | Y | 50.5 | 2 | µg/L | 1 | — | NQ | NQ | Y | SW-846:6020 | GELC | 50 | NMWQCC Groundwater Standard | 1.01 |
| Regional | R-50 S1 | 1077 | 05/10/13 | Metals | Chromium | Cr | F | INIT | REG | Y | 103 | 2 | µg/L | 1 | — | NQ | NQ | Y | SW-846:6020 | GELC | 50 | NMWQCC Groundwater Standard | 2.06 |
| Regional | R-62 | 1158.4 | 05/08/13 | Metals | Chromium | Cr | F | INIT | REG | Y | 131 | 2 | µg/L | 1 | — | NQ | NQ | Y | SW-846:6020 | GELC | 50 | NMWQCC Groundwater Standard | 2.62 |
| Regional | R-62 | 1158.4 | 05/08/13 | Metals | Chromium | Cr | F | INIT | FD | Y | 139 | 2 | µg/L | 1 | — | NQ | NQ | Y | SW-846:6020 | GELC | 50 | NMWQCC Groundwater Standard | 2.78 |
| Intermediate | MCOI-5 | 689.04 | 05/07/13 | General Inorganic | Perchlorate | ClO4 | F | INIT | REG | Y | 79.1 | 5 | µg/L | 100 | — | NQ | NQ | Y | SW-846:6850 | GELC | 4 | Consent Order | 19.78 |
| Intermediate | MCOI-5 | 689.04 | 05/07/13 | General Inorganic | Perchlorate | ClO4 | F | INIT | FD | Y | 81.7 | 5 | µg/L | 100 | — | NQ | NQ | Y | SW-846:6850 | GELC | 4 | Consent Order | 20.43 |
| Intermediate | MCOI-6 | 686 | 05/08/13 | General Inorganic | Perchlorate | ClO4 | F | INIT | REG | Y | 63.3 | 5 | µg/L | 100 | — | NQ | NQ | Y | SW-846:6850 | GELC | 4 | Consent Order | 15.83 |
| Regional | R-15 | 958.6 | 05/06/13 | General Inorganic | Perchlorate | ClO4 | F | INIT | REG | Y | 8.42 | 0.5 | µg/L | 10 | — | NQ | NQ | Y | SW-846:6850 | GELC | 4 | Consent Order | 2.11 |

| Zone | Location | Screen Top Depth (ft) | Sample Date | Analysis Suite | Parameter Name | Parameter Code | Field Prep Code | Analysis Type Code | Field Quality Control Code | Detect Flag | Report Result | Method Detection Limit | Unit | Dilution Factor | Lab Qualifier | Validation Qualifier | Validation Reason | Best Value Flag | Analytical Method | Lab ID | Screening Level | Reporting Level Code | Result/Screening Level |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Regional | R-61 S1 | 1125 | 05/17/13 | General Inorganic | Perchlorate | ClO4 | F | INIT | REG | Y | 5.82 | 0.5 | µg/L | 10 | — | NQ | NQ | Y | SW-846:6850 | GELC | 4 | Consent Order | 1.46 |
| Intermediate | MCOI-5 | 689.04 | 05/07/13 | SVOC[k] | Dioxane[1,4-] | 123-91-1 | UF[l] | INIT | FD | Y | 5.61 | 3.23 | µg/L | 1 | J[m] | J[n] | J_LAB[o] | Y | SW-846:8270C | GELC | 6.7 | EPA TAP Screening Level[p] | 0.84 |
| Intermediate | MCOI-5 | 689.04 | 05/07/13 | SVOC | Dioxane[1,4-] | 123-91-1 | UF | INIT | REG | Y | 5.08 | 3.16 | µg/L | 1 | J | J | J_LAB | Y | SW-846:8270C | GELC | 6.7 | EPA TAP Screening Level | 0.76 |
| Intermediate | MCOI-6 | 686 | 05/08/13 | SVOC | Dioxane[1,4-] | 123-91-1 | UF | INIT | REG | Y | 7.57 | 3.16 | µg/L | 1 | J | J | J_LAB | Y | SW-846:8270C | GELC | 6.7 | EPA TAP Screening Level | 1.13 |

[a] F = Filtered.

[b] INIT = Initial.

[c] REG = Regular.

[d] Y = Yes.

[e] — = None.

[f] NQ = Not qualified.

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

[h] EPA MCL = U.S. Environmental Protection Agency maximum contaminant level.

[i] FD = Field duplicate.

[j] NMWQCC GW STD = New Mexico Water Quality Control Commission groundwater standard.

[k] SVOC = Semivolatile organic compound.

[l] UF = Unfiltered.

[m] In this column, J = The analyte is classified as detected, but the reported concentration value is expected to be more uncertain than usual.

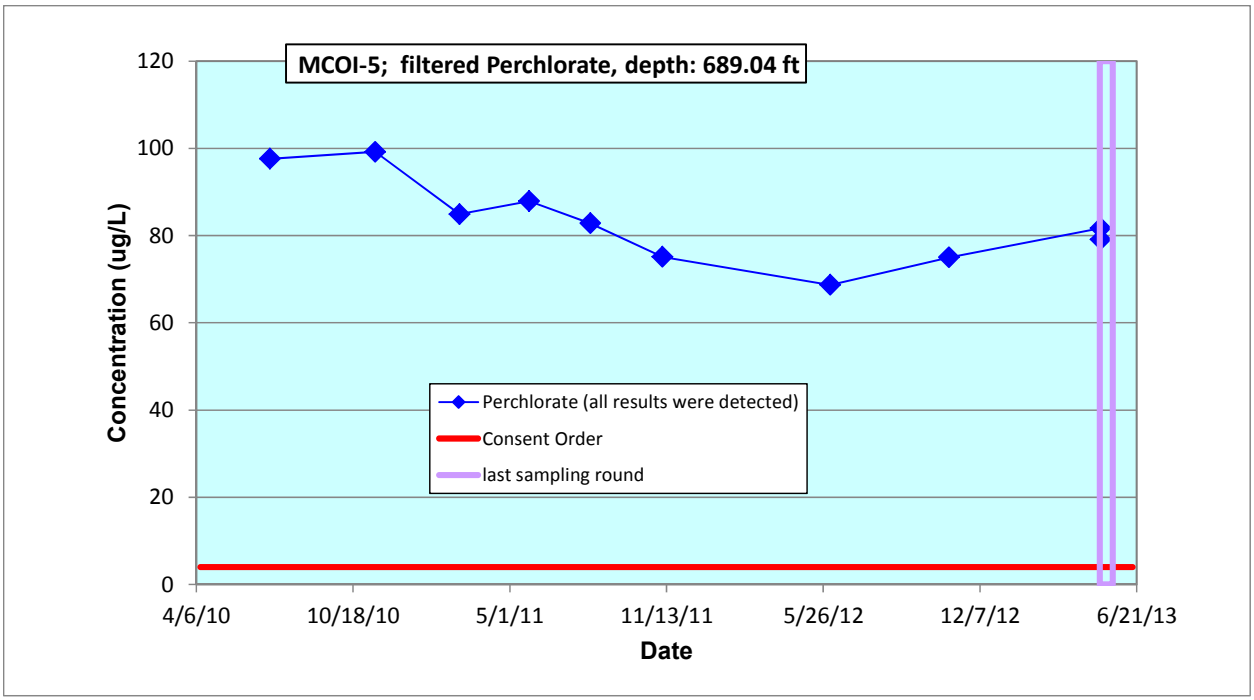
[n] In this column, J = The associated numerical value is an estimated quantity.

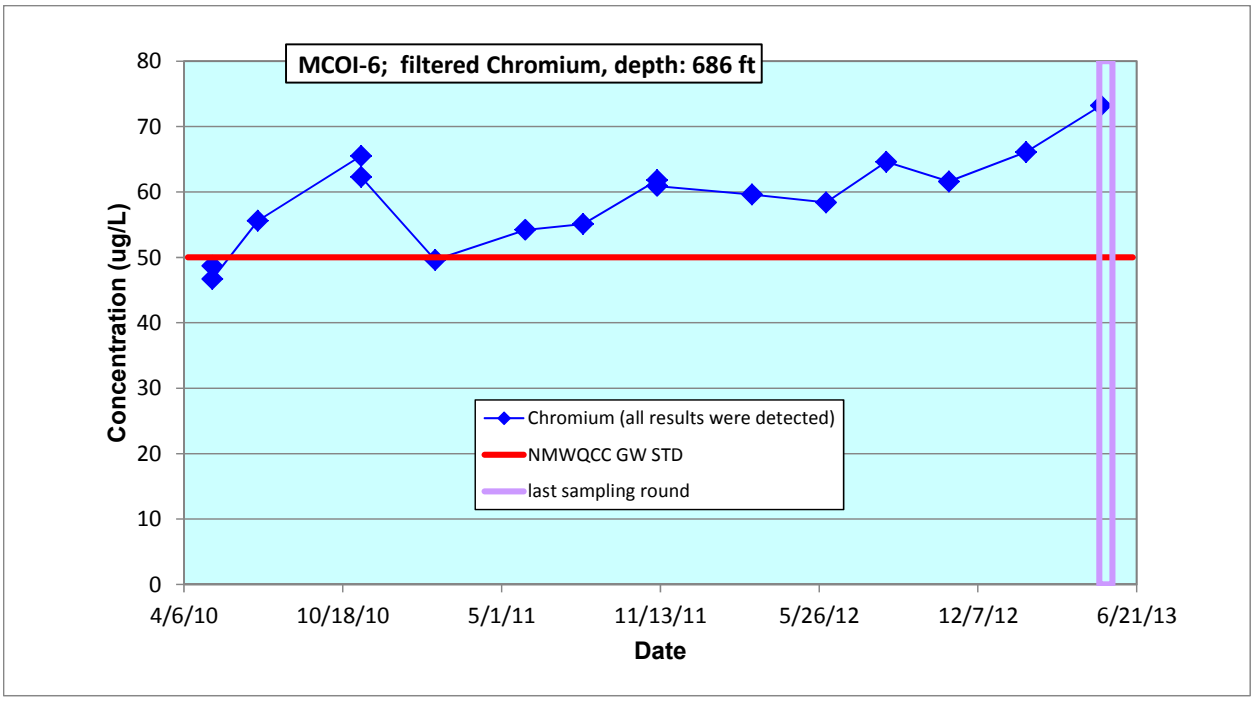
[o] J_LAB = The analytical laboratory qualified the detected result as estimated (J) because the result was less the practical quantitation limit but greater than the method detection limit.

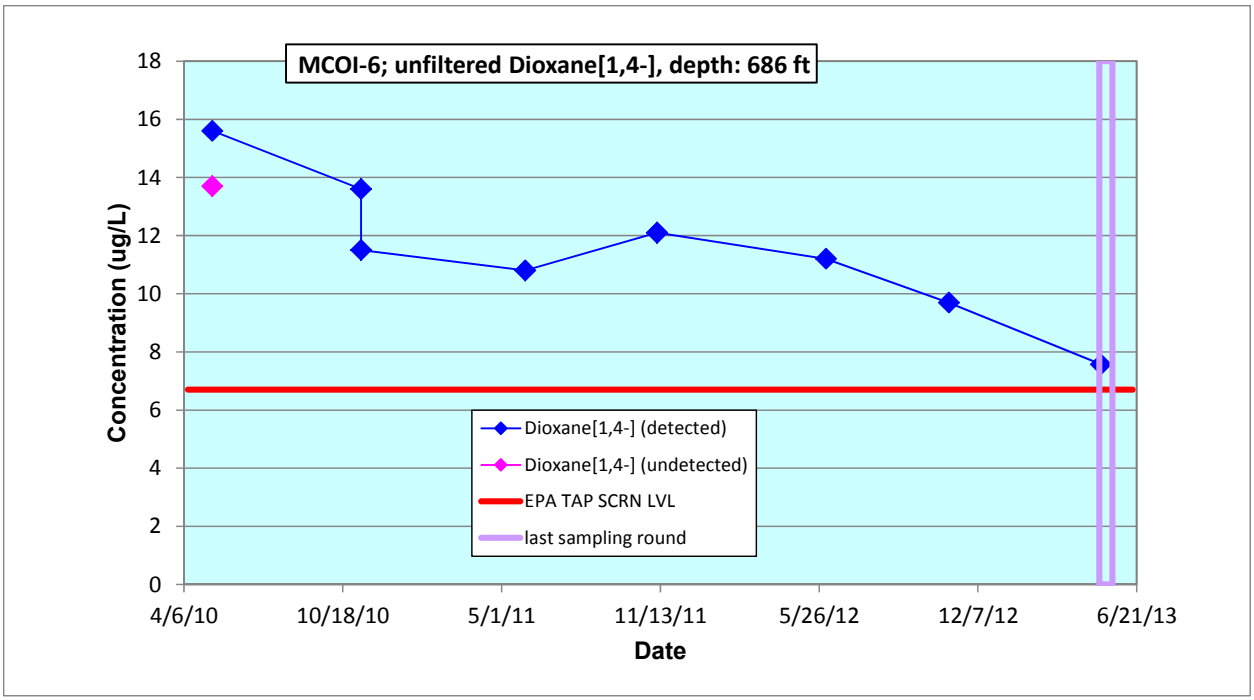
[p] EPA TAP Screening Level = U.S. Environmental Protection Agency regional screening level for tap water.

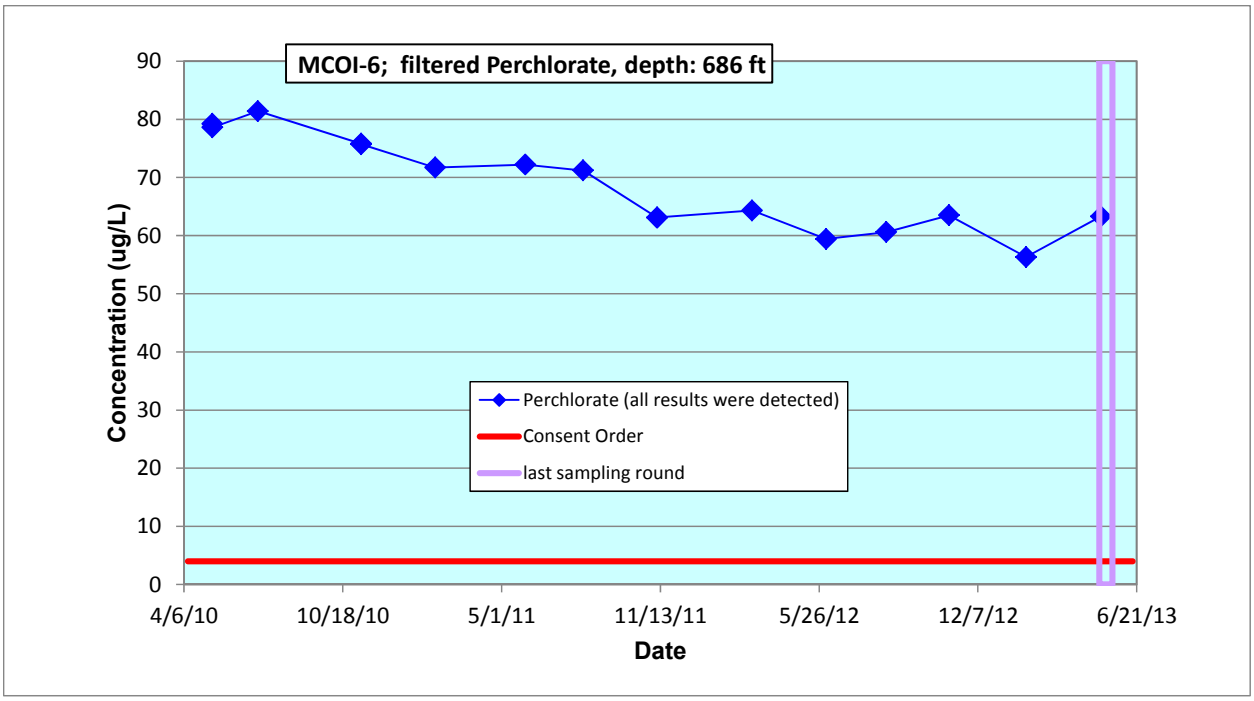
# Appendix E

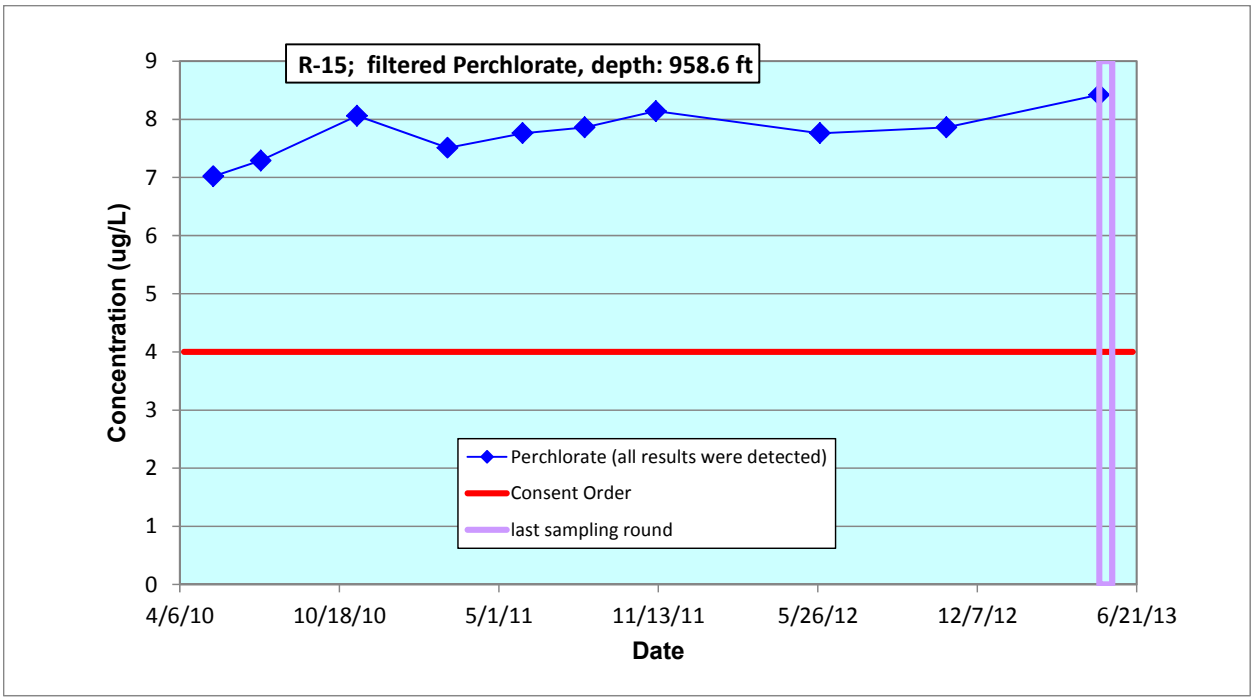
*Analytical Chemistry Graphs of Screening-Level Exceedances*

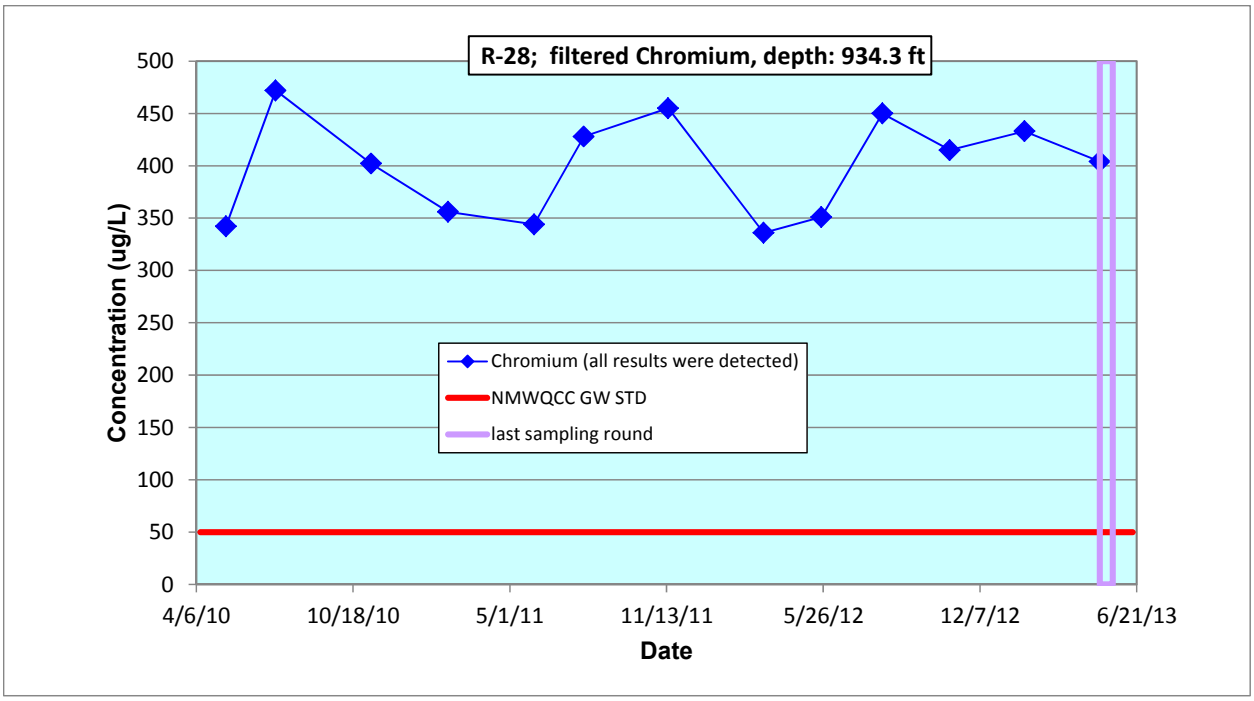

MCOI-5; filtered Perchlorate, depth: 689.04 ft
Concentration (ug/L)
120
100
80
60
40
20
0
4/6/10
10/18/10
5/1/11
11/13/11
5/26/12
12/7/12
6/21/13
Date
Perchlorate (all results were detected)
Consent Order
last sampling round

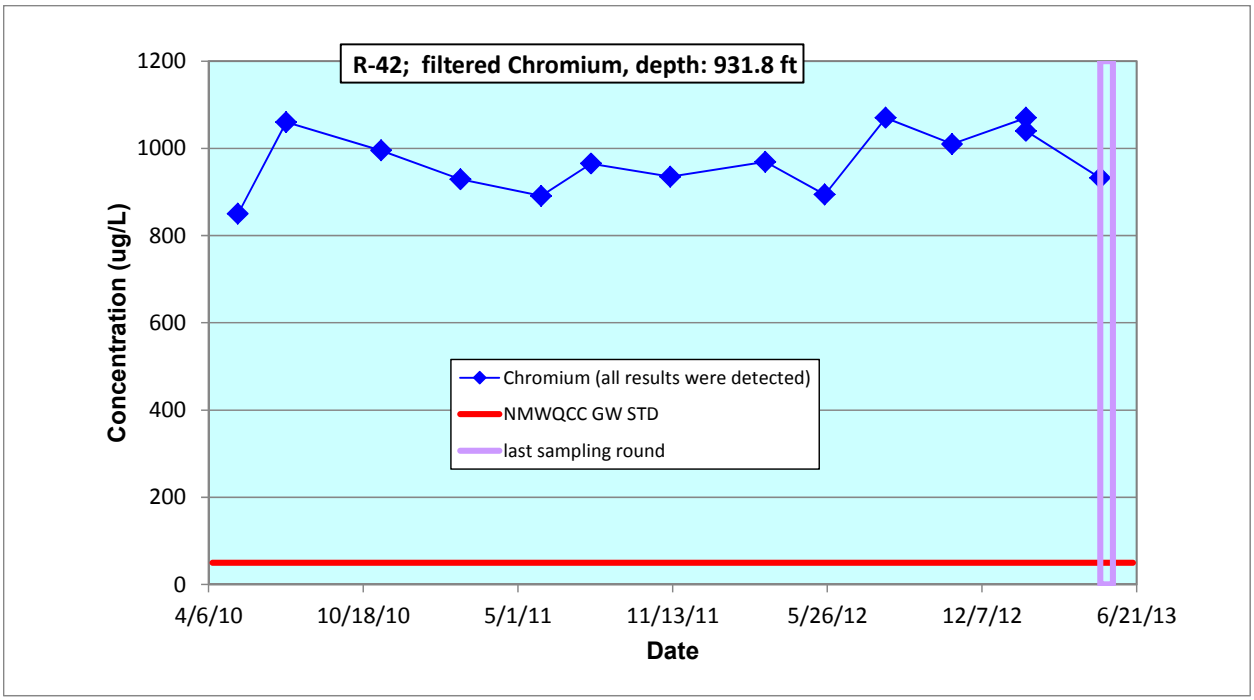

MCOI-6; filtered Chromium, depth: 686 ft
Concentration (ug/L)
80
70
60
50
40
30
20
10
0
4/6/10
10/18/10
5/1/11
11/13/11
5/26/12
12/7/12
6/21/13
Date
Chromium (all results were detected)
NMWQCC GW STD
last sampling round

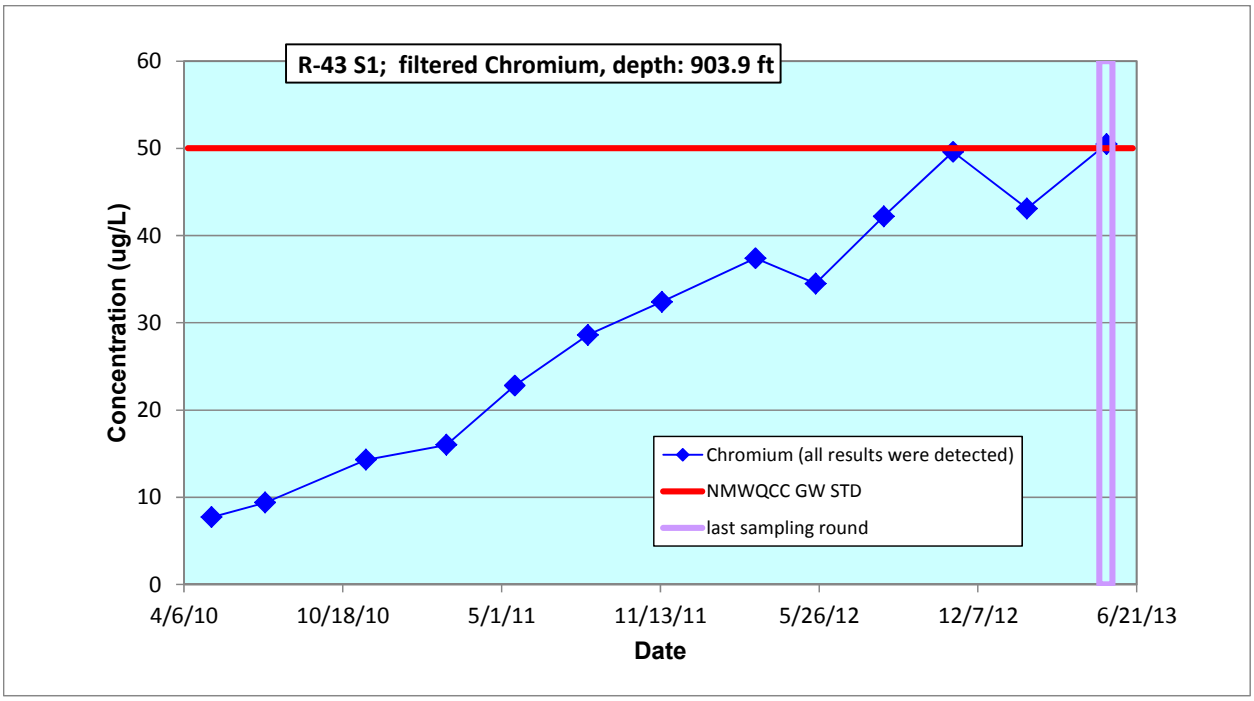

MCOI-6; unfiltered Dioxane[1,4-], depth: 686 ft
Concentration (ug/L)
18
16
14
12
10
8
6
4
2
0
4/6/10
10/18/10
5/1/11
11/13/11
5/26/12
12/7/12
6/21/13
Date
Dioxane[1,4-] (detected)
Dioxane[1,4-] (undetected)
EPA TAP SCRN LVL
last sampling round

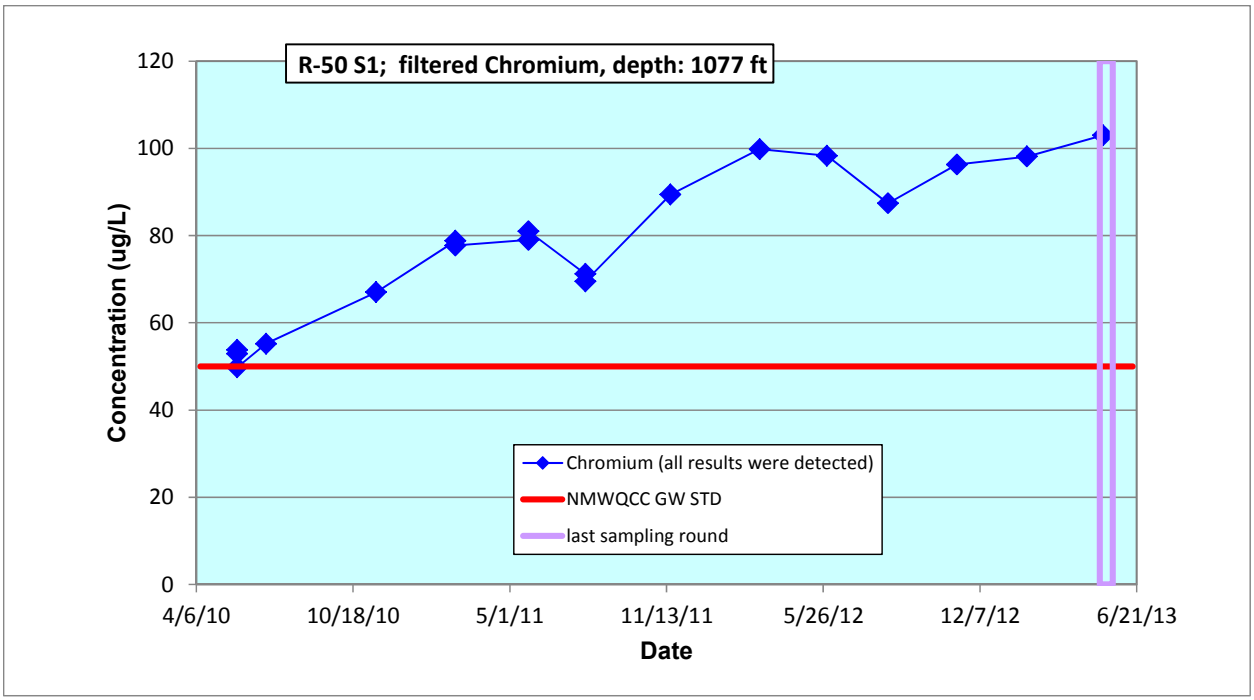

MCOI-6; filtered Perchlorate, depth: 686 ft
Concentration (ug/L)
90
80
70
60
50
40
30
20
10
0
4/6/10
10/18/10
5/1/11
11/13/11
5/26/12
12/7/12
6/21/13
Date
Perchlorate (all results were detected)
Consent Order
last sampling round

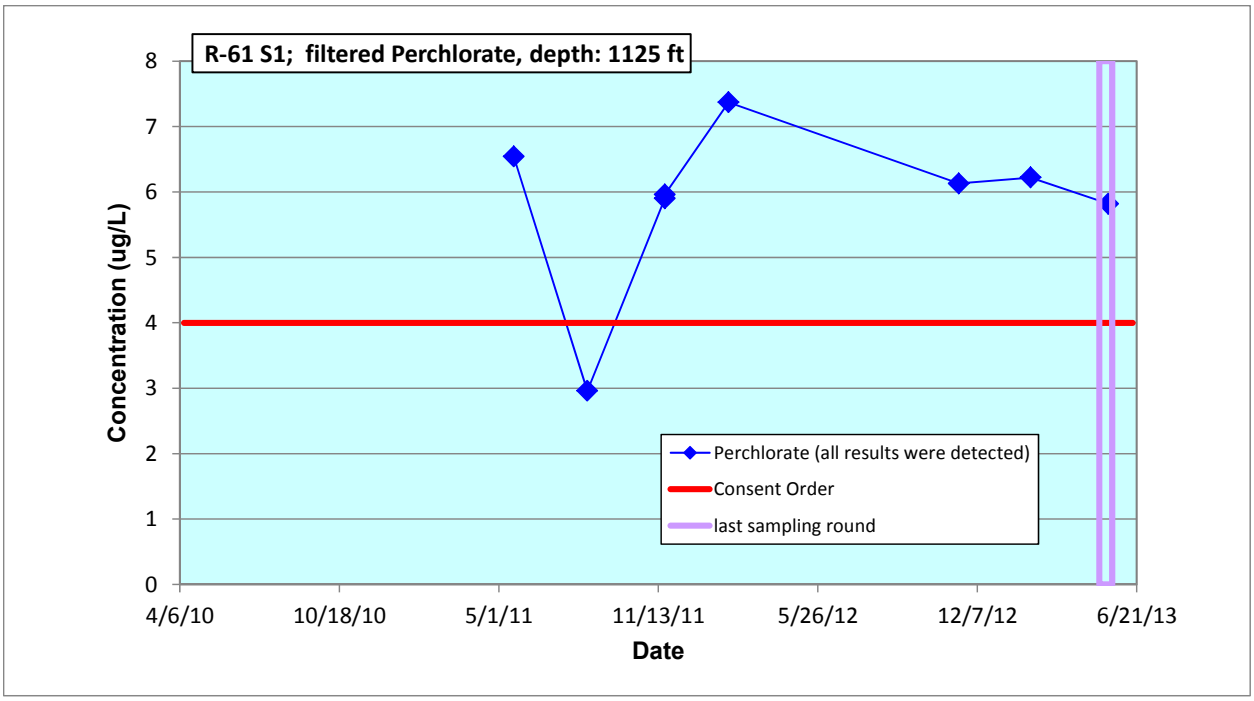

R-15; filtered Perchlorate, depth: 958.6 ft
Concentration (ug/L)
9
8
7
6
5
4
3
2
1
0
4/6/10
10/18/10
5/1/11
11/13/11
5/26/12
12/7/12
6/21/13
Date
Perchlorate (all results were detected)
Consent Order
last sampling round

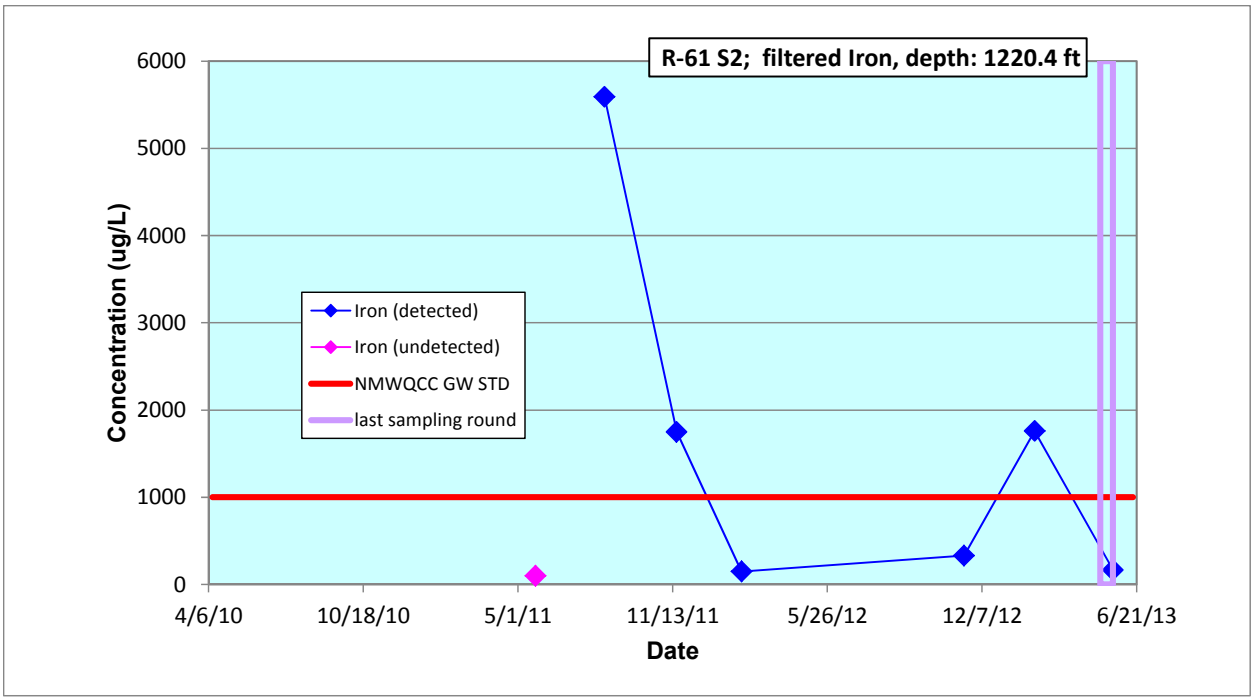

R-28; filtered Chromium, depth: 934.3 ft
Concentration (ug/L)
500
450
400
350
300
250
200
150
100
50
0
4/6/10
10/18/10
5/1/11
11/13/11
5/26/12
12/7/12
6/21/13
Date
Chromium (all results were detected)
NMWQCC GW STD
last sampling round

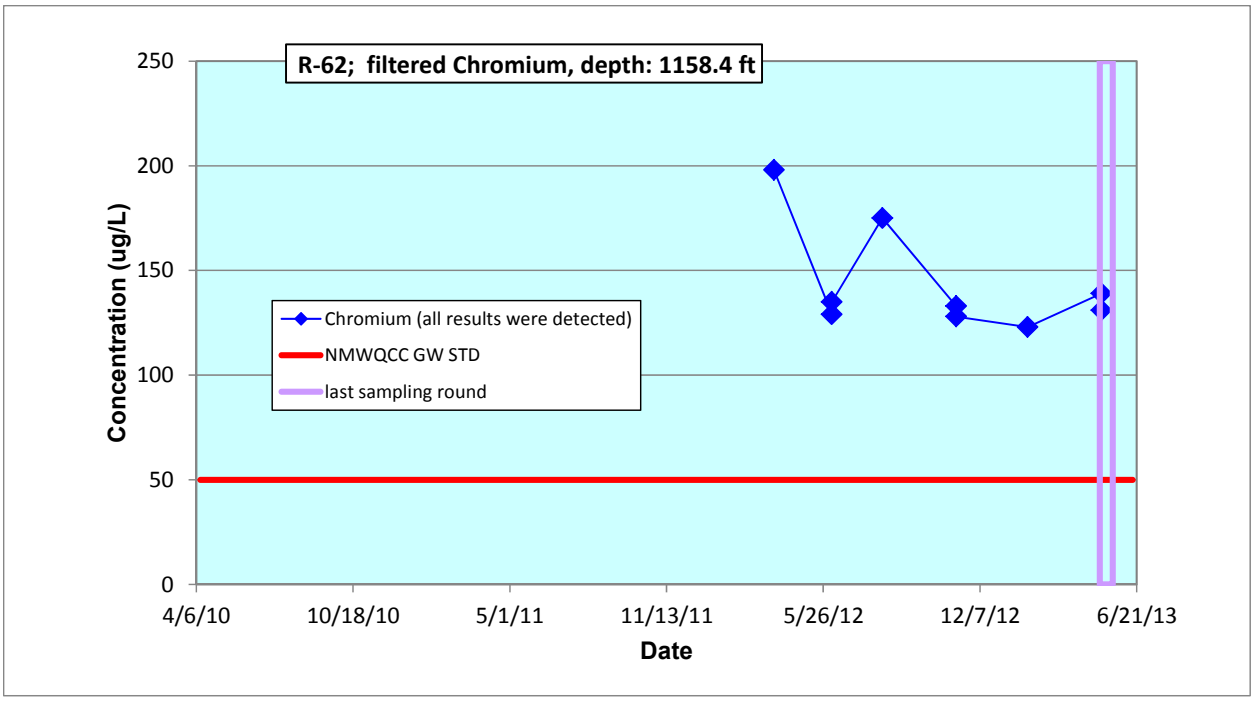

R-42; filtered Chromium, depth: 931.8 ft
Concentration (ug/L)
1200
1000
800
600
400
200
0
4/6/10
10/18/10
5/1/11
11/13/11
5/26/12
12/7/12
6/21/13
Date
Chromium (all results were detected)
NMWQCC GW STD
last sampling round

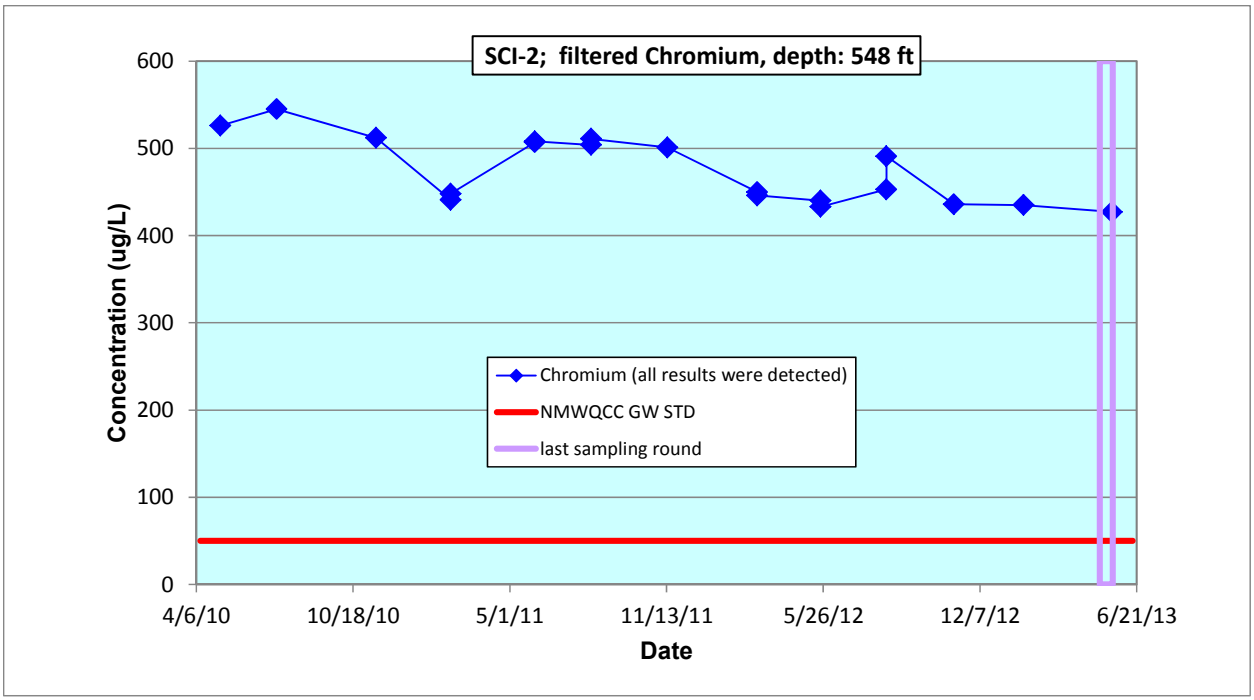

R-43 S1; filtered Chromium, depth: 903.9 ft
Concentration (ug/L)
60
50
40
30
20
10
0
4/6/10
10/18/10
5/1/11
11/13/11
5/26/12
12/7/12
6/21/13
Date
Chromium (all results were detected)
NMWQCC GW STD
last sampling round


R-50 S1; filtered Chromium, depth: 1077 ft
Concentration (ug/L)
120
100
80
60
40
20
0
4/6/10
10/18/10
5/1/11
11/13/11
5/26/12
12/7/12
6/21/13
Date
Chromium (all results were detected)
NMWQCC GW STD
last sampling round


R-61 S1; filtered Perchlorate, depth: 1125 ft
Concentration (ug/L)
8
7
6
5
4
3
2
1
0
4/6/10
10/18/10
5/1/11
11/13/11
5/26/12
12/7/12
6/21/13
Date
Perchlorate (all results were detected)
Consent Order
last sampling round


R-61 S2; filtered Iron, depth: 1220.4 ft
Concentration (ug/L)
6000
5000
4000
3000
2000
1000
0
Iron (detected)
Iron (undetected)
NMWQCC GW STD
last sampling round
4/6/10
10/18/10
5/1/11
11/13/11
5/26/12
12/7/12
6/21/13
Date


R-62; filtered Chromium, depth: 1158.4 ft
Concentration (ug/L)
250
200
150
100
50
0
Chromium (all results were detected)
NMWQCC GW STD
last sampling round
4/6/10
10/18/10
5/1/11
11/13/11
5/26/12
12/7/12
6/21/13
Date


SCI-2; filtered Chromium, depth: 548 ft
Concentration (ug/L)
600
500
400
300
200
100
0
4/6/10
10/18/10
5/1/11
11/13/11
5/26/12
12/7/12
6/21/13
Date
Chromium (all results were detected)
NMWQCC GW STD
last sampling round

# Appendix F

*Analytical Reports*
*(on CD included with this document)*

## CD Table of Contents

| Chain of Custody | Category | Lab | Sample | Date | Location | Screen Top Depth (ft) | Screen Bottom Depth (ft) |
|---|---|---|---|---|---|---|---|
| 2013-383 | Inorganic | UIL[a] | CAMO-13-24366 | 11/06/12 | R-45 S1 | 880 | 890 |
| 2013-383 | Inorganic | UIL | CAMO-13-24367 | 11/06/12 | R-45 S2 | 974.9 | 994.9 |
| 2013-808 | Inorganic | GELC[b] | CAMO-13-30574 | 05/06/13 | R-13 | 958.33 | 1018.7 |
| 2013-808 | Inorganic | GELC | CAMO-13-30577 | 05/06/13 | R-42 | 931.8 | 952.9 |
| 2013-808 | Inorganic | GELC | CAMO-13-30590 | 05/06/13 | R-13 | 958.33 | 1018.7 |
| 2013-808 | Inorganic | GELC | CAMO-13-30593 | 05/06/13 | R-42 | 931.8 | 952.9 |
| 2013-809 | Inorganic | GELC | CAMO-13-30575 | 05/06/13 | R-15 | 958.6 | 1020.3 |
| 2013-809 | Inorganic | GELC | CAMO-13-30576 | 05/06/13 | R-28 | 934.3 | 958.1 |
| 2013-809 | Inorganic | GELC | CAMO-13-30591 | 05/06/13 | R-15 | 958.6 | 1020.3 |
| 2013-809 | Inorganic | GELC | CAMO-13-30592 | 05/06/13 | R-28 | 934.3 | 958.1 |
| 2013-813 | Inorganic | GELC | CAMO-13-30588 | 05/07/13 | MCOI-5 | 689.04 | 699 |
| 2013-813 | Inorganic | GELC | CAMO-13-30561 | 05/07/13 | MCOI-5 | 689.04 | 699 |
| 2013-813 | Inorganic | GELC | CAMO-13-30563 | 05/07/13 | MCOI-5 | 689.04 | 699 |
| 2013-813 | Inorganic | GELC | CAMO-13-30572 | 05/07/13 | MCOI-5 | 689.04 | 699 |
| 2013-813 | Organic | GELC | CAMO-13-30561 | 05/07/13 | MCOI-5 | 689.04 | 699 |
| 2013-813 | Organic | GELC | CAMO-13-30572 | 05/07/13 | MCOI-5 | 689.04 | 699 |
| 2013-818 | Rad[c] | ARSL[d] | CAMO-13-30586 | 05/08/13 | R-62 | 1158.4 | 1179.1 |
| 2013-818 | Rad | ARSL | CAMO-13-30562 | 05/08/13 | R-62 | 1158.4 | 1179.1 |
| 2013-822 | Inorganic | GELC | CAMO-13-30602 | 05/08/13 | R-62 | 1158.4 | 1179.1 |
| 2013-822 | Inorganic | GELC | CAMO-13-30586 | 05/08/13 | R-62 | 1158.4 | 1179.1 |
| 2013-822 | Inorganic | GELC | CAMO-13-30562 | 05/08/13 | R-62 | 1158.4 | 1179.1 |
| 2013-822 | Inorganic | GELC | CAMO-13-30564 | 05/08/13 | R-62 | 1158.4 | 1179.1 |
| 2013-822 | Organic | GELC | CAMO-13-30586 | 05/08/13 | R-62 | 1158.4 | 1179.1 |
| 2013-822 | Organic | GELC | CAMO-13-30562 | 05/08/13 | R-62 | 1158.4 | 1179.1 |
| 2013-822 | Rad | GELC | CAMO-13-30586 | 05/08/13 | R-62 | 1158.4 | 1179.1 |
| 2013-822 | Rad | GELC | CAMO-13-30562 | 05/08/13 | R-62 | 1158.4 | 1179.1 |
| 2013-823 | Inorganic | GELC | CAMO-13-30573 | 05/08/13 | MCOI-6 | 686 | 708.3 |
| 2013-823 | Inorganic | GELC | CAMO-13-30589 | 05/08/13 | MCOI-6 | 686 | 708.3 |
| 2013-823 | Organic | GELC | CAMO-13-30573 | 05/08/13 | MCOI-6 | 686 | 708.3 |
| 2013-830 | Inorganic | GELC | CAMO-13-30578 | 05/09/13 | R-44 S1 | 895 | 905 |
| 2013-830 | Inorganic | GELC | CAMO-13-30579 | 05/09/13 | R-44 S2 | 985.3 | 995.2 |
| 2013-830 | Inorganic | GELC | CAMO-13-30580 | 05/09/13 | R-45 S1 | 880 | 890 |
| 2013-830 | Inorganic | GELC | CAMO-13-30581 | 05/09/13 | R-45 S2 | 974.9 | 994.9 |
| 2013-830 | Inorganic | GELC | CAMO-13-30594 | 05/09/13 | R-44 S1 | 895 | 905 |
| 2013-830 | Inorganic | GELC | CAMO-13-30595 | 05/09/13 | R-44 S2 | 985.3 | 995.2 |
| 2013-830 | Inorganic | GELC | CAMO-13-30596 | 05/09/13 | R-45 S1 | 880 | 890 |
| 2013-830 | Inorganic | GELC | CAMO-13-30597 | 05/09/13 | R-45 S2 | 974.9 | 994.9 |
| 2013-831 | Inorganic | GELC | CASA-13-30544 | 05/10/13 | R-35b | 825.4 | 848.5 |

| Chain of Custody | Category | Lab | Sample | Date | Location | Screen Top Depth (ft) | Screen Bottom Depth (ft) |
|---|---|---|---|---|---|---|---|
| 2013-831 | Inorganic | GELC | CASA-13-30552 | 05/10/13 | R-35b | 825.4 | 848.5 |
| 2013-832 | Inorganic | GELC | CAMO-13-30582 | 05/10/13 | R-50 S1 | 1077 | 1087 |
| 2013-832 | Inorganic | GELC | CAMO-13-30598 | 05/10/13 | R-50 S1 | 1077 | 1087 |
| 2013-840 | Inorganic | GELC | CASA-13-30540 | 05/13/13 | R-11 | 855 | 877.9 |
| 2013-840 | Inorganic | GELC | CASA-13-30541 | 05/13/13 | R-11 | 855 | 877.9 |
| 2013-840 | Inorganic | GELC | CASA-13-30542 | 05/13/13 | R-11 | 855 | 877.9 |
| 2013-840 | Inorganic | GELC | CASA-13-30550 | 05/13/13 | R-11 | 855 | 877.9 |
| 2013-841 | Inorganic | GELC | CAMO-13-30599 | 05/13/13 | R-50 S2 | 1185 | 1205.6 |
| 2013-841 | Inorganic | GELC | CAMO-13-30583 | 05/13/13 | R-50 S2 | 1185 | 1205.6 |
| 2013-847 | Inorganic | GELC | CASA-13-30555 | 05/14/13 | R-43 S2 | 969.1 | 979.1 |
| 2013-847 | Inorganic | GELC | CASA-13-30547 | 05/14/13 | R-43 S2 | 969.1 | 979.1 |
| 2013-849 | Rad | ARSL | CAMO-13-30582 | 05/10/13 | R-50 S1 | 1077 | 1087 |
| 2013-856 | Inorganic | GELC | CASA-13-30546 | 05/15/13 | R-43 S1 | 903.9 | 924.6 |
| 2013-856 | Inorganic | GELC | CASA-13-30554 | 05/15/13 | R-43 S1 | 903.9 | 924.6 |
| 2013-865 | Inorganic | GELC | CASA-13-30543 | 05/16/13 | R-35a | 1013.1 | 1062.2 |
| 2013-865 | Inorganic | GELC | CASA-13-30551 | 05/16/13 | R-35a | 1013.1 | 1062.2 |
| 2013-866 | Inorganic | GELC | CAMO-13-30600 | 05/17/13 | R-61 S1 | 1125 | 1135 |
| 2013-866 | Inorganic | GELC | CAMO-13-30584 | 05/17/13 | R-61 S1 | 1125 | 1135 |
| 2013-866 | Organic | GELC | CAMO-13-30584 | 05/17/13 | R-61 S1 | 1125 | 1135 |
| 2013-866 | Rad | GELC | CAMO-13-30584 | 05/17/13 | R-61 S1 | 1125 | 1135 |
| 2013-868 | Inorganic | GELC | CASA-13-30556 | 05/17/13 | SCI-1 | 358.4 | 377.9 |
| 2013-868 | Inorganic | GELC | CASA-13-30545 | 05/17/13 | R-36 | 766.9 | 789.9 |
| 2013-868 | Inorganic | GELC | CASA-13-30548 | 05/17/13 | SCI-1 | 358.4 | 377.9 |
| 2013-868 | Inorganic | GELC | CASA-13-30553 | 05/17/13 | R-36 | 766.9 | 789.9 |
| 2013-874 | Inorganic | GELC | CASA-13-30557 | 05/21/13 | SCI-2 | 548 | 568 |
| 2013-874 | Inorganic | GELC | CASA-13-30549 | 05/21/13 | SCI-2 | 548 | 568 |
| 2013-876 | Rad | ARSL | CAMO-13-30584 | 05/17/13 | R-61 S1 | 1125 | 1135 |
| 2013-877 | Rad | ARSL | CAMO-13-30585 | 05/22/13 | R-61 S2 | 1220.4 | 1241 |
| 2013-886 | Inorganic | GELC | CAMO-13-30601 | 05/22/13 | R-61 S2 | 1220.4 | 1241 |
| 2013-886 | Inorganic | GELC | CAMO-13-30585 | 05/22/13 | R-61 S2 | 1220.4 | 1241 |
| 2013-886 | Organic | GELC | CAMO-13-30585 | 05/22/13 | R-61 S2 | 1220.4 | 1241 |
| 2013-886 | Rad | GELC | CAMO-13-30585 | 05/22/13 | R-61 S2 | 1220.4 | 1241 |

[a] UIL = University of Illinois, Urbana-Champaign.

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

[c] Rad = Radiochemistry (not gamma).

[d] ARSL = American Radiation Services, Inc.

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

# Chain of Custody/Analysis Request

COC/Lab Request #: 2013-886



**Client Contact:**

**Lab Agreement # :** 126310011

**Project Number :**

**Analysis Turnaround Time:**

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

**Site Name:** Los Alamos National Laboratory

**Rad Screening Info:** Yes, Below Background

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | WSP-8260B-VOA | WSP-8270C-SVOA | WSP-CL04 | WSP-GENINORG | WSP-GrossA/B | WSP-Met+B+SN+SR+U | WSP-NH3+NO3/NO2+PO4 | WSP-RAD | WSP-TKN+TOC | Special Instructions: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAMO-13-30585 | May 22 2013 | 13:01 | W | 2 | 3 | | | 1 | | | 1 | 1 | |
| CAMO-13-30601 | May 22 2013 | 13:01 | W | | | 1 | 1 | | 1 | 1 | | | |
| CAMO-13-30569 | May 22 2013 | 13:01 | W | 2 | | | | | | | | | |

Special Instructions:

| Relinquished by: | | Date/Time: 5/23/13 3:00 | Received by: | |
|---|---|---|---|---|
| Relinquished by: | | Date/Time: | Received by: | |
| Relinquished by: | | Date/Time: | Received by: | |

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30569

**WORK ORDER:**

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | 05/22/2013 | FIELD MATRIX: | WG | OK |
| TIME COLLECTED (HH:MM): | | 1301 | MEDIA: | UA | ↓ |
| PRS ID: | | OK | SAMPLE TECH CODE: | UA | DC |
| LOCATION ID: | R-61 S2 | ↓ | FIELD PREP: | UF | OK |
| LOCATION TYPE: | | ↓ | FIELD QC TYPE: | FTB | ↓ |
| PORT: | P2A | | SAMPLE USAGE: | QC | ↓ |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-8260B-VOA | 40 ML SEPTUM AMBER GLASS | 2 | HCL 05/22/13 | Y | NA |

**SAMPLE COMMENTS:** NA

**LOCATION COMMENTS:** NA

**FIELD PARAMETERS:**

Dissolved Oxygen NA mg/L  Oxidation-Reduction Potential NA MV  pH NA SU

Specific Conductance NA uS/cm  Temperature NA deg C  Turbidity NA NTU

**COLLECTED BY (PRINT)** W. Shaw

| RELINQUISHED BY (Printed Name) (Signature) | Date/Time | RECEIVED BY (Printed Name) (Signature) | Date/Time |
|---|---|---|---|
| William Shaw | 5/22/13 1345 | S. Sherwood | 5/22/13 1345 |
| RELINQUISHED BY (Printed Name) (Signature) | Date/Time | RECEIVED BY (Printed Name) (Signature) | Date/Time |

Report Date 04/30/2013

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30585

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | 05/22/2013 | FIELD MATRIX: WG | | OK |
| TIME COLLECTED (HH:MM): | | 1301 | MEDIA: UA | | ↓ |
| PRS ID: | | OK | SAMPLE TECH CODE: UA | | GSP |
| LOCATION ID: R-61 S2 | | ↓ | FIELD PREP: UF | | OK |
| LOCATION TYPE: MON | | ↓ | FIELD QC TYPE: REG | | ↓ |
| PORT: P2A | | | SAMPLE USAGE: INV | | |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-8260B-VOA | 40 ML SEPTUM AMBER GLASS | 2 | HCL | Y | NA |
| ↓ | WSP-8270C-SVOA | 1 LITER AMBER GLASS | ~~1~~ 0 | ICE WS 5/22/13 | ↓ | ↓ |
| ↓ | WSP-GrossA/B | 1 LITER POLY | 1 | NONE | ↓ | ↓ |
| ↓ | WSP-LL-H-3 | 1 LITER POLY | 1 | NONE | ↓ | ↓ |
| ↓ | WSP-RAD | 1 GAL POLY | 1 | HNO3 | ↓ | ↓ |
| ↓ | WSP-TKN+TOC | 500 ML AMBER GLASS | 1 | H2SO4 | ↓ | ↓ |

**SAMPLE COMMENTS:** Sampled within 50' of running diesel generator

**LOCATION COMMENTS:** NA

**FIELD PARAMETERS:**

Dissolved Oxygen 2.96 mg/L  Oxidation-Reduction Potential 93.6 MV  pH 6.56 SU

Specific Conductance 152 uS/cm  Temperature 21.05 deg C  Turbidity 12.3 NTU

**COLLECTED BY (PRINT)** W. Shaw

| | | | |
|---|---|---|---|
| **RELINQUISHED BY** (Printed Name) Andrew Stokes (Signature) | **Date/Time** 5/22/13 1345 | **RECEIVED BY** (Printed Name) S. Sherwood (Signature) Sherwood | **Date/Time** 5/22/13 1345 |
| **RELINQUISHED BY** (Printed Name) (Signature) | **Date/Time** | **RECEIVED BY** (Printed Name) (Signature) | **Date/Time** |

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30601

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| **DATE COLLECTED (MM/DD/YYYY):** | | 05/22/2013 | **FIELD MATRIX:** | WG | OK |
| **TIME COLLECTED (HH:MM):** | | 1301 | **MEDIA:** | UA | ↓ |
| **PRS ID:** | | OK | **SAMPLE TECH CODE:** | UA | GSP |
| **LOCATION ID:** | R-61 S2 | ↓ | **FIELD PREP:** | F | OK |
| **LOCATION TYPE:** | MON | ↓ | **FIELD QC TYPE:** | REG | ↓ |
| **PORT:** | P2A | ↓ | **SAMPLE USAGE:** | INV | ↓ |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-CL04 | 250 ML POLY | 1 | ICE | Y | NA |
| ↓ | WSP-GENINORG | 1 LITER POLY | 1 | ICE | ↓ | ↓ |
| ↓ | WSP-Met+B+SN+SR+U | 1 LITER POLY | 1 | HNO3 | ↓ | ↓ |
| | WSP-NH3+NO3/NO2+PO4 | 500 ML AMBER GLASS | 1 | H2SO4 | | |

**SAMPLE COMMENTS:** NA

**LOCATION COMMENTS:** NA

**FIELD PARAMETERS:**

Dissolved Oxygen NA mg/L  Oxidation-Reduction Potential NA MV  pH NA SU

Specific Conductance NA uS/cm  Temperature NA deg C  Turbidity NA NTU

**COLLECTED BY (PRINT)** W. Shaw

| RELINQUISHED BY | Date/Time | RECEIVED BY | Date/Time |
|---|---|---|---|
| (Printed Name) W. Shaw<br>(Signature) | 5/22/13 1345 | (Printed Name) S. Sherwood<br>(Signature) Sheri Sherwood | 5/22/13 1345 |
| **RELINQUISHED BY** | **Date/Time** | **RECEIVED BY** | **Date/Time** |
| (Printed Name)<br>(Signature) | | (Printed Name)<br>(Signature) | |

Report Date 04/30/2013

Data Validation Report

Chain Of Custody No. 2013-886

**1. Distribution Of Samples In EDD.**

| SDG | Analytical Method | Regular Samples | Field Duplicates | Trip Blanks | Field Blanks | Equipment Blanks |
|---|---|---|---|---|---|---|
| 326426 | EPA:120.1 | 1 | | | | |
| 326426 | EPA:150.1 | 1 | | | | |
| 326426 | EPA:160.1 | 1 | | | | |
| 326426 | EPA:245.2 | 1 | | | | |
| 326426 | EPA:300.0 | 1 | | | | |
| 326426 | EPA:310.1 | 1 | | | | |
| 326426 | EPA:350.1 | 1 | | | | |
| 326426 | EPA:351.2 | 1 | | | | |
| 326426 | EPA:353.2 | 1 | | | | |
| 326426 | EPA:365.4 | 1 | | | | |
| 326426 | EPA:900 | 1 | | | | |
| 326426 | EPA:901.1 | 1 | | | | |
| 326426 | EPA:905.0 | 1 | | | | |
| 326426 | HASL-300:AM-241 | 1 | | | | |
| 326426 | HASL-300:ISOPU | 1 | | | | |
| 326426 | HASL-300:ISOU | 1 | | | | |
| 326426 | SM:A2340B | 1 | | | | |
| 326426 | SW-846:6010B | 1 | | | | |
| 326426 | SW-846:6020 | 1 | | | | |
| 326426 | SW-846:6850 | 1 | | | | |
| 326426 | SW-846:8260B | 1 | | 1 | | |
| 326426 | SW-846:8270C | 1 | | | | |
| 326426 | SW-846:9060 | 1 | | | | |

| SDG | Analytical Method | Analysis Lot ID | Prep Lot ID | Regular Samples | Field Duplicates | Trip Blanks | Field Blanks | Equipment Blanks | Method Blanks | Matrix Spikes | Matrix Spike Dups |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 326426 | EPA:120.1 | 1306822 | 1306822 | 1 | | | | | | | |
| 326426 | EPA:150.1 | 1304453 | 1304453 | 1 | | | | | | | |
| 326426 | EPA:160.1 | 1304309 | 1304309 | 1 | | | | | 1 | | |
| 326426 | EPA:245.2 | 1304760 | 1304759 | 1 | | | | | 1 | 2 | 1 |
| 326426 | EPA:300.0 | 1303846 | 1303846 | 1 | | | | | 1 | | |
| 326426 | EPA:310.1 | 1305339 | 1305339 | 1 | | | | | 2 | 1 | |
| 326426 | EPA:350.1 | 1304209 | 1304208 | 1 | | | | | 1 | 2 | |
| 326426 | EPA:351.2 | 1303595 | 1303594 | 1 | | | | | 1 | 1 | |
| 326426 | EPA:353.2 | 1304211 | 1304211 | 1 | | | | | 1 | | |
| 326426 | EPA:365.4 | 1305420 | 1305419 | 1 | | | | | 1 | 1 | |
| 326426 | EPA:900 | 1304583 | 1304583 | 1 | | | | | 1 | 1 | 1 |
| 326426 | EPA:901.1 | 1304286 | 1304286 | 1 | | | | | 1 | | |
| 326426 | EPA:905.0 | 1305999 | 1305999 | 1 | | | | | 1 | 1 | |
| 326426 | HASL-300:AM-241 | 1304594 | 1304594 | 1 | | | | | 1 | | |
| 326426 | HASL-300:ISOPU | 1304597 | 1304597 | 1 | | | | | 1 | | |
| 326426 | HASL-300:ISOU | 1304598 | 1304598 | 1 | | | | | 1 | | |
| 326426 | SM:A2340B | 1308026 | 1308026 | 1 | | | | | | | |
| 326426 | SW-846:6010B | 1304972 | 1304971 | 1 | | | | | 1 | 1 | |
| 326426 | SW-846:6020 | 1304840 | 1304838 | 1 | | | | | 1 | 1 | |
| 326426 | SW-846:6850 | 1304740 | 1304739 | 1 | | | | | 1 | 1 | 1 |
| 326426 | SW-846:8260B | 1305341 | 1305341 | 1 | | 1 | | | 1 | | |

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| Analytical Spikes | Post-Digestion Spikes | Lab Control Samples | Lab Control Sample Dups | Blank Spikes | Blank Spike Dups | Lab Duplicates | Storage Blanks | Preparation Blanks | Reagent Blanks |
|---|---|---|---|---|---|---|---|---|---|
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 2 | | | |
| | | 1 | | | | 2 | | | |
| | | 1 | | | | 1 | | | |
| | | 2 | | | | 1 | | | |
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| | | 1 | | | | 1 | | | |
| | | 1 | | | | 2 | | | |
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| | | 1 | | | | | | | |
| | | 2 | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 326426 | SW-846:8270C | 1304315 | 1304314 | 1 | | | | | 1 | 1 | 1 |
| 326426 | SW-846:9060 | 1304466 | 1304466 | 1 | | | | | 1 | | |

**2. Distribution Of Analytes In EDD.**

| Analytical Method | Method Category | Field Sample ID | Lab Sample ID | Sample Purpose | Target Analytes | Surrogates | Spikes | TICS |
|---|---|---|---|---|---|---|---|---|
| EPA:120.1 | GENERAL CHEMISTRY | CAMO-13-30601 | 326426002 | REG | 1 | 0 | 0 | 0 |
| EPA:120.1 | GENERAL CHEMISTRY | CAPU-13-34781 | 1202889244 | DUP | 1 | 0 | 0 | 0 |
| EPA:120.1 | GENERAL CHEMISTRY | LCS | 1202889242 | LCS | 0 | 0 | 1 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | CAMO-13-30601 | 1202882909 | DUP | 1 | 0 | 0 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | CAMO-13-30601 | 326426002 | REG | 1 | 0 | 0 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | LCS | 1202882910 | LCS | 0 | 0 | 1 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | CAMO-13-30601 | 1202882566 | DUP | 1 | 0 | 0 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | CAMO-13-30601 | 326426002 | REG | 1 | 0 | 0 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | LCS | 1202882568 | LCS | 0 | 0 | 1 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | MB | 1202882565 | MB | 1 | 0 | 0 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | SWWS46-13-33505 | 1202882567 | DUP | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30601 | 1202883732 | DUP | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30601 | 1202883733 | MS | 0 | 0 | 1 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30601 | 1202883738 | MSD | 0 | 0 | 1 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30601 | 326426002 | REG | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | LCS | 1202883731 | LCS | 0 | 0 | 1 | 0 |
| EPA:245.2 | INORGANIC | MB | 1202883730 | MB | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | WT_IPC-13-32171 | 1202883735 | DUP | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | WT_IPC-13-32171 | 1202883736 | MS | 0 | 0 | 1 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | CAMO-13-30601 | 326426002 | REG | 4 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | CASA-13-30555 | 1202881257 | DUP | 4 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | LCS | 1202881259 | LCS | 0 | 0 | 4 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | MB | 1202881256 | MB | 4 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CAMO-13-30601 | 326426002 | REG | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CAMO-13-30619 | 1202885271 | DUP | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CAMO-13-30619 | 1202885274 | MS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | LCS | 1202885275 | LCS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | LCS | 1202885276 | LCS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | MB | 1202885267 | MB | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | MB | 1202885268 | MB | 2 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30601 | 326426002 | REG | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30619 | 1202882331 | DUP | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30619 | 1202882333 | MS | 0 | 0 | 1 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | LCS | 1202882335 | LCS | 0 | 0 | 1 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | MB | 1202882330 | MB | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | SWWS46-13-33497 | 1202882332 | DUP | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | SWWS46-13-33497 | 1202882334 | MS | 0 | 0 | 1 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30584 | 1202882338 | DUP | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30584 | 1202882339 | MS | 0 | 0 | 1 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30585 | 326426001 | REG | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | LCS | 1202880631 | LCS | 0 | 0 | 1 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | MB | 1202880630 | MB | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CAMO-13-30601 | 326426002 | REG | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CAMO-13-30619 | 1202882342 | DUP | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | LCS | 1202882349 | LCS | 0 | 0 | 1 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | MB | 1202882340 | MB | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | SWWS46-13-33497 | 1202882344 | DUP | 1 | 0 | 0 | 0 |

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| | | 1 | | | | | | | |
| | | 1 | | | | 1 | | | |

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|---|---|---|---|---|---|---|---|---|
| EPA:365.4 | GENERAL CHEMISTRY | CAMO-13-30601 | 326426002 | REG | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CASA-13-30553 | 1202885475 | DUP | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CASA-13-30553 | 1202885477 | MS | 0 | 0 | 1 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | LCS | 1202885479 | LCS | 0 | 0 | 1 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | MB | 1202885474 | MB | 1 | 0 | 0 | 0 |
| EPA:900 | RAD | CAMO-13-30585 | 1202883283 | DUP | 2 | 0 | 0 | 0 |
| EPA:900 | RAD | CAMO-13-30585 | 1202883284 | MS | 0 | 0 | 2 | 0 |
| EPA:900 | RAD | CAMO-13-30585 | 1202883285 | MSD | 0 | 0 | 2 | 0 |
| EPA:900 | RAD | CAMO-13-30585 | 326426001 | REG | 2 | 0 | 0 | 0 |
| EPA:900 | RAD | LCS | 1202883286 | LCS | 0 | 0 | 2 | 0 |
| EPA:900 | RAD | MB | 1202883282 | MB | 2 | 0 | 0 | 0 |
| EPA:901.1 | RAD | CAMO-13-30585 | 1202882532 | DUP | 5 | 0 | 0 | 0 |
| EPA:901.1 | RAD | CAMO-13-30585 | 326426001 | REG | 5 | 0 | 0 | 0 |
| EPA:901.1 | RAD | LCS | 1202882533 | LCS | 0 | 0 | 3 | 0 |
| EPA:901.1 | RAD | MB | 1202882531 | MB | 5 | 0 | 0 | 0 |
| EPA:905.0 | RAD | CAMO-13-30585 | 326426001 | REG | 1 | 0 | 0 | 0 |
| EPA:905.0 | RAD | CAPU-13-34774 | 1202887095 | DUP | 1 | 0 | 0 | 0 |
| EPA:905.0 | RAD | CAPU-13-34774 | 1202887096 | MS | 0 | 0 | 1 | 0 |
| EPA:905.0 | RAD | LCS | 1202887097 | LCS | 0 | 0 | 1 | 0 |
| EPA:905.0 | RAD | MB | 1202887094 | MB | 1 | 0 | 0 | 0 |
| HASL-300:AM-241 | RAD | CAMO-13-30585 | 1202883318 | DUP | 1 | 0 | 0 | 0 |
| HASL-300:AM-241 | RAD | CAMO-13-30585 | 326426001 | REG | 1 | 0 | 0 | 0 |
| HASL-300:AM-241 | RAD | LCS | 1202883319 | LCS | 0 | 0 | 1 | 0 |
| HASL-300:AM-241 | RAD | MB | 1202883317 | MB | 1 | 0 | 0 | 0 |
| HASL-300:ISOPU | RAD | CAMO-13-30585 | 1202883321 | DUP | 2 | 0 | 0 | 0 |
| HASL-300:ISOPU | RAD | CAMO-13-30585 | 326426001 | REG | 2 | 0 | 0 | 0 |
| HASL-300:ISOPU | RAD | LCS | 1202883322 | LCS | 0 | 0 | 1 | 0 |
| HASL-300:ISOPU | RAD | MB | 1202883320 | MB | 2 | 0 | 0 | 0 |
| HASL-300:ISOU | RAD | CAMO-13-30585 | 1202883334 | DUP | 3 | 0 | 0 | 0 |
| HASL-300:ISOU | RAD | CAMO-13-30585 | 326426001 | REG | 3 | 0 | 0 | 0 |
| HASL-300:ISOU | RAD | LCS | 1202883335 | LCS | 0 | 0 | 1 | 0 |
| HASL-300:ISOU | RAD | MB | 1202883333 | MB | 3 | 0 | 0 | 0 |
| SM:A2340B | INORGANIC | CAMO-13-30601 | 326426002 | REG | 1 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30601 | 1202884379 | DUP | 17 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30601 | 1202884380 | MS | 0 | 0 | 17 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30601 | 326426002 | REG | 17 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | LCS | 1202884378 | LCS | 0 | 0 | 17 | 0 |
| SW-846:6010B | INORGANIC | MB | 1202884377 | MB | 17 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30594 | 1202883956 | DUP | 11 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30594 | 1202883957 | MS | 0 | 0 | 11 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30601 | 326426002 | REG | 11 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | LCS | 1202883955 | LCS | 0 | 0 | 11 | 0 |
| SW-846:6020 | INORGANIC | MB | 1202883954 | MB | 11 | 0 | 0 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | CAMO-13-30601 | 326426002 | REG | 1 | 0 | 0 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | CASA-13-30557 | 1202883691 | MS | 0 | 0 | 1 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | CASA-13-30557 | 1202883692 | MSD | 0 | 0 | 1 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | LCS | 1202883690 | LCS | 0 | 0 | 1 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | MB | 1202883689 | MB | 1 | 0 | 0 | 0 |
| SW-846:8260B | VOC | CAMO-13-30569 | 326426003 | FTB | 80 | 3 | 0 | 0 |
| SW-846:8260B | VOC | CAMO-13-30585 | 326426001 | REG | 80 | 3 | 0 | 0 |
| SW-846:8260B | VOC | LCS | 1202885284 | LCS | 0 | 3 | 70 | 0 |
| SW-846:8260B | VOC | LCS | 1202885285 | LCS | 0 | 3 | 10 | 0 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| SW-846:8260B | VOC | MB | 1202885281 | MB | 80 | 3 | 0 | 0 |
| SW-846:8270C | SVOC | CAMO-13-30585 | 326426001 | REG | 80 | 6 | 0 | 0 |
| SW-846:8270C | SVOC | LCS | 1202882575 | LCS | 0 | 6 | 76 | 0 |
| SW-846:8270C | SVOC | MB | 1202882572 | MB | 80 | 6 | 0 | 0 |
| SW-846:8270C | SVOC | WST50-13-36043 | 1202882573 | MS | 0 | 6 | 76 | 0 |
| SW-846:8270C | SVOC | WST50-13-36043 | 1202882574 | MSD | 0 | 6 | 76 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | CAMO-13-30585 | 326426001 | REG | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | CASA-13-30548 | 1202882947 | DUP | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | LCS | 1202882949 | LCS | 0 | 0 | 1 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | MB | 1202882946 | MB | 1 | 0 | 0 | 0 |

**3. Are any analytes missing?**

No.

**4. Were any holding times exceeded?**

No.

**5. Any contaminants in blanks?**

| Field Sample ID | Lab Sample ID | Type Of Blank | Analytical Method | Sample Matrix | Parameter Name | Lab Result | Lab Qualifier | Units | Lab Detection Limit |
|---|---|---|---|---|---|---|---|---|---|
| MB | 1202882330 | METHOD BLANK | EPA:350.1 | W | Ammonia as Nitrogen | 0.0321 | J | mg/L | 0.05 |
| MB | 1202884377 | METHOD BLANK | SW-846:6010B | W | Potassium | 51.7 | J | ug/L | 150 |
| MB | 1202884377 | METHOD BLANK | SW-846:6010B | W | Vanadium | 1.06 | J | ug/L | 5 |

**Any samples affected by the presence of contaminants in blanks?**

| Field Sample ID | Blank Field Sample ID | Blank Lab Sample ID | Blank Type | Analytical Method | Parameter Name | Units | Blank Result | Sample Result | Lab Qualifier | Detect Limit | Detected |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAMO-13-30601 | MB | 1202882330 | METHOD BLANK | EPA:350.1 | Ammonia as Nitrogen | mg/L | 0.0321 | 0.0534 | | 0.05 | Y |

**6. Any surrogate recoveries outside the control limits?**

No.

**7. Any MS/MSD recoveries or RPDs outside the control limits?**

| Field Sample ID | Matrix Spike ID | Matrix Spike Dup ID | Analytical Method | Parameter Name | Analysis Lot ID | Analysis Date | Sample Matrix | MS % Recvry | MSD % Recvry | Upper Limit | Lower Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAMO-13-30584 | 1202882339 | | EPA:351.2 | Total Kjeldahl Nitrogen | 1303594 | 6/4/2013 | W | 128 | | 110 | 90 |
| CAMO-13-30601 | 1202884380 | | SW-846:6010B | Silicon Dioxide | 1304971 | 6/13/2013 | W | 72.3 | | 125 | 75 |
| CAMO-13-30601 | 1202884380 | | SW-846:6010B | Silicon Dioxide | 1304971 | 6/13/2013 | W | 72.3 | | 125 | 75 |

**8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?**

| LCS Sample ID | LCSD Sample ID | Analytical Method | Parameter Name | Lab Lot ID | Analysis Date | Sample Matrix | LCS Recovery | LCSD Recovery | Upper Limit | Lower Limit | Lower Reject Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1202885284 | | SW-846:8260B | Acetonitrile | 1305341 | 5/31/2013 | W | 129 | | 127 | 64 | 10 |
| 1202885284 | | SW-846:8260B | Bromomethane | 1305341 | 5/31/2013 | W | 123 | | 120 | 68 | 10 |
| 1202885284 | | SW-846:8260B | Hexanone[2-] | 1305341 | 5/31/2013 | W | 159 | | 158 | 53 | 10 |
| 1202882575 | | SW-846:8270C | Atrazine | 1304314 | 5/29/2013 | W | 38 | | 115 | 47 | 10 |
| 1202882575 | | SW-846:8270C | Nitroaniline[4-] | 1304314 | 5/29/2013 | W | 138 | | 133 | 38 | 10 |

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| Correction Factor (ND) | Correction Factor (J) | Use Factors |
|---|---|---|
| 5 | | Y |

| Rejection Limit | RPD | RPD Limit |
|---|---|---|
| 10 | | |
| 10 | | |
| 10 | | |

| Upper Reject Limit | RPD | RPD Limit |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |

**9. Any Field Duplicate RPDs outside the desired limits?**

No.

**10. Any Lab Duplicate RPDs outside the desired limits?**

| Field Sample ID | Lab SampleID | Lab Duplicate Sample ID | Analytical Method | Parameter Name | Sample Matrix | Sample Result | Dup Sample Result | Units | Detected In Sample | Detected In Dup | RPD |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAMO-13-30601 | 326426002 | 1202882566 | EPA:160.1 | Total Dissolved Solids | W | 136 | 160 | mg/L | Y | Y | 16.4 |
| CAMO-13-30585 | 326426001 | 1202883283 | EPA:900 | Gross alpha | W | 1.26 | 2.13 | pCi/L | Y | Y | 51.1 |
| CAMO-13-30585 | 326426001 | 1202883283 | EPA:900 | Gross beta | W | 10.9 | 9.89 | pCi/L | Y | Y | 9.76 |
| CAMO-13-30585 | 326426001 | 1202883334 | HASL-300:ISOU | Uranium-234 | W | 0.212 | 0.19 | pCi/L | Y | Y | 10.8 |
| CAMO-13-30585 | 326426001 | 1202883334 | HASL-300:ISOU | Uranium-238 | W | 0.124 | 0.123 | pCi/L | Y | Y | 0.862 |

**11. Any required reporting limits exceeded?**

No.

**12. Additional Validator's Coments.**

None.

**13. Display Flagged Data.**

| Location ID | Chain Of Custody No | Field Sample ID | Sample Purpose | Analysis Type Code | Analytical Suite | Analytical Method | Parameter Name | Lab Qualifier | Validation Qualifier | Validation Reason Codes | Detected |
|---|---|---|---|---|---|---|---|---|---|---|---|
| R-61 S2 | 2013-886 | CAMO-13-30585 | REG | INIT | RAD | HASL-300:AM-241 | Americium-241 | U | U | R5 | N |
| R-61 S2 | 2013-886 | CAMO-13-30585 | REG | INIT | SVOC | SW-846:8270C | Atrazine | U | UJ | SV12a | N |
| R-61 S2 | 2013-886 | CAMO-13-30585 | REG | INIT | RAD | EPA:901.1 | Cesium-137 | U | U | R5 | N |
| R-61 S2 | 2013-886 | CAMO-13-30585 | REG | INIT | RAD | EPA:901.1 | Cobalt-60 | U | U | R5 | N |
| R-61 S2 | 2013-886 | CAMO-13-30585 | REG | INIT | RAD | EPA:900 | Gross alpha | | J | R10 | Y |
| R-61 S2 | 2013-886 | CAMO-13-30585 | REG | INIT | RAD | EPA:900 | Gross beta | | J | R10 | Y |
| R-61 S2 | 2013-886 | CAMO-13-30585 | REG | INIT | RAD | EPA:901.1 | Neptunium-237 | U | U | R5 | N |
| R-61 S2 | 2013-886 | CAMO-13-30585 | REG | INIT | RAD | HASL-300:ISOPU | Plutonium-238 | U | U | R5 | N |
| R-61 S2 | 2013-886 | CAMO-13-30585 | REG | INIT | RAD | HASL-300:ISOPU | Plutonium-239/240 | U | U | R5 | N |
| R-61 S2 | 2013-886 | CAMO-13-30585 | REG | INIT | RAD | EPA:901.1 | Potassium-40 | U | U | R5 | N |
| R-61 S2 | 2013-886 | CAMO-13-30585 | REG | INIT | RAD | EPA:901.1 | Sodium-22 | U | U | R5 | N |
| R-61 S2 | 2013-886 | CAMO-13-30585 | REG | INIT | RAD | EPA:905.0 | Strontium-90 | U | U | R5 | N |
| R-61 S2 | 2013-886 | CAMO-13-30585 | REG | INIT | RAD | HASL-300:ISOU | Uranium-234 | | J | R10 | Y |
| R-61 S2 | 2013-886 | CAMO-13-30585 | REG | INIT | RAD | HASL-300:ISOU | Uranium-235/236 | U | U | R5 | N |
| R-61 S2 | 2013-886 | CAMO-13-30585 | REG | INIT | RAD | HASL-300:ISOU | Uranium-238 | | J | R10 | Y |
| R-61 S2 | 2013-886 | CAMO-13-30601 | REG | INIT | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | | U | I4 | N |
| R-61 S2 | 2013-886 | CAMO-13-30601 | REG | INIT | INORGANIC | SW-846:6010B | Silicon Dioxide | | J- | I6a | Y |
| R-61 S2 | 2013-886 | CAMO-13-30601 | REG | INIT | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | | J | I10a | Y |

| Reason Code | Description |
|---|---|
| I10a | The sample and the duplicate sample results were >=5X the RL and the duplicate RPD was >20% for water samples and >35% for soil samples. |
| I4 | the sample result is =<5x the concentration of related analyte in the method blank. |
| I6a | The associated matrix spike recovery was below the lower acceptance limit (LAL) but >10%. Follow the external laboratory limits located within the associated data package. |

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| RPD Limit |
|---|
| 10 |
| 1.43 |
| 2.35 |
| 0.0695 |
| 0.0444 |

| Lab Result | Lab Units | Report Result | Report Units | Report MDA | Report Uncertainty | Lab Matrix | Sample Date | Percent Moisture | Analysis Lot ID | Validation Status Code | Use Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0173 | pCi/L | 0.0173 | pCi/L | 0.0376 | 0.0096 | W | 5/22/2013 | | 1304594 | VAL | Y |
| 10.3 | ug/L | 10.3 | ug/L | | | W | 5/22/2013 | | 1304315 | VAL | Y |
| -3.04 | pCi/L | -3.04 | pCi/L | 3.75 | 1.21 | W | 5/22/2013 | | 1304286 | VAL | Y |
| 1.06 | pCi/L | 1.06 | pCi/L | 3.79 | 0.972 | W | 5/22/2013 | | 1304286 | VAL | Y |
| 1.26 | pCi/L | 1.26 | pCi/L | 0.845 | 0.31 | W | 5/22/2013 | | 1304583 | VAL | Y |
| 10.9 | pCi/L | 10.9 | pCi/L | 2.35 | 1.27 | W | 5/22/2013 | | 1304583 | VAL | Y |
| 0.771 | pCi/L | 0.771 | pCi/L | 7.44 | 3.39 | W | 5/22/2013 | | 1304286 | VAL | Y |
| 0.00432 | pCi/L | 0.00432 | pCi/L | 0.0202 | 0.00529 | W | 5/22/2013 | | 1304597 | VAL | Y |
| 0.0173 | pCi/L | 0.0173 | pCi/L | 0.0425 | 0.00748 | W | 5/22/2013 | | 1304597 | VAL | Y |
| 25.9 | pCi/L | 25.9 | pCi/L | 50.5 | 13.4 | W | 5/22/2013 | | 1304286 | VAL | Y |
| 1.58 | pCi/L | 1.58 | pCi/L | 3.84 | 0.957 | W | 5/22/2013 | | 1304286 | VAL | Y |
| -0.0161 | pCi/L | -0.0161 | pCi/L | 0.472 | 0.139 | W | 5/22/2013 | | 1305999 | VAL | Y |
| 0.212 | pCi/L | 0.212 | pCi/L | 0.0912 | 0.0313 | W | 5/22/2013 | | 1304598 | VAL | Y |
| 0.0103 | pCi/L | 0.0103 | pCi/L | 0.0709 | 0.0126 | W | 5/22/2013 | | 1304598 | VAL | Y |
| 0.124 | pCi/L | 0.124 | pCi/L | 0.0582 | 0.0242 | W | 5/22/2013 | | 1304598 | VAL | Y |
| 0.0534 | mg/L | 0.0534 | mg/L | | | W | 5/22/2013 | | 1304209 | VAL | Y |
| 91000 | ug/L | 91 | mg/L | | | W | 5/22/2013 | | 1304972 | VAL | Y |
| 136 | mg/L | 136 | mg/L | | | W | 5/22/2013 | | 1304309 | VAL | Y |

| | |
|---|---|
| J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL |
| NQ | The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample. |
| R10 | Associated duplicate sample has DER or RER> the analytical laboratory's acceptance limits. |
| R5 | Analyte is not detected because the amount reported is less than the MDC. |
| SV12a | The LCS percent recovery was < the LAL but >10%. Follow the external laboratory limits located within the associated data package. |
| U_LAB | The analytical laboratory qualified the analyte as not detected. |

**14. Useable Result Count.**

| Field Sample ID | Location ID | Sample Purpose | Analytical Method | No. Unuseable Records | Total No. Of Records |
|---|---|---|---|---|---|
| CAMO-13-30569 | R-61 S2 | FTB | SW-846:8260B | 0 | 80 |
| CAMO-13-30585 | R-61 S2 | REG | EPA:351.2 | 0 | 1 |
| CAMO-13-30585 | R-61 S2 | REG | EPA:900 | 0 | 2 |
| CAMO-13-30585 | R-61 S2 | REG | EPA:901.1 | 0 | 5 |
| CAMO-13-30585 | R-61 S2 | REG | EPA:905.0 | 0 | 1 |
| CAMO-13-30585 | R-61 S2 | REG | HASL-300:AM-241 | 0 | 1 |
| CAMO-13-30585 | R-61 S2 | REG | HASL-300:ISOPU | 0 | 2 |
| CAMO-13-30585 | R-61 S2 | REG | HASL-300:ISOU | 0 | 3 |
| CAMO-13-30585 | R-61 S2 | REG | SW-846:8260B | 0 | 80 |
| CAMO-13-30585 | R-61 S2 | REG | SW-846:8270C | 0 | 80 |
| CAMO-13-30585 | R-61 S2 | REG | SW-846:9060 | 0 | 1 |
| CAMO-13-30601 | R-61 S2 | REG | EPA:120.1 | 0 | 1 |
| CAMO-13-30601 | R-61 S2 | REG | EPA:150.1 | 0 | 1 |
| CAMO-13-30601 | R-61 S2 | REG | EPA:160.1 | 0 | 1 |
| CAMO-13-30601 | R-61 S2 | REG | EPA:245.2 | 0 | 1 |
| CAMO-13-30601 | R-61 S2 | REG | EPA:300.0 | 0 | 4 |
| CAMO-13-30601 | R-61 S2 | REG | EPA:310.1 | 0 | 2 |
| CAMO-13-30601 | R-61 S2 | REG | EPA:350.1 | 0 | 1 |
| CAMO-13-30601 | R-61 S2 | REG | EPA:353.2 | 0 | 1 |
| CAMO-13-30601 | R-61 S2 | REG | EPA:365.4 | 0 | 1 |
| CAMO-13-30601 | R-61 S2 | REG | SM:A2340B | 0 | 1 |
| CAMO-13-30601 | R-61 S2 | REG | SW-846:6010B | 0 | 17 |
| CAMO-13-30601 | R-61 S2 | REG | SW-846:6020 | 0 | 11 |
| CAMO-13-30601 | R-61 S2 | REG | SW-846:6850 | 0 | 1 |

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178
www.gel.com

June 20, 2013

Keith Greene
Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Re: LANL-WQH Water Samples
Work Order: 326426
SDG: 2013-886

Dear Keith Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on May 24, 2013, and analyzed for GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,

for

Valerie Davis
Project Manager

Purchase Order: 63641-10
Chain of Custody: 2013-886
Enclosures

**ARS International (63641-10)**
**LANL-WQH Water Samples**
**Work Order #: 326426**
**SDG: 2013-886**

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# Case Narrative

**Case Narrative for**
**ARS International (63641-10)**
**LANL-WQH Water Samples**
**Workorder #: 326426**
**SDG # : 2013-886**

**June 20, 2013**

**Laboratory Identification:**

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

**Summary**

**Sample receipt** The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on May 24, 2013 for analysis. Please see attached email for discrepancies. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. Containers were checked for pH, where appropriate, and matched the preservative as documented on the accompanying chain of custody. Shipping container temperature was within specification (0 - 6C). Shipping container temperatures were checked, documented, and within specifications. There are no additional comments concerning sample receipt.

**Sample Identification** The laboratory received the following samples:

| Laboratory ID | Client ID |
|---|---|
| 326426001 | CAMO-13-30585 |
| 326426002 | CAMO-13-30601 |
| 326426003 | CAMO-13-30569 |

**Case Narrative**

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

**Data Package**

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.

for

Valerie Davis
Project Manager

**List of current GEL Certifications as of 20 June 2013**

| State | Certification |
|---|---|
| Alaska | UST−110 |
| Arkansas | 88−0651 |
| CLIA | 42D0904046 |
| California NELAP | 01151CA |
| Colorado | SC00012 |
| Connecticut | PH−0169 |
| Delaware | SC00012 |
| DoD ELAP A2LA ISO 17025 | 2567.01 |
| Florida NELAP | E87156 |
| Foreign Soils Permit | P330−12−00283, P330−12−00284 |
| Georgia | SC00012 |
| Georgia SDWA | 967 |
| Hawaii | SC00012 |
| Idaho | SC00012 |
| Illinois NELAP | 200029 |
| Indiana | C−SC−01 |
| Kansas NELAP | E−10332 |
| Kentucky | 90129 |
| Louisiana NELAP | 03046 (AI33904) |
| Louisiana SDWA | LA130005 |
| Maryland | 270 |
| Massachusetts | M−SC012 |
| Nevada | SC000122011−1 |
| New Hampshire NELAP | 2054 |
| New Jersey NELAP | SC002 |
| New Mexico | SC00012 |
| New York NELAP | 11501 |
| North Carolina | 233 |
| North Carolina SDWA | 45709 |
| Oklahoma | 9904 |
| Pennsylvania NELAP | 68−00485 |
| Plant Material Permit | PDEP−12−00260 |
| South Carolina Chemistry | 10120001 |
| South Carolina Radiochemi | 10120002 |
| Tennessee | TN 02934 |
| Texas NELAP | T104704235−13−8 |
| Utah NELAP | SC000122013−8 |
| Vermont | VT87156 |
| Virginia NELAP | 460202 |
| Washington | C780−12 |
| Wisconsin | 999887790 |

# Chain of Custody and Supporting Documentation

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

# Chain of Custody/Analysis Request

3264216

COC/Lab Request #: 2013-886

Page 1 of 1

Client Contact:

Lab Agreement # : 126310011

Project Number :

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | WSP-8260B-VOA | WSP-8270C-SVOA | WSP-CL04 | WSP-GENINORG | WSP-GrossA/B | WSP-Met+B+SN+SR+U | WSP-NH3+NO3/NO2+PO4 | WSP-RAD | WSP-TKN+TOC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAMO-13-30585 | May 22 2013 | 13:01 | W | 2 | 3 | | | 1 | | | 1 | 1 |
| CAMO-13-30601 | May 22 2013 | 13:01 | W | | | 1 | 1 | | 1 | 1 | | |
| CAMO-13-30569 | May 22 2013 | 13:01 | W | 2 | | | | | | | | |

Special Instructions:

Special Instructions:

| Relinquished by: | | Date/Time: | Received by: | |
|---|---|---|---|---|
| Melissa Montoya | | 5/23/13 3:00 | | 052413 0900 |
| Relinquished by: | | Date/Time: | Received by: | |
| Relinquished by: | | Date/Time: | Received by: | |

GEL Laboratories LLC

# SAMPLE RECEIPT & REVIEW FORM

| | |
|---|---|
| Client: LANL | SDG/AR/COC/Work Order: 2013-886 |
| Received By: H. Taylor | Date Received: 052413 |

| Suspected Hazard Information | Yes | No | *If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation. |
|---|---|---|---|
| COC/Samples marked as radioactive? | | ✓ | Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 cpm |
| Classified Radioactive II or III by RSO? | | ✓ | If yes, Were swipes taken of sample contatiners < action levels? |
| COC/Samples marked containing PCBs? | | ✓ | |
| Package, COC, and/or Samples marked as beryllium or asbestos containing? | | ✓ | If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group. |
| Shipped as a DOT Hazardous? | | ✓ | Hazard Class Shipped: UN#: |
| Samples identified as Foreign Soil? | | ✓ | |

| | Sample Receipt Criteria | Yes | NA | No | Comments/Qualifiers (Required for Non-Conforming Items) |
|---|---|---|---|---|---|
| 1 | Shipping containers received intact and sealed? | ✓ | ✓ | | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 2 | Samples requiring cold preservation within (0 ≤ 6 deg. C)?* | ✓ | ✓ | | Preservation Method: Ice bags Blue ice Dry ice None Other (describe) 3.4 *all temperatures are recorded in Celsius |
| 2a | Daily check performed and passed on IR temperature gun? | ✓ | | | Temperature Device Serial #: 41502209 Secondary Temperature Device Serial # (If Applicable): |
| 3 | Chain of custody documents included with shipment? | ✓ | | | |
| 4 | Sample containers intact and sealed? | ✓ | | | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 5 | Samples requiring chemical preservation at proper pH? | | | ✓ | Sample ID's, containers affected and observed pH: LANO-13-30585 If Preservation added, Lot#: NX0409-75 |
| 6 | VOA vials free of headspace (defined as < 6mm bubble)? | ✓ | | | Sample ID's and containers affected: |
| 7 | Are Encore containers present? | | | ✓ | (If yes, immediately deliver to Volatiles laboratory) |
| 8 | Samples received within holding time? | ✓ | | | ID's and tests affected: |
| 9 | Sample ID's on COC match ID's on bottles? | | | ✓ | Sample ID's and containers affected: * see continuation |
| 10 | Date & time on COC match date & time on bottles? | ✓ | | | Sample ID's affected: |
| 11 | Number of containers received match number indicated on COC? | | | ✓ | Sample ID's affected: * see continuation |
| 12 | Are sample containers identifiable as GEL provided? | | | ✓ | |
| 13 | COC form is properly signed in relinquished/received sections? | ✓ | | | |
| 14 | Carrier and tracking number. | | | | Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other 5462 9833 0387-3 5462 9833 0376-3 5462 9833 0398-4 |

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials HT Date 052413 Page 1 of 2

GEL Laboratories LLC **SAMPLE RECEIPT & REVIEW CONTINUATION FORM**

**Client:** LANL **Received By:** H. Taylor **Date Received:** 052413 **SDG/AR/COC/Work Order:** _____

Gross A/B container preserved prior to analysis

Received sample ID P0522.13 052213@1345
for VOA not listed on any chains.

Received 1 container for ID P0513.22 for VOA,
Chain indicates 2.

RN 2013-886
Received 1 container for ID CAMO-13-30569 for VOA,
Chain indicates two

RN 2013-886
Received 1 container for ID CAMO-13-30585 for SVOA
Chain indicates 3.

PM (or PMA) review: Initials HA Date 052413 Page 2 of 2

**Subject:** Sample Receipt for 052413
**From:** Hope Taylor <Hope.Taylor@gel.com>
**Date:** 5/24/2013 3:07 PM
**To:** "Keith R. Greene" <kgreene@lanl.gov>, LANL@amrad.com, "team.davis" <team.davis@gel.com>

The container for Gross A/B was preserved prior to analysis.

RN 2013-886
CAMO-13-30569 received 1 container for VOA, chain indicates 2.
CAMO-13-30585 received 1 container for SVOA, chain indicates 3.

ID P0513.22 received 1 container for VOA chain indicates 2.

**Received a 40 ml vial for VOA with ID P0522.13 collect date and time of 052213 @1345 not listed on any chain.**

--
Hope Taylor
Project Manager Assistant
GEL Laboratories, LLC
2040 Savage Road
Charleston, SC 29407
Direct: 843.769.7376 ext. 4778
Main: 843.556.8171
Fax: 843.766.1178
E-mail: hop01200@gel.com
Web: www.gel.com

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 23MAY13
ACTWGT: 34.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: WE6L11571000

50DC1/9983/10BC

FedEx Express

J111311060060125

TRK# 0201 5462 9833 0387

FRI - 24 MAY 10:30A
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 06/10

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 23MAY13
ACTWGT: 47.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWKO

50DC1/9983/10BC

FedEx Express

J111311060060125

TRK# 0201 5462 9833 0376

FRI - 24 MAY 10:30A
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 06/10

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 23MAY13
ACTWGT: 35.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: K50L31220000

5BDC1/9983/10BC

FedEx Express

J1113110060125

FRI - 24 MAY 10:30A
PRIORITY OVERNIGHT

TRK# 0201 5462 9833 0398

XX CHSA

29407
SC-US CHS

Part # 156148-434 FITZ 08/10

# Data Review Qualifier Flag Definition Sheet

## Data Review Qualifier Definitions

| Qualifier | Explanation |
|---|---|
| * | A quality control analyte recovery is outside of specified acceptance criteria |
| ** | Analyte is a surrogate compound |
| < | Result is less than value reported |
| > | Result is greater than value reported |
| ^ | RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL |
| A | The TIC is a suspected aldol-condensation product |
| B | Target analyte was detected in the associated blank |
| B | Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL |
| BD | Results are either below the MDC or tracer recovery is low |
| C | Analyte has been confirmed by GC/MS analysis |
| D | Results are reported from a diluted aliquot of the sample |
| d | 5-day BOD-The 2:1 depletion requirement was not met for this sample |
| E | Organics-Concentration of the target analyte exceeds the instrument calibration range |
| E | Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria |
| H | Analytical holding time was exceeded |
| h | Preparation or preservation holding time was exceeded |
| J | Value is estimated |
| N | Metals-The Matrix spike sample recovery is not within specified control limits |
| N | Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N/A | Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more |
| ND | Analyte concentration is not detected above the reporting limit |
| UI | Gamma Spectroscopy-Uncertain identification |
| X | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| Y | QC Samples were not spiked with this compound |
| Z | Paint Filter Test-Particulates passed through the filter, however no free liquids were observed. |

P Organics-The concentrations between the primary and confirmation columns/detectors is >40% difference. For HPLC, the difference is >70%.

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

# Volatile Analysis

# Case Narrative

**ChemStation Case Narrative**
**ARS International (ARSL)**
**SDG 2013-886**

## Method/Analysis Information

| | |
|---|---|
| **Procedure:** | **Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer** |
| Analytical Method: | SW846 8260B DOE-AL |
| Analytical Batch Number: | 1305341 |

## Sample Analysis

The following client and quality control samples were analyzed to complete this SDG using the methods referenced in the Analysis Information section:

| Sample ID | Client ID |
|---|---|
| 326426001 | CAMO-13-30585 |
| 326426003 | CAMO-13-30569 |
| 1202885281 | Method Blank (MB) |
| 1202885282 | 326213001(CAMO-13-30615) Post Spike (PS) |
| 1202885283 | 326213001(CAMO-13-30615) Post Spike Duplicate (PSD) |
| 1202885284 | Laboratory Control Sample (LCS) |
| 1202885285 | Laboratory Control Sample (LCS) |
| 1202885286 | 326213001(CAMO-13-30615) Post Spike (PS) |
| 1202885287 | 326213001(CAMO-13-30615) Post Spike Duplicate (PSD) |

NOTE: For volatile organic analyses the matrix spike designations may be indicated as "PS" or "PSD". The "PS" designation (post spike) indicates that the matrix was fortified prior to analysis but after applying any prep factors, such as a dilution. The laboratory considers the MS/MSD and PS/PSD designations interchangeable.

The samples in this SDG were analyzed on an "as received" basis.

## Preparation/Analytical Method Verification

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-038 REV# 19.

Raw data reports are processed and reviewed by the analyst using the Chemstation software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP) section 19.1.2. False positive analytes are designated on the quantitation report with a ’d’ qualifier.

## Calibration Information

A complete list of the initial calibration data files with the correct dates and times of analysis are shown in the Calibration History report located in the Standard Data section of the data package.

The surrogate compounds were calibrated using a minimum five-point calibration curve. The surrogates were added by the auto sampler at a concentration of 50 ug/L or 20 ug/L for low level analyses. GEL Laboratories LLC will not have surrogate recoveries reported for Dibromofluoromethane. This is due to increased regulations for this analyte and an industry shortage.

**Initial Calibration**
All initial calibration requirements have been met for this sample delivery group (SDG).

**Continuing Calibration Verification Requirements**
All associated calibration verification standard(s) (CCV) met the acceptance criteria.

**Quality Control (QC) Information**

**Blank (MB) Statement**
The blank analyzed with this SDG met the acceptance criteria.

**Surrogate Recoveries**
Surrogate recoveries in all client and quality control samples were within the acceptance limits.

**Laboratory Control Sample (LCS) Recovery**
The LCS 1202885284 (LCS) recoveries were not all within the acceptance limits. The unacceptable recoveries were less than 5% of the requested analyte list. This satisfies the client criteria. The results are reported. See the Data Exception Report in the miscellaneous section of the data package.

**QC Sample Designation**
Sample 326213001 (CAMO-13-30615) was designated for spike analysis.

**Matrix Spike (PS) Recovery Statement**
The spike recoveries were within the required acceptance limits.

**Matrix Spike Duplicate (PSD) Recovery Statement**
The spike duplicate recoveries were within the required acceptance limits.

**Relative Percent Difference (RPD) Statement**
The RPDs between the matrix spike pair met the acceptance limits.

**Internal Standard (ISTD) Acceptance**
The internal standard responses in all client and quality control samples met the required acceptance criteria.

**Technical Information**

**Holding Time Specifications**
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection or sample receipt. Those holding times expressed in hours are calculated in the ALPHALIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

**Sample Preservation and Integrity**
All samples met the sample preservation and integrity requirements.

**Sample Dilutions/Methanol Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-extraction/Re-analysis**
Re-analyses were not required for samples in this SDG.

## Miscellaneous Information

### Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

### Data Exception (DER) Documentation

The following DER was generated for this SDG: 1191301.

### Manual Integrations

Data files associated with the initial calibration, continuing calibration check, and samples did not require manual integrations.

### TIC Comment

Tentatively identified compounds (TIC) may be requested for this sample delivery group/work order. Please note that non-requested target analytes that are reported on the quantitation reports will be present on the Form I. These detected analytes are included in the calibrated method and as a result will be reported on the Sample Data Summary (Form I) or Certificate of Analysis (C of A). TIC data, if requested, are included on the Sample Data Summary (Form I) and are also included with the sample raw data.

### Additional Comments

Additional comments were not required for this SDG.

### Residual Chlorine

Residual Chlorine was not detected in any of the samples in this SDG.

## System Configuration

The Volatile-GC/MS analysis was performed on the following instrument configuration:

| Instrument ID | Instrument | System Configuration | Column ID | Column Description | P & T Trap |
|---|---|---|---|---|---|
| VOA4.I | Agilent 6890/5973 GC/MS w/ OI 4560/Archon Autosampler | HP6890/HP5973 | DB-624 | J&W, 60m x 0.25mm x 1.4um | Trap 10 |

## Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-886  GEL Work Order: 326426

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

**  Analyte is a surrogate compound

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL  Indicates that sample is diluted.
RA  Indicates that sample is re-analyzed without re-extraction.
RE  Indicates that sample is re-extracted.

**Review/Validation**

GEL requires all analytical data to be verified by a qualified data reviewer.  In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

**Signature:** Erin Haubert  **Name:** **Erin Haubert**

**Date:** **17 JUN 2013**  **Title:** **Data Validator**

# Sample Data Summary

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-886** | **Date Collected:** | **05/22/2013 13:01** | **Matrix:** | **W** |
| **Lab Sample ID:** | **326426001** | **Date Received:** | **05/24/2013 09:00** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30585** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305341** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/31/2013 22:33** | **Analyst:** | **GRB2** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/31/2013 22:33** | | | | |
| **Data File:** | **053113V4\4M513.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 630-20-6 | 1,1,1,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-34-3 | 1,1-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-35-4 | 1,1-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 142-28-9 | 1,3-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | U | 5.00 | ug/L | 2.00 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | U | 5.00 | ug/L | 2.20 | 5.00 |
| 106-43-4 | 4-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 67-64-1 | Acetone | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | U | 25.0 | ug/L | 8.00 | 25.0 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 71-43-2 | Benzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | U | 1.00 | ug/L | 0.300 | 1.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-886** | **Date Collected:** | **05/22/2013 13:01** | **Matrix:** | **W** |
| **Lab Sample ID:** | **326426001** | **Date Received:** | **05/24/2013 09:00** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30585** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305341** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/31/2013 22:33** | **Analyst:** | **GRB2** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/31/2013 22:33** | | | | |
| **Data File:** | **053113V4\4M513.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 74-83-9 | Bromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-15-0 | Carbon disulfide | U | 5.00 | ug/L | 1.50 | 5.00 |
| 56-23-5 | Carbon tetrachloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-71-8 | Dichlorodifluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 100-41-4 | Ethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 98-82-8 | Isopropylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | U | 10.0 | ug/L | 3.00 | 10.0 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.400 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 100-42-5 | Styrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 108-05-4 | Vinyl acetate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-01-4 | Vinyl chloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | U | 2.00 | ug/L | 0.300 | 2.00 |
| 71-36-3 | n-Butyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 104-51-8 | n-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-47-6 | o-Xylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-886** | **Date Collected:** | **05/22/2013 13:01** | **Matrix:** | **W** |
| **Lab Sample ID:** | **326426001** | **Date Received:** | **05/24/2013 09:00** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30585** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305341** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/31/2013 22:33** | **Analyst:** | **GRB2** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/31/2013 22:33** | | | | |
| **Data File:** | **053113V4\4M513.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 1634-04-4 | tert-Butyl methyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 47.2 | 50.0 | ug/L | 94.3 | (78%-124%) |
| Bromofluorobenzene | 46.7 | 50.0 | ug/L | 93.5 | (80%-120%) |
| Toluene-d8 | 50.9 | 50.0 | ug/L | 102 | (80%-120%) |

**Tentatively Identified Compound Summary**

| CAS No. | Tentatively Identified Compound (TIC) | RT | Estimated | Units | Fit | Qual |
|---|---|---|---|---|---|---|
| | unknown | 4.482 | 24.1 | ug/L | 0 | J |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-886** | **Date Collected:** | **05/22/2013 13:01** | **Matrix:** | **W** |
| **Lab Sample ID:** | **326426003** | **Date Received:** | **05/24/2013 09:00** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30569** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305341** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/31/2013 23:01** | **Analyst:** | **GRB2** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/31/2013 23:01** | | | | |
| **Data File:** | **053113V4\4M514.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 630-20-6 | 1,1,1,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-34-3 | 1,1-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-35-4 | 1,1-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 142-28-9 | 1,3-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | U | 5.00 | ug/L | 2.00 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | U | 5.00 | ug/L | 2.20 | 5.00 |
| 106-43-4 | 4-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 67-64-1 | Acetone | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | U | 25.0 | ug/L | 8.00 | 25.0 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 71-43-2 | Benzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | U | 1.00 | ug/L | 0.300 | 1.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-886** | **Date Collected:** | **05/22/2013 13:01** | **Matrix:** | **W** |
| **Lab Sample ID:** | **326426003** | **Date Received:** | **05/24/2013 09:00** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30569** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305341** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/31/2013 23:01** | **Analyst:** | **GRB2** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/31/2013 23:01** | | | | |
| **Data File:** | **053113V4\4M514.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 74-83-9 | Bromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-15-0 | Carbon disulfide | U | 5.00 | ug/L | 1.50 | 5.00 |
| 56-23-5 | Carbon tetrachloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-71-8 | Dichlorodifluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 100-41-4 | Ethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 98-82-8 | Isopropylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | U | 10.0 | ug/L | 3.00 | 10.0 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.400 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 100-42-5 | Styrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 108-05-4 | Vinyl acetate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-01-4 | Vinyl chloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | U | 2.00 | ug/L | 0.300 | 2.00 |
| 71-36-3 | n-Butyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 104-51-8 | n-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-47-6 | o-Xylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-886** | **Date Collected:** | **05/22/2013 13:01** | **Matrix:** | **W** |
| **Lab Sample ID:** | **326426003** | **Date Received:** | **05/24/2013 09:00** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30569** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305341** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/31/2013 23:01** | **Analyst:** | **GRB2** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/31/2013 23:01** | | | | |
| **Data File:** | **053113V4\4M514.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 1634-04-4 | tert-Butyl methyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 46.9 | 50.0 | ug/L | 93.9 | (78%-124%) |
| Bromofluorobenzene | 47.4 | 50.0 | ug/L | 94.8 | (80%-120%) |
| Toluene-d8 | 50.4 | 50.0 | ug/L | 101 | (80%-120%) |

**Tentatively Identified Compound Summary**

| CAS No. | Tentatively Identified Compound (TIC) | RT | Estimated | Units | Fit | Qual |
|---|---|---|---|---|---|---|
| | unknown | 4.482 | 12.2 | ug/L | 0 | J |

# Quality Control Summary

**Volatile**

## Surrogate Recovery Report

**SDG Number: 2013-886**

**Matrix Type: LIQUID**

| Sample ID | Client ID | DCED4 %REC | TOL %REC | BFB %REC |
|---|---|---|---|---|
| 1202885284 | LCS for batch 1305341 | 95 | 100 | 93 |
| 1202885285 | LCS for batch 1305341 | 96 | 98 | 101 |
| 1202885281 | MB for batch 1305341 | 96 | 103 | 96 |
| 326426001 | CAMO-13-30585 | 94 | 102 | 93 |
| 326426003 | CAMO-13-30569 | 94 | 101 | 95 |
| 1202885282 | CAMO-13-30615PS | 92 | 102 | 91 |
| 1202885283 | CAMO-13-30615PSD | 94 | 101 | 91 |
| 1202885286 | CAMO-13-30615PS | 96 | 99 | 102 |
| 1202885287 | CAMO-13-30615PSD | 97 | 100 | 103 |

| Surrogate | | Acceptance Limits |
|---|---|---|
| DCED4 | = 1,2-Dichloroethane-d4 | (78%-124%) |
| TOL | = Toluene-d8 | (80%-120%) |
| BFB | = Bromofluorobenzene | (80%-120%) |

* Recovery outside Acceptance Limits
# Column to be used to flag recovery values
D Sample Diluted

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-886** **Sample Type:** **Post Spike**
**Client ID:** **CAMO-13-30615PS** **Matrix:** **W**
**Lab Sample ID:** **1202885282**
**Instrument:** **VOA4.I** **Analysis Date:** **06/01/2013 02:46** **Dilution: 1**
**Analyst:** **GRB2**
**Purge Vol:** **5 mL** **Batch ID:** **1305341**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 179601-23-1 | PS | m,p-Xylenes | 100 | 0.00 | U | 108 | 108 | 56-134 |
| 75-05-8 | PS | Acetonitrile | 1250 | 0.00 | U | 1460 | 117 | 60-133 |
| 67-64-1 | PS | Acetone | 250 | 0.00 | U | 134 | 53 | 30-143 |
| 74-88-4 | PS | Iodomethane | 250 | 0.00 | U | 256 | 102 | 69-147 |
| 75-15-0 | PS | Carbon disulfide | 250 | 0.00 | U | 312 | 125 | 65-153 |
| 108-05-4 | PS | Vinyl acetate | 250 | 0.00 | U | 233 | 93 | 50-143 |
| 78-93-3 | PS | 2-Butanone | 250 | 0.00 | U | 196 | 78 | 30-140 |
| 108-10-1 | PS | 4-Methyl-2-pentanone | 250 | 0.00 | U | 264 | 105 | 68-136 |
| 591-78-6 | PS | 2-Hexanone | 250 | 0.00 | U | 244 | 98 | 31-132 |
| 75-71-8 | PS | Dichlorodifluoromethane | 50.0 | 0.00 | U | 48.1 | 96 | 36-123 |
| 74-87-3 | PS | Chloromethane | 50.0 | 0.00 | U | 52.9 | 106 | 47-134 |
| 75-01-4 | PS | Vinyl chloride | 50.0 | 0.00 | U | 49.0 | 98 | 49-129 |
| 74-83-9 | PS | Bromomethane | 50.0 | 0.00 | U | 58.5 | 117 | 56-127 |
| 75-00-3 | PS | Chloroethane | 50.0 | 0.00 | U | 52.5 | 105 | 67-122 |
| 75-69-4 | PS | Trichlorofluoromethane | 50.0 | 0.00 | U | 45.6 | 91 | 60-123 |
| 60-29-7 | PS | Ethyl ether | 50.0 | 0.00 | U | 44.8 | 90 | 69-121 |
| 75-35-4 | PS | 1,1-Dichloroethylene | 50.0 | 0.00 | U | 52.6 | 105 | 67-132 |
| 75-09-2 | PS | Methylene chloride | 50.0 | 1.79 | U | 54.0 | 104 | 56-135 |
| 1634-04-4 | PS | tert-Butyl methyl ether | 50.0 | 0.00 | U | 44.7 | 89 | 73-126 |
| 156-60-5 | PS | trans-1,2-Dichloroethylene | 50.0 | 0.00 | U | 53.7 | 107 | 69-128 |
| 75-34-3 | PS | 1,1-Dichloroethane | 50.0 | 0.00 | U | 54.7 | 109 | 75-124 |
| 156-59-2 | PS | cis-1,2-Dichloroethylene | 50.0 | 0.00 | U | 55.3 | 111 | 52-147 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-886** **Sample Type:** **Post Spike**
**Client ID:** **CAMO-13-30615PS** **Matrix:** **W**
**Lab Sample ID:** **1202885282**
**Instrument:** **VOA4.I** **Analysis Date:** **06/01/2013 02:46** **Dilution: 1**
**Analyst:** **GRB2**
**Purge Vol:** **5 mL** **Batch ID:** **1305341**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 594-20-7 | PS | 2,2-Dichloropropane | 50.0 | 0.00 | U | 48.2 | 96 | 67-143 |
| 67-66-3 | PS | Chloroform | 50.0 | 0.00 | U | 53.1 | 106 | 75-125 |
| 74-97-5 | PS | Bromochloromethane | 50.0 | 0.00 | U | 54.3 | 109 | 80-120 |
| 71-55-6 | PS | 1,1,1-Trichloroethane | 50.0 | 0.00 | U | 51.1 | 102 | 69-140 |
| 563-58-6 | PS | 1,1-Dichloropropene | 50.0 | 0.00 | U | 52.4 | 105 | 71-130 |
| 56-23-5 | PS | Carbon tetrachloride | 50.0 | 0.00 | U | 51.4 | 103 | 69-142 |
| 107-06-2 | PS | 1,2-Dichloroethane | 50.0 | 0.00 | U | 50.0 | 100 | 72-126 |
| 71-43-2 | PS | Benzene | 50.0 | 0.00 | U | 54.4 | 109 | 73-119 |
| 79-01-6 | PS | Trichloroethylene | 50.0 | 0.00 | U | 51.0 | 102 | 54-147 |
| 78-87-5 | PS | 1,2-Dichloropropane | 50.0 | 0.00 | U | 52.3 | 105 | 78-123 |
| 75-27-4 | PS | Bromodichloromethane | 50.0 | 0.00 | U | 52.8 | 106 | 76-131 |
| 74-95-3 | PS | Dibromomethane | 50.0 | 0.00 | U | 52.6 | 105 | 79-120 |
| 10061-01-5 | PS | cis-1,3-Dichloropropylene | 50.0 | 0.00 | U | 49.2 | 98 | 72-134 |
| 108-88-3 | PS | Toluene | 50.0 | 0.00 | U | 53.7 | 107 | 62-126 |
| 10061-02-6 | PS | trans-1,3-Dichloropropylene | 50.0 | 0.00 | U | 50.2 | 100 | 72-133 |
| 79-00-5 | PS | 1,1,2-Trichloroethane | 50.0 | 0.00 | U | 54.8 | 110 | 74-120 |
| 142-28-9 | PS | 1,3-Dichloropropane | 50.0 | 0.00 | U | 54.5 | 109 | 73-121 |
| 127-18-4 | PS | Tetrachloroethylene | 50.0 | 0.00 | U | 50.4 | 101 | 54-139 |
| 124-48-1 | PS | Dibromochloromethane | 50.0 | 0.00 | U | 54.3 | 109 | 74-128 |
| 106-93-4 | PS | 1,2-Dibromoethane | 50.0 | 0.00 | U | 53.3 | 107 | 80-120 |
| 108-90-7 | PS | Chlorobenzene | 50.0 | 0.00 | U | 53.3 | 107 | 73-119 |
| 100-41-4 | PS | Ethylbenzene | 50.0 | 0.00 | U | 53.6 | 107 | 66-125 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-886** **Sample Type:** **Post Spike**
**Client ID:** **CAMO-13-30615PS** **Matrix:** **W**
**Lab Sample ID:** **1202885282**
**Instrument:** **VOA4.I** **Analysis Date:** **06/01/2013 02:46** **Dilution: 1**
**Analyst:** **GRB2**
**Purge Vol:** **5 mL** **Batch ID:** **1305341**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 95-47-6 | PS | o-Xylene | 50.0 | 0.00 | U | 53.9 | 108 | 68-126 |
| 100-42-5 | PS | Styrene | 50.0 | 0.00 | U | 55.1 | 110 | 57-138 |
| 75-25-2 | PS | Bromoform | 50.0 | 0.00 | U | 49.3 | 99 | 66-129 |
| 79-34-5 | PS | 1,1,2,2-Tetrachloroethane | 50.0 | 0.00 | U | 54.0 | 108 | 44-146 |
| 96-18-4 | PS | 1,2,3-Trichloropropane | 50.0 | 0.00 | U | 49.8 | 100 | 68-129 |
| 108-86-1 | PS | Bromobenzene | 50.0 | 0.00 | U | 49.0 | 98 | 70-122 |
| 103-65-1 | PS | n-Propylbenzene | 50.0 | 0.00 | U | 50.1 | 100 | 61-131 |
| 95-49-8 | PS | 2-Chlorotoluene | 50.0 | 0.00 | U | 49.9 | 100 | 66-126 |
| 98-82-8 | PS | Isopropylbenzene | 50.0 | 0.00 | U | 49.5 | 99 | 65-130 |
| 108-67-8 | PS | 1,3,5-Trimethylbenzene | 50.0 | 0.00 | U | 51.0 | 102 | 58-134 |
| 106-43-4 | PS | 4-Chlorotoluene | 50.0 | 0.00 | U | 49.4 | 99 | 63-125 |
| 98-06-6 | PS | tert-Butylbenzene | 50.0 | 0.00 | U | 49.5 | 99 | 66-129 |
| 95-63-6 | PS | 1,2,4-Trimethylbenzene | 50.0 | 0.00 | U | 51.8 | 104 | 60-131 |
| 135-98-8 | PS | sec-Butylbenzene | 50.0 | 0.00 | U | 52.4 | 105 | 62-130 |
| 99-87-6 | PS | 4-Isopropyltoluene | 50.0 | 0.00 | U | 50.5 | 101 | 62-132 |
| 541-73-1 | PS | 1,3-Dichlorobenzene | 50.0 | 0.00 | U | 50.6 | 101 | 66-121 |
| 106-46-7 | PS | 1,4-Dichlorobenzene | 50.0 | 0.00 | U | 50.1 | 100 | 65-119 |
| 104-51-8 | PS | n-Butylbenzene | 50.0 | 0.00 | U | 52.4 | 105 | 55-134 |
| 96-12-8 | PS | 1,2-Dibromo-3-chloropropane | 50.0 | 0.00 | U | 46.1 | 92 | 58-137 |
| 87-68-3 | PS | Hexachlorobutadiene | 50.0 | 0.00 | U | 43.0 | 86 | 49-139 |
| 91-20-3 | PS | Naphthalene | 50.0 | 0.00 | U | 42.5 | 85 | 46-145 |
| 87-61-6 | PS | 1,2,3-Trichlorobenzene | 50.0 | 0.00 | U | 39.2 | 78 | 54-134 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-886**
**Sample Type:** **Post Spike**
**Client ID:** **CAMO-13-30615PS**
**Matrix:** **W**
**Lab Sample ID:** **1202885282**
**Instrument:** **VOA4.I**
**Analysis Date:** **06/01/2013 02:46**
**Dilution: 1**
**Analyst:** **GRB2**
**Purge Vol:** **5 mL**
**Batch ID:** **1305341**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 120-82-1 | PS | 1,2,4-Trichlorobenzene | 50.0 | 0.00 | U | 40.6 | 81 | 55-128 |
| 630-20-6 | PS | 1,1,1,2-Tetrachloroethane | 50.0 | 0.00 | U | 55.1 | 110 | 79-128 |
| 95-50-1 | PS | 1,2-Dichlorobenzene | 50.0 | 0.00 | U | 52.3 | 105 | 68-121 |
| 71-36-3 | PS | n-Butyl alcohol | 5000 | 0.00 | U | 5410 | 108 | 53-150 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-886** **Sample Type:** **Post Spike Duplicate**

**Client ID:** **CAMO-13-30615PSD** **Matrix:** **W**

**Lab Sample ID:** **1202885283**

**Instrument:** **VOA4.I** **Analysis Date:** **06/01/2013 03:14** **Dilution: 1**

**Analyst:** **GRB2**

**Purge Vol:** **5 mL** **Batch ID:** **1305341**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 179601-23-1 | PSD | m,p-Xylenes | 100 | 0.00 | U | 109 | 109 | 56-134 | 1 | 0-20 |
| 75-05-8 | PSD | Acetonitrile | 1250 | 0.00 | U | 1630 | 131 | 60-133 | 11 | 0-20 |
| 67-64-1 | PSD | Acetone | 250 | 0.00 | U | 157 | 63 | 30-143 | 16 | 0-20 |
| 74-88-4 | PSD | Iodomethane | 250 | 0.00 | U | 259 | 104 | 69-147 | 1 | 0-20 |
| 75-15-0 | PSD | Carbon disulfide | 250 | 0.00 | U | 321 | 128 | 65-153 | 3 | 0-20 |
| 108-05-4 | PSD | Vinyl acetate | 250 | 0.00 | U | 246 | 98 | 50-143 | 5 | 0-20 |
| 78-93-3 | PSD | 2-Butanone | 250 | 0.00 | U | 226 | 90 | 30-140 | 14 | 0-20 |
| 108-10-1 | PSD | 4-Methyl-2-pentanone | 250 | 0.00 | U | 296 | 118 | 68-136 | 11 | 0-20 |
| 591-78-6 | PSD | 2-Hexanone | 250 | 0.00 | U | 275 | 110 | 31-132 | 12 | 0-20 |
| 75-71-8 | PSD | Dichlorodifluoromethane | 50.0 | 0.00 | U | 54.3 | 109 | 36-123 | 12 | 0-20 |
| 74-87-3 | PSD | Chloromethane | 50.0 | 0.00 | U | 53.6 | 107 | 47-134 | 1 | 0-20 |
| 75-01-4 | PSD | Vinyl chloride | 50.0 | 0.00 | U | 50.8 | 102 | 49-129 | 4 | 0-20 |
| 74-83-9 | PSD | Bromomethane | 50.0 | 0.00 | U | 61.3 | 123 | 56-127 | 5 | 0-20 |
| 75-00-3 | PSD | Chloroethane | 50.0 | 0.00 | U | 55.4 | 111 | 67-122 | 5 | 0-20 |
| 75-69-4 | PSD | Trichlorofluoromethane | 50.0 | 0.00 | U | 49.5 | 99 | 60-123 | 8 | 0-20 |
| 60-29-7 | PSD | Ethyl ether | 50.0 | 0.00 | U | 48.3 | 97 | 69-121 | 8 | 0-20 |
| 75-35-4 | PSD | 1,1-Dichloroethylene | 50.0 | 0.00 | U | 55.8 | 112 | 67-132 | 6 | 0-20 |
| 75-09-2 | PSD | Methylene chloride | 50.0 | 1.79 | U | 54.3 | 105 | 56-135 | 1 | 0-20 |
| 1634-04-4 | PSD | tert-Butyl methyl ether | 50.0 | 0.00 | U | 47.5 | 95 | 73-126 | 6 | 0-20 |
| 156-60-5 | PSD | trans-1,2-Dichloroethylene | 50.0 | 0.00 | U | 56.5 | 113 | 69-128 | 5 | 0-20 |
| 75-34-3 | PSD | 1,1-Dichloroethane | 50.0 | 0.00 | U | 56.4 | 113 | 75-124 | 3 | 0-20 |
| 156-59-2 | PSD | cis-1,2-Dichloroethylene | 50.0 | 0.00 | U | 55.9 | 112 | 52-147 | 1 | 0-20 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-886** **Sample Type:** **Post Spike Duplicate**

**Client ID:** **CAMO-13-30615PSD** **Matrix:** **W**

**Lab Sample ID:** **1202885283**

**Instrument:** **VOA4.I** **Analysis Date:** **06/01/2013 03:14** **Dilution: 1**

**Analyst:** **GRB2**

**Purge Vol:** **5 mL** **Batch ID:** **1305341**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 594-20-7 | PSD | 2,2-Dichloropropane | 50.0 | 0.00 | U | 51.9 | 104 | 67-143 | 8 | 0-20 |
| 67-66-3 | PSD | Chloroform | 50.0 | 0.00 | U | 54.9 | 110 | 75-125 | 3 | 0-20 |
| 74-97-5 | PSD | Bromochloromethane | 50.0 | 0.00 | U | 54.8 | 110 | 80-120 | 1 | 0-20 |
| 71-55-6 | PSD | 1,1,1-Trichloroethane | 50.0 | 0.00 | U | 53.7 | 107 | 69-140 | 5 | 0-20 |
| 563-58-6 | PSD | 1,1-Dichloropropene | 50.0 | 0.00 | U | 56.9 | 114 | 71-130 | 8 | 0-20 |
| 56-23-5 | PSD | Carbon tetrachloride | 50.0 | 0.00 | U | 54.2 | 108 | 69-142 | 5 | 0-20 |
| 107-06-2 | PSD | 1,2-Dichloroethane | 50.0 | 0.00 | U | 51.8 | 104 | 72-126 | 4 | 0-20 |
| 71-43-2 | PSD | Benzene | 50.0 | 0.00 | U | 56.2 | 112 | 73-119 | 3 | 0-20 |
| 79-01-6 | PSD | Trichloroethylene | 50.0 | 0.00 | U | 54.0 | 108 | 54-147 | 6 | 0-20 |
| 78-87-5 | PSD | 1,2-Dichloropropane | 50.0 | 0.00 | U | 53.0 | 106 | 78-123 | 1 | 0-20 |
| 75-27-4 | PSD | Bromodichloromethane | 50.0 | 0.00 | U | 52.5 | 105 | 76-131 | 1 | 0-20 |
| 74-95-3 | PSD | Dibromomethane | 50.0 | 0.00 | U | 54.2 | 108 | 79-120 | 3 | 0-20 |
| 10061-01-5 | PSD | cis-1,3-Dichloropropylene | 50.0 | 0.00 | U | 50.8 | 102 | 72-134 | 3 | 0-20 |
| 108-88-3 | PSD | Toluene | 50.0 | 0.00 | U | 55.7 | 111 | 62-126 | 4 | 0-20 |
| 10061-02-6 | PSD | trans-1,3-Dichloropropylene | 50.0 | 0.00 | U | 52.3 | 105 | 72-133 | 4 | 0-20 |
| 79-00-5 | PSD | 1,1,2-Trichloroethane | 50.0 | 0.00 | U | 56.5 | 113 | 74-120 | 3 | 0-20 |
| 142-28-9 | PSD | 1,3-Dichloropropane | 50.0 | 0.00 | U | 55.6 | 111 | 73-121 | 2 | 0-20 |
| 127-18-4 | PSD | Tetrachloroethylene | 50.0 | 0.00 | U | 54.1 | 108 | 54-139 | 7 | 0-20 |
| 124-48-1 | PSD | Dibromochloromethane | 50.0 | 0.00 | U | 56.0 | 112 | 74-128 | 3 | 0-20 |
| 106-93-4 | PSD | 1,2-Dibromoethane | 50.0 | 0.00 | U | 55.5 | 111 | 80-120 | 4 | 0-20 |
| 108-90-7 | PSD | Chlorobenzene | 50.0 | 0.00 | U | 53.9 | 108 | 73-119 | 1 | 0-20 |
| 100-41-4 | PSD | Ethylbenzene | 50.0 | 0.00 | U | 54.5 | 109 | 66-125 | 2 | 0-20 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-886** **Sample Type:** **Post Spike Duplicate**

**Client ID:** **CAMO-13-30615PSD** **Matrix:** **W**

**Lab Sample ID:** **1202885283**

**Instrument:** **VOA4.I** **Analysis Date:** **06/01/2013 03:14** **Dilution: 1**

**Analyst:** **GRB2**

**Purge Vol:** **5 mL** **Batch ID:** **1305341**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 95-47-6 | PSD | o-Xylene | 50.0 | 0.00 | U | 54.1 | 108 | 68-126 | 0 | 0-20 |
| 100-42-5 | PSD | Styrene | 50.0 | 0.00 | U | 54.6 | 109 | 57-138 | 1 | 0-20 |
| 75-25-2 | PSD | Bromoform | 50.0 | 0.00 | U | 52.8 | 106 | 66-129 | 7 | 0-20 |
| 79-34-5 | PSD | 1,1,2,2-Tetrachloroethane | 50.0 | 0.00 | U | 56.5 | 113 | 44-146 | 5 | 0-20 |
| 96-18-4 | PSD | 1,2,3-Trichloropropane | 50.0 | 0.00 | U | 53.5 | 107 | 68-129 | 7 | 0-20 |
| 108-86-1 | PSD | Bromobenzene | 50.0 | 0.00 | U | 51.2 | 102 | 70-122 | 4 | 0-20 |
| 103-65-1 | PSD | n-Propylbenzene | 50.0 | 0.00 | U | 52.5 | 105 | 61-131 | 5 | 0-20 |
| 95-49-8 | PSD | 2-Chlorotoluene | 50.0 | 0.00 | U | 52.5 | 105 | 66-126 | 5 | 0-20 |
| 98-82-8 | PSD | Isopropylbenzene | 50.0 | 0.00 | U | 53.0 | 106 | 65-130 | 7 | 0-20 |
| 108-67-8 | PSD | 1,3,5-Trimethylbenzene | 50.0 | 0.00 | U | 53.8 | 108 | 58-134 | 5 | 0-20 |
| 106-43-4 | PSD | 4-Chlorotoluene | 50.0 | 0.00 | U | 50.8 | 102 | 63-125 | 3 | 0-20 |
| 98-06-6 | PSD | tert-Butylbenzene | 50.0 | 0.00 | U | 53.6 | 107 | 66-129 | 8 | 0-20 |
| 95-63-6 | PSD | 1,2,4-Trimethylbenzene | 50.0 | 0.00 | U | 53.1 | 106 | 60-131 | 3 | 0-20 |
| 135-98-8 | PSD | sec-Butylbenzene | 50.0 | 0.00 | U | 55.6 | 111 | 62-130 | 6 | 0-20 |
| 99-87-6 | PSD | 4-Isopropyltoluene | 50.0 | 0.00 | U | 53.4 | 107 | 62-132 | 6 | 0-20 |
| 541-73-1 | PSD | 1,3-Dichlorobenzene | 50.0 | 0.00 | U | 52.0 | 104 | 66-121 | 3 | 0-20 |
| 106-46-7 | PSD | 1,4-Dichlorobenzene | 50.0 | 0.00 | U | 51.1 | 102 | 65-119 | 2 | 0-20 |
| 104-51-8 | PSD | n-Butylbenzene | 50.0 | 0.00 | U | 54.9 | 110 | 55-134 | 5 | 0-20 |
| 96-12-8 | PSD | 1,2-Dibromo-3-chloropropane | 50.0 | 0.00 | U | 53.5 | 107 | 58-137 | 15 | 0-20 |
| 87-68-3 | PSD | Hexachlorobutadiene | 50.0 | 0.00 | U | 50.2 | 100 | 49-139 | 16 | 0-20 |
| 91-20-3 | PSD | Naphthalene | 50.0 | 0.00 | U | 50.1 | 100 | 46-145 | 16 | 0-20 |
| 87-61-6 | PSD | 1,2,3-Trichlorobenzene | 50.0 | 0.00 | U | 45.6 | 91 | 54-134 | 15 | 0-20 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-886**
**Sample Type:** **Post Spike Duplicate**
**Client ID:** **CAMO-13-30615PSD**
**Matrix:** **W**
**Lab Sample ID:** **1202885283**
**Instrument:** **VOA4.I**
**Analysis Date:** **06/01/2013 03:14**
**Dilution: 1**
**Analyst:** **GRB2**
**Purge Vol:** **5 mL**
**Batch ID:** **1305341**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 120-82-1 | PSD | 1,2,4-Trichlorobenzene | 50.0 | 0.00 | U | 44.8 | 90 | 55-128 | 10 | 0-20 |
| 630-20-6 | PSD | 1,1,1,2-Tetrachloroethane | 50.0 | 0.00 | U | 54.8 | 110 | 79-128 | 1 | 0-20 |
| 95-50-1 | PSD | 1,2-Dichlorobenzene | 50.0 | 0.00 | U | 53.3 | 107 | 68-121 | 2 | 0-20 |
| 71-36-3 | PSD | n-Butyl alcohol | 5000 | 0.00 | U | 6390 | 128 | 53-150 | 17 | 0-20 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-886**
**Client ID:** **LCS for batch 1305341**
**Lab Sample ID:** **1202885284**
**Instrument:** **VOA4.I**
**Analyst:** **GRB2**
**Purge Vol:** **5 mL**

**Sample Type:** **Laboratory Control Sample**
**Matrix:** **WATER**
**Analysis Date:** **05/31/2013 17:51**
**Dilution:** **1**
**Batch ID:** **1305341**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 179601-23-1 | LCS | m,p-Xylenes | 100 | 0.0 | 111 | 111 | 79-120 |
| 75-05-8 | LCS | Acetonitrile | 1250 | 0.0 | 1610 | 129 * | 64-127 |
| 67-64-1 | LCS | Acetone | 250 | 0.0 | 359 | 144 | 36-163 |
| 74-88-4 | LCS | Iodomethane | 250 | 0.0 | 272 | 109 | 80-134 |
| 75-15-0 | LCS | Carbon disulfide | 250 | 0.0 | 331 | 132 | 80-143 |
| 108-05-4 | LCS | Vinyl acetate | 250 | 0.0 | 302 | 121 | 75-144 |
| 78-93-3 | LCS | 2-Butanone | 250 | 0.0 | 390 | 156 | 46-158 |
| 108-10-1 | LCS | 4-Methyl-2-pentanone | 250 | 0.0 | 298 | 119 | 76-131 |
| 591-78-6 | LCS | 2-Hexanone | 250 | 0.0 | 397 | 159 * | 53-158 |
| 75-71-8 | LCS | Dichlorodifluoromethane | 50.0 | 0.0 | 58.5 | 117 | 39-124 |
| 74-87-3 | LCS | Chloromethane | 50.0 | 0.0 | 56.8 | 114 | 57-126 |
| 75-01-4 | LCS | Vinyl chloride | 50.0 | 0.0 | 53.2 | 106 | 62-121 |
| 74-83-9 | LCS | Bromomethane | 50.0 | 0.0 | 61.7 | 123 * | 68-120 |
| 75-00-3 | LCS | Chloroethane | 50.0 | 0.0 | 57.3 | 115 | 73-120 |
| 75-69-4 | LCS | Trichlorofluoromethane | 50.0 | 0.0 | 53.8 | 108 | 65-123 |
| 60-29-7 | LCS | Ethyl ether | 50.0 | 0.0 | 48.9 | 98 | 74-120 |
| 75-35-4 | LCS | 1,1-Dichloroethylene | 50.0 | 0.0 | 59.6 | 119 | 76-127 |
| 75-09-2 | LCS | Methylene chloride | 50.0 | 0.0 | 55.4 | 111 | 72-121 |
| 1634-04-4 | LCS | tert-Butyl methyl ether | 50.0 | 0.0 | 49.6 | 99 | 76-123 |
| 156-60-5 | LCS | trans-1,2-Dichloroethylene | 50.0 | 0.0 | 58.5 | 117 | 77-123 |
| 75-34-3 | LCS | 1,1-Dichloroethane | 50.0 | 0.0 | 56.8 | 114 | 79-120 |
| 156-59-2 | LCS | cis-1,2-Dichloroethylene | 50.0 | 0.0 | 57.4 | 115 | 80-122 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-886**
**Sample Type:** **Laboratory Control Sample**
**Client ID:** **LCS for batch 1305341**
**Matrix:** **WATER**
**Lab Sample ID:** **1202885284**
**Instrument:** **VOA4.I**
**Analysis Date:** **05/31/2013 17:51**
**Dilution: 1**
**Analyst:** **GRB2**
**Purge Vol:** **5 mL**
**Batch ID:** **1305341**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 594-20-7 | LCS | 2,2-Dichloropropane | 50.0 | 0.0 | 56.8 | 114 | 76-145 |
| 67-66-3 | LCS | Chloroform | 50.0 | 0.0 | 56.2 | 112 | 80-120 |
| 74-97-5 | LCS | Bromochloromethane | 50.0 | 0.0 | 56.5 | 113 | 83-120 |
| 71-55-6 | LCS | 1,1,1-Trichloroethane | 50.0 | 0.0 | 56.7 | 113 | 80-133 |
| 563-58-6 | LCS | 1,1-Dichloropropene | 50.0 | 0.0 | 57.7 | 115 | 80-127 |
| 56-23-5 | LCS | Carbon tetrachloride | 50.0 | 0.0 | 56.4 | 113 | 77-139 |
| 107-06-2 | LCS | 1,2-Dichloroethane | 50.0 | 0.0 | 52.1 | 104 | 75-121 |
| 71-43-2 | LCS | Benzene | 50.0 | 0.0 | 56.6 | 113 | 79-120 |
| 79-01-6 | LCS | Trichloroethylene | 50.0 | 0.0 | 56.4 | 113 | 80-121 |
| 78-87-5 | LCS | 1,2-Dichloropropane | 50.0 | 0.0 | 54.0 | 108 | 80-120 |
| 75-27-4 | LCS | Bromodichloromethane | 50.0 | 0.0 | 54.4 | 109 | 80-127 |
| 74-95-3 | LCS | Dibromomethane | 50.0 | 0.0 | 54.3 | 109 | 80-120 |
| 10061-01-5 | LCS | cis-1,3-Dichloropropylene | 50.0 | 0.0 | 54.7 | 109 | 80-127 |
| 108-88-3 | LCS | Toluene | 50.0 | 0.0 | 56.2 | 112 | 77-120 |
| 10061-02-6 | LCS | trans-1,3-Dichloropropylene | 50.0 | 0.0 | 53.3 | 107 | 80-128 |
| 79-00-5 | LCS | 1,1,2-Trichloroethane | 50.0 | 0.0 | 54.9 | 110 | 79-120 |
| 142-28-9 | LCS | 1,3-Dichloropropane | 50.0 | 0.0 | 54.1 | 108 | 77-120 |
| 127-18-4 | LCS | Tetrachloroethylene | 50.0 | 0.0 | 54.7 | 109 | 77-125 |
| 124-48-1 | LCS | Dibromochloromethane | 50.0 | 0.0 | 56.2 | 112 | 77-126 |
| 106-93-4 | LCS | 1,2-Dibromoethane | 50.0 | 0.0 | 55.7 | 111 | 80-120 |
| 108-90-7 | LCS | Chlorobenzene | 50.0 | 0.0 | 54.5 | 109 | 80-120 |
| 100-41-4 | LCS | Ethylbenzene | 50.0 | 0.0 | 55.4 | 111 | 78-120 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-886**
**Sample Type:** **Laboratory Control Sample**
**Client ID:** **LCS for batch 1305341**
**Matrix:** **WATER**
**Lab Sample ID:** **1202885284**
**Instrument:** **VOA4.I**
**Analysis Date:** **05/31/2013 17:51**
**Dilution: 1**
**Analyst:** **GRB2**
**Purge Vol:** **5 mL**
**Batch ID:** **1305341**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 95-47-6 | LCS | o-Xylene | 50.0 | 0.0 | 55.6 | 111 | 80-120 |
| 100-42-5 | LCS | Styrene | 50.0 | 0.0 | 56.5 | 113 | 80-121 |
| 75-25-2 | LCS | Bromoform | 50.0 | 0.0 | 54.1 | 108 | 72-125 |
| 79-34-5 | LCS | 1,1,2,2-Tetrachloroethane | 50.0 | 0.0 | 56.1 | 112 | 73-120 |
| 96-18-4 | LCS | 1,2,3-Trichloropropane | 50.0 | 0.0 | 53.4 | 107 | 74-121 |
| 108-86-1 | LCS | Bromobenzene | 50.0 | 0.0 | 51.6 | 103 | 79-120 |
| 103-65-1 | LCS | n-Propylbenzene | 50.0 | 0.0 | 53.1 | 106 | 75-125 |
| 95-49-8 | LCS | 2-Chlorotoluene | 50.0 | 0.0 | 53.3 | 107 | 77-121 |
| 98-82-8 | LCS | Isopropylbenzene | 50.0 | 0.0 | 53.7 | 107 | 76-125 |
| 108-67-8 | LCS | 1,3,5-Trimethylbenzene | 50.0 | 0.0 | 54.7 | 109 | 77-123 |
| 106-43-4 | LCS | 4-Chlorotoluene | 50.0 | 0.0 | 53.0 | 106 | 75-120 |
| 98-06-6 | LCS | tert-Butylbenzene | 50.0 | 0.0 | 53.5 | 107 | 79-123 |
| 95-63-6 | LCS | 1,2,4-Trimethylbenzene | 50.0 | 0.0 | 54.8 | 110 | 77-121 |
| 135-98-8 | LCS | sec-Butylbenzene | 50.0 | 0.0 | 56.6 | 113 | 76-124 |
| 99-87-6 | LCS | 4-Isopropyltoluene | 50.0 | 0.0 | 55.3 | 111 | 79-125 |
| 541-73-1 | LCS | 1,3-Dichlorobenzene | 50.0 | 0.0 | 54.0 | 108 | 78-120 |
| 106-46-7 | LCS | 1,4-Dichlorobenzene | 50.0 | 0.0 | 53.7 | 107 | 77-120 |
| 104-51-8 | LCS | n-Butylbenzene | 50.0 | 0.0 | 58.0 | 116 | 75-127 |
| 96-12-8 | LCS | 1,2-Dibromo-3-chloropropane | 50.0 | 0.0 | 53.3 | 107 | 69-128 |
| 87-68-3 | LCS | Hexachlorobutadiene | 50.0 | 0.0 | 51.1 | 102 | 75-128 |
| 91-20-3 | LCS | Naphthalene | 50.0 | 0.0 | 48.0 | 96 | 71-125 |
| 87-61-6 | LCS | 1,2,3-Trichlorobenzene | 50.0 | 0.0 | 44.8 | 90 | 73-125 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-886**
**Sample Type:** **Laboratory Control Sample**
**Client ID:** **LCS for batch 1305341**
**Matrix:** **WATER**
**Lab Sample ID:** **1202885284**
**Instrument:** **VOA4.I**
**Analysis Date:** **05/31/2013 17:51**
**Dilution: 1**
**Analyst:** **GRB2**
**Purge Vol:** **5 mL**
**Batch ID:** **1305341**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 120-82-1 | LCS | 1,2,4-Trichlorobenzene | 50.0 | 0.0 | 47.9 | 96 | 75-123 |
| 630-20-6 | LCS | 1,1,1,2-Tetrachloroethane | 50.0 | 0.0 | 56.2 | 112 | 80-124 |
| 95-50-1 | LCS | 1,2-Dichlorobenzene | 50.0 | 0.0 | 54.5 | 109 | 79-120 |
| 71-36-3 | LCS | n-Butyl alcohol | 5000 | 0.0 | 6190 | 124 | 66-138 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-886**
**Sample Type:** **Laboratory Control Sample**
**Client ID:** **LCS for batch 1305341**
**Matrix:** **WATER**
**Lab Sample ID:** **1202885285**
**Instrument:** **VOA4.I**
**Analysis Date:** **05/31/2013 19:16**
**Dilution: 1**
**Analyst:** **GRB2**
**Purge Vol:** **5 mL**
**Batch ID:** **1305341**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 107-02-8 | LCS | Acrolein | 250 | 0.0 | 284 | 113 | 28-152 |
| 76-13-1 | LCS | Trichlorotrifluoroethane | 250 | 0.0 | 236 | 94 | 65-157 |
| 107-05-1 | LCS | Allyl chloride | 250 | 0.0 | 242 | 97 | 60-135 |
| 107-13-1 | LCS | Acrylonitrile | 250 | 0.0 | 277 | 111 | 64-131 |
| 107-12-0 | LCS | Propionitrile | 250 | 0.0 | 280 | 112 | 67-135 |
| 126-98-7 | LCS | Methacrylonitrile | 250 | 0.0 | 268 | 107 | 64-132 |
| 80-62-6 | LCS | Methyl methacrylate | 250 | 0.0 | 245 | 98 | 66-129 |
| 97-63-2 | LCS | Ethyl methacrylate | 250 | 0.0 | 240 | 96 | 66-132 |
| 78-83-1 | LCS | Isobutyl alcohol | 2500 | 0.0 | 2900 | 116 | 60-136 |
| 126-99-8 | LCS | 2-Chloro-1,3-butadiene | 50.0 | 0.0 | 37.3 | 75 | 45-159 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-886**
**Sample Type:** **Post Spike**
**Client ID:** **CAMO-13-30615PS**
**Matrix:** **W**
**Lab Sample ID:** **1202885286**
**Instrument:** **VOA4.I**
**Analysis Date:** **06/01/2013 03:43**
**Dilution: 1**
**Analyst:** **GRB2**
**Purge Vol:** **5 mL**
**Batch ID:** **1305341**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 107-02-8 | PS | Acrolein | 250 | 0.00 | U | 254 | 101 | 30-167 |
| 76-13-1 | PS | Trichlorotrifluoroethane | 250 | 0.00 | U | 237 | 95 | 58-169 |
| 107-05-1 | PS | Allyl chloride | 250 | 0.00 | U | 243 | 97 | 61-136 |
| 107-13-1 | PS | Acrylonitrile | 250 | 0.00 | U | 272 | 109 | 65-135 |
| 107-12-0 | PS | Propionitrile | 250 | 0.00 | U | 272 | 109 | 66-141 |
| 126-98-7 | PS | Methacrylonitrile | 250 | 0.00 | U | 265 | 106 | 63-141 |
| 80-62-6 | PS | Methyl methacrylate | 250 | 0.00 | U | 240 | 96 | 70-130 |
| 97-63-2 | PS | Ethyl methacrylate | 250 | 0.00 | U | 242 | 97 | 73-132 |
| 78-83-1 | PS | Isobutyl alcohol | 2500 | 0.00 | U | 2820 | 113 | 59-146 |
| 126-99-8 | PS | 2-Chloro-1,3-butadiene | 50.0 | 0.00 | U | 36.7 | 73 | 39-130 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-886**
**Sample Type:** **Post Spike Duplicate**
**Client ID:** **CAMO-13-30615PSD**
**Matrix:** **W**
**Lab Sample ID:** **1202885287**
**Instrument:** **VOA4.I**
**Analysis Date:** **06/01/2013 04:11**
**Dilution: 1**
**Analyst:** **GRB2**
**Purge Vol:** **5 mL**
**Batch ID:** **1305341**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 107-02-8 | PSD | Acrolein | 250 | 0.00 | U | 242 | 97 | 30-167 | 5 | 0-20 |
| 76-13-1 | PSD | Trichlorotrifluoroethane | 250 | 0.00 | U | 235 | 94 | 58-169 | 1 | 0-20 |
| 107-05-1 | PSD | Allyl chloride | 250 | 0.00 | U | 241 | 96 | 61-136 | 1 | 0-20 |
| 107-13-1 | PSD | Acrylonitrile | 250 | 0.00 | U | 258 | 103 | 65-135 | 5 | 0-20 |
| 107-12-0 | PSD | Propionitrile | 250 | 0.00 | U | 258 | 103 | 66-141 | 5 | 0-20 |
| 126-98-7 | PSD | Methacrylonitrile | 250 | 0.00 | U | 260 | 104 | 63-141 | 2 | 0-20 |
| 80-62-6 | PSD | Methyl methacrylate | 250 | 0.00 | U | 241 | 97 | 70-130 | 1 | 0-20 |
| 97-63-2 | PSD | Ethyl methacrylate | 250 | 0.00 | U | 242 | 97 | 73-132 | 0 | 0-20 |
| 78-83-1 | PSD | Isobutyl alcohol | 2500 | 0.00 | U | 2650 | 106 | 59-146 | 6 | 0-20 |
| 126-99-8 | PSD | 2-Chloro-1,3-butadiene | 50.0 | 0.00 | U | 36.0 | 72 | 39-130 | 2 | 0-20 |

## Method Blank Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-886** | **Client:** | **ARSL001** | **Matrix:** | **WATER** |
| **Client ID:** | **MB for batch 1305341** | **Instrument ID:** | **VOA4.I** | **Data File:** | **053113V4\4M509BAR.D** |
| **Lab Sample ID:** | **1202885281** | **Prep Date:** | **05/31/2013 20:40** | **Analyzed:** | **05/31/13 20:40** |
| **Column:** | **DB-624** | | | | |

**This method blank applies to the following samples and quality control samples:**

| | Client Sample ID | Lab Sample ID | File ID | Date Analyzed | Time Analyzed |
|---|---|---|---|---|---|
| 01 | LCS for batch 1305341 | 1202885284 | 053113V4\4M503LAR.D | 05/31/13 | 1751 |
| 02 | LCS for batch 1305341 | 1202885285 | 053113V4\4M506SHAR.D | 05/31/13 | 1916 |
| 03 | CAMO-13-30585 | 326426001 | 053113V4\4M513.D | 05/31/13 | 2233 |
| 04 | CAMO-13-30569 | 326426003 | 053113V4\4M514.D | 05/31/13 | 2301 |
| 05 | CAMO-13-30615PS | 1202885282 | 053113V4\4M522.D | 06/01/13 | 0246 |
| 06 | CAMO-13-30615PSD | 1202885283 | 053113V4\4M523.D | 06/01/13 | 0314 |
| 07 | CAMO-13-30615PS | 1202885286 | 053113V4\4M524.D | 06/01/13 | 0343 |
| 08 | CAMO-13-30615PSD | 1202885287 | 053113V4\4M525.D | 06/01/13 | 0411 |

# Quality Control Data

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-886** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202885281** | | | | |
| **Client Sample:** | **QC for batch 1305341** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **MB for batch 1305341** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305341** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/31/2013 20:40** | **Analyst:** | **GRB2** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/31/2013 20:40** | | | | |
| **Data File:** | **053113V4\4M509BAR.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 630-20-6 | 1,1,1,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-34-3 | 1,1-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-35-4 | 1,1-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 142-28-9 | 1,3-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | U | 5.00 | ug/L | 2.00 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | U | 5.00 | ug/L | 2.20 | 5.00 |
| 106-43-4 | 4-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 67-64-1 | Acetone | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | U | 25.0 | ug/L | 8.00 | 25.0 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 71-43-2 | Benzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | U | 1.00 | ug/L | 0.300 | 1.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-886** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202885281** | | | | |
| **Client Sample:** | **QC for batch 1305341** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **MB for batch 1305341** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305341** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/31/2013 20:40** | **Analyst:** | **GRB2** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/31/2013 20:40** | | | | |
| **Data File:** | **053113V4\4M509BAR.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 74-83-9 | Bromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-15-0 | Carbon disulfide | U | 5.00 | ug/L | 1.50 | 5.00 |
| 56-23-5 | Carbon tetrachloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-71-8 | Dichlorodifluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 100-41-4 | Ethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 98-82-8 | Isopropylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | U | 10.0 | ug/L | 3.00 | 10.0 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.400 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 100-42-5 | Styrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 108-05-4 | Vinyl acetate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-01-4 | Vinyl chloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | U | 2.00 | ug/L | 0.300 | 2.00 |
| 71-36-3 | n-Butyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 104-51-8 | n-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-47-6 | o-Xylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-886** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202885281** | | | | |
| **Client Sample:** | **QC for batch 1305341** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **MB for batch 1305341** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305341** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/31/2013 20:40** | **Analyst:** | **GRB2** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/31/2013 20:40** | | | | |
| **Data File:** | **053113V4\4M509BAR.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 1634-04-4 | tert-Butyl methyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 47.9 | 50.0 | ug/L | 95.8 | (78%-124%) |
| Bromofluorobenzene | 47.8 | 50.0 | ug/L | 95.5 | (80%-120%) |
| Toluene-d8 | 51.5 | 50.0 | ug/L | 103 | (80%-120%) |

**Tentatively Identified Compound Summary**

| CAS No. | Tentatively Identified Compound (TIC) | RT | Estimated | Units | Fit | Qual |
|---|---|---|---|---|---|---|
| | unknown | 4.482 | 8.13 | ug/L | 0 | J |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-886** | **Date Collected:** | **05/21/2013 11:08** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202885282** | **Date Received:** | **05/23/2013 08:50** | | |
| **Client Sample:** | **QC for batch 1305341** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **CAMO-13-30615PS** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305341** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **06/01/2013 02:46** | **Analyst:** | **GRB2** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **06/01/2013 02:46** | | | | |
| **Data File:** | **053113V4\4M522.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 630-20-6 | 1,1,1,2-Tetrachloroethane | | 55.1 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | | 51.1 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | | 54.0 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | | 54.8 | ug/L | 0.300 | 1.00 |
| 75-34-3 | 1,1-Dichloroethane | | 54.7 | ug/L | 0.300 | 1.00 |
| 75-35-4 | 1,1-Dichloroethylene | | 52.6 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | | 52.4 | ug/L | 0.300 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | | 39.2 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | | 49.8 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | | 40.6 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | | 51.8 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | | 46.1 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | | 53.3 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | | 52.3 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | | 50.0 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | | 52.3 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | | 51.0 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | | 50.6 | ug/L | 0.300 | 1.00 |
| 142-28-9 | 1,3-Dichloropropane | | 54.5 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | | 50.1 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | | 48.2 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | | 196 | ug/L | 2.00 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | | 49.9 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | | 244 | ug/L | 2.20 | 5.00 |
| 106-43-4 | 4-Chlorotoluene | | 49.4 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | | 50.5 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | | 264 | ug/L | 1.50 | 5.00 |
| 67-64-1 | Acetone | | 134 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | | 1460 | ug/L | 8.00 | 25.0 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 71-43-2 | Benzene | | 54.4 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | | 49.0 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | | 54.3 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | | 52.8 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | | 49.3 | ug/L | 0.300 | 1.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-886** | **Date Collected:** | **05/21/2013 11:08** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202885282** | **Date Received:** | **05/23/2013 08:50** | | |
| **Client Sample:** | **QC for batch 1305341** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **CAMO-13-30615PS** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305341** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **06/01/2013 02:46** | **Analyst:** | **GRB2** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **06/01/2013 02:46** | | | | |
| **Data File:** | **053113V4\4M522.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 74-83-9 | Bromomethane | | 58.5 | ug/L | 0.300 | 1.00 |
| 75-15-0 | Carbon disulfide | | 312 | ug/L | 1.50 | 5.00 |
| 56-23-5 | Carbon tetrachloride | | 51.4 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | | 53.3 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | | 52.5 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | | 53.1 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | | 52.9 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | | 54.3 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | | 52.6 | ug/L | 0.300 | 1.00 |
| 75-71-8 | Dichlorodifluoromethane | | 48.1 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | | 44.8 | ug/L | 0.300 | 1.00 |
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 100-41-4 | Ethylbenzene | | 53.6 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | | 43.0 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | | 256 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 98-82-8 | Isopropylbenzene | | 49.5 | ug/L | 0.300 | 1.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | | 54.0 | ug/L | 3.00 | 10.0 |
| 91-20-3 | Naphthalene | | 42.5 | ug/L | 0.400 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 100-42-5 | Styrene | | 55.1 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | | 50.4 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | | 53.7 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | | 51.0 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | | 45.6 | ug/L | 0.300 | 1.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 108-05-4 | Vinyl acetate | | 233 | ug/L | 1.50 | 5.00 |
| 75-01-4 | Vinyl chloride | | 49.0 | ug/L | 0.300 | 1.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | | 55.3 | ug/L | 0.300 | 1.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | | 49.2 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | | 108 | ug/L | 0.300 | 2.00 |
| 71-36-3 | n-Butyl alcohol | | 5410 | ug/L | 15.0 | 50.0 |
| 104-51-8 | n-Butylbenzene | | 52.4 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | | 50.1 | ug/L | 0.300 | 1.00 |
| 95-47-6 | o-Xylene | | 53.9 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | | 52.4 | ug/L | 0.300 | 1.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-886** | **Date Collected:** | **05/21/2013 11:08** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202885282** | **Date Received:** | **05/23/2013 08:50** | | |
| **Client Sample:** | **QC for batch 1305341** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **CAMO-13-30615PS** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305341** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **06/01/2013 02:46** | **Analyst:** | **GRB2** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **06/01/2013 02:46** | | | | |
| **Data File:** | **053113V4\4M522.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 1634-04-4 | tert-Butyl methyl ether | | 44.7 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | | 49.5 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | | 53.7 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | | 50.2 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 46.2 | 50.0 | ug/L | 92.4 | (78%-124%) |
| Bromofluorobenzene | 45.5 | 50.0 | ug/L | 91.0 | (80%-120%) |
| Toluene-d8 | 51.1 | 50.0 | ug/L | 102 | (80%-120%) |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-886** | **Date Collected:** | **05/21/2013 11:08** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202885283** | **Date Received:** | **05/23/2013 08:50** | | |
| **Client Sample:** | **QC for batch 1305341** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **CAMO-13-30615PSD** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305341** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **06/01/2013 03:14** | **Analyst:** | **GRB2** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **06/01/2013 03:14** | | | | |
| **Data File:** | **053113V4\4M523.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 630-20-6 | 1,1,1,2-Tetrachloroethane | | 54.8 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | | 53.7 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | | 56.5 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | | 56.5 | ug/L | 0.300 | 1.00 |
| 75-34-3 | 1,1-Dichloroethane | | 56.4 | ug/L | 0.300 | 1.00 |
| 75-35-4 | 1,1-Dichloroethylene | | 55.8 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | | 56.9 | ug/L | 0.300 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | | 45.6 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | | 53.5 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | | 44.8 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | | 53.1 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | | 53.5 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | | 55.5 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | | 53.3 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | | 51.8 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | | 53.0 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | | 53.8 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | | 52.0 | ug/L | 0.300 | 1.00 |
| 142-28-9 | 1,3-Dichloropropane | | 55.6 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | | 51.1 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | | 51.9 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | | 226 | ug/L | 2.00 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | | 52.5 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | | 275 | ug/L | 2.20 | 5.00 |
| 106-43-4 | 4-Chlorotoluene | | 50.8 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | | 53.4 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | | 296 | ug/L | 1.50 | 5.00 |
| 67-64-1 | Acetone | | 157 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | | 1630 | ug/L | 8.00 | 25.0 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 71-43-2 | Benzene | | 56.2 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | | 51.2 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | | 54.8 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | | 52.5 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | | 52.8 | ug/L | 0.300 | 1.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-886** | **Date Collected:** | **05/21/2013 11:08** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202885283** | **Date Received:** | **05/23/2013 08:50** | | |
| **Client Sample:** | **QC for batch 1305341** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **CAMO-13-30615PSD** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305341** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **06/01/2013 03:14** | **Analyst:** | **GRB2** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **06/01/2013 03:14** | | | | |
| **Data File:** | **053113V4\4M523.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 74-83-9 | Bromomethane | | 61.3 | ug/L | 0.300 | 1.00 |
| 75-15-0 | Carbon disulfide | | 321 | ug/L | 1.50 | 5.00 |
| 56-23-5 | Carbon tetrachloride | | 54.2 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | | 53.9 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | | 55.4 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | | 54.9 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | | 53.6 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | | 56.0 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | | 54.2 | ug/L | 0.300 | 1.00 |
| 75-71-8 | Dichlorodifluoromethane | | 54.3 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | | 48.3 | ug/L | 0.300 | 1.00 |
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 100-41-4 | Ethylbenzene | | 54.5 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | | 50.2 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | | 259 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 98-82-8 | Isopropylbenzene | | 53.0 | ug/L | 0.300 | 1.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | | 54.3 | ug/L | 3.00 | 10.0 |
| 91-20-3 | Naphthalene | | 50.1 | ug/L | 0.400 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 100-42-5 | Styrene | | 54.6 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | | 54.1 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | | 55.7 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | | 54.0 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | | 49.5 | ug/L | 0.300 | 1.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 108-05-4 | Vinyl acetate | | 246 | ug/L | 1.50 | 5.00 |
| 75-01-4 | Vinyl chloride | | 50.8 | ug/L | 0.300 | 1.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | | 55.9 | ug/L | 0.300 | 1.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | | 50.8 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | | 109 | ug/L | 0.300 | 2.00 |
| 71-36-3 | n-Butyl alcohol | | 6390 | ug/L | 15.0 | 50.0 |
| 104-51-8 | n-Butylbenzene | | 54.9 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | | 52.5 | ug/L | 0.300 | 1.00 |
| 95-47-6 | o-Xylene | | 54.1 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | | 55.6 | ug/L | 0.300 | 1.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-886** | **Date Collected:** | **05/21/2013 11:08** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202885283** | **Date Received:** | **05/23/2013 08:50** | | |
| **Client Sample:** | **QC for batch 1305341** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **CAMO-13-30615PSD** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305341** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **06/01/2013 03:14** | **Analyst:** | **GRB2** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **06/01/2013 03:14** | | | | |
| **Data File:** | **053113V4\4M523.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 1634-04-4 | tert-Butyl methyl ether | | 47.5 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | | 53.6 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | | 56.5 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | | 52.3 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 47.1 | 50.0 | ug/L | 94.2 | (78%-124%) |
| Bromofluorobenzene | 45.7 | 50.0 | ug/L | 91.3 | (80%-120%) |
| Toluene-d8 | 50.5 | 50.0 | ug/L | 101 | (80%-120%) |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-886** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202885284** | | | | |
| **Client Sample:** | **QC for batch 1305341** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1305341** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305341** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/31/2013 17:51** | **Analyst:** | **GRB2** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/31/2013 17:51** | | | | |
| **Data File:** | **053113V4\4M503LAR.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 630-20-6 | 1,1,1,2-Tetrachloroethane | | 56.2 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | | 56.7 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | | 56.1 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | | 54.9 | ug/L | 0.300 | 1.00 |
| 75-34-3 | 1,1-Dichloroethane | | 56.8 | ug/L | 0.300 | 1.00 |
| 75-35-4 | 1,1-Dichloroethylene | | 59.6 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | | 57.7 | ug/L | 0.300 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | | 44.8 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | | 53.4 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | | 47.9 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | | 54.8 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | | 53.3 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | | 55.7 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | | 54.5 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | | 52.1 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | | 54.0 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | | 54.7 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | | 54.0 | ug/L | 0.300 | 1.00 |
| 142-28-9 | 1,3-Dichloropropane | | 54.1 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | | 53.7 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | | 56.8 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | | 390 | ug/L | 2.00 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | | 53.3 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | | 397 | ug/L | 2.20 | 5.00 |
| 106-43-4 | 4-Chlorotoluene | | 53.0 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | | 55.3 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | | 298 | ug/L | 1.50 | 5.00 |
| 67-64-1 | Acetone | | 359 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | | 1610 | ug/L | 8.00 | 25.0 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 71-43-2 | Benzene | | 56.6 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | | 51.6 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | | 56.5 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | | 54.4 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | | 54.1 | ug/L | 0.300 | 1.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-886** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202885284** | | | | |
| **Client Sample:** | **QC for batch 1305341** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1305341** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305341** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/31/2013 17:51** | **Analyst:** | **GRB2** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/31/2013 17:51** | | | | |
| **Data File:** | **053113V4\4M503LAR.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 74-83-9 | Bromomethane | | 61.7 | ug/L | 0.300 | 1.00 |
| 75-15-0 | Carbon disulfide | | 331 | ug/L | 1.50 | 5.00 |
| 56-23-5 | Carbon tetrachloride | | 56.4 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | | 54.5 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | | 57.3 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | | 56.2 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | | 56.8 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | | 56.2 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | | 54.3 | ug/L | 0.300 | 1.00 |
| 75-71-8 | Dichlorodifluoromethane | | 58.5 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | | 48.9 | ug/L | 0.300 | 1.00 |
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 100-41-4 | Ethylbenzene | | 55.4 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | | 51.1 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | | 272 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 98-82-8 | Isopropylbenzene | | 53.7 | ug/L | 0.300 | 1.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | | 55.4 | ug/L | 3.00 | 10.0 |
| 91-20-3 | Naphthalene | | 48.0 | ug/L | 0.400 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 100-42-5 | Styrene | | 56.5 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | | 54.7 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | | 56.2 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | | 56.4 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | | 53.8 | ug/L | 0.300 | 1.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 108-05-4 | Vinyl acetate | | 302 | ug/L | 1.50 | 5.00 |
| 75-01-4 | Vinyl chloride | | 53.2 | ug/L | 0.300 | 1.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | | 57.4 | ug/L | 0.300 | 1.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | | 54.7 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | | 111 | ug/L | 0.300 | 2.00 |
| 71-36-3 | n-Butyl alcohol | | 6190 | ug/L | 15.0 | 50.0 |
| 104-51-8 | n-Butylbenzene | | 58.0 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | | 53.1 | ug/L | 0.300 | 1.00 |
| 95-47-6 | o-Xylene | | 55.6 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | | 56.6 | ug/L | 0.300 | 1.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-886** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202885284** | | | | |
| **Client Sample:** | **QC for batch 1305341** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1305341** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305341** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/31/2013 17:51** | **Analyst:** | **GRB2** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/31/2013 17:51** | | | | |
| **Data File:** | **053113V4\4M503LAR.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 1634-04-4 | tert-Butyl methyl ether | | 49.6 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | | 53.5 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | | 58.5 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | | 53.3 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 47.6 | 50.0 | ug/L | 95.2 | (78%-124%) |
| Bromofluorobenzene | 46.3 | 50.0 | ug/L | 92.6 | (80%-120%) |
| Toluene-d8 | 49.9 | 50.0 | ug/L | 99.8 | (80%-120%) |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-886** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202885285** | | | | |
| **Client Sample:** | **QC for batch 1305341** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1305341** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305341** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/31/2013 19:16** | **Analyst:** | **GRB2** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/31/2013 19:16** | | | | |
| **Data File:** | **053113V4\4M506SHAR.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 630-20-6 | 1,1,1,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-34-3 | 1,1-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-35-4 | 1,1-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 142-28-9 | 1,3-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | U | 5.00 | ug/L | 2.00 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | | 37.3 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | U | 5.00 | ug/L | 2.20 | 5.00 |
| 106-43-4 | 4-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 67-64-1 | Acetone | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | U | 25.0 | ug/L | 8.00 | 25.0 |
| 107-02-8 | Acrolein | | 284 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | | 277 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | | 242 | ug/L | 1.50 | 5.00 |
| 71-43-2 | Benzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | U | 1.00 | ug/L | 0.300 | 1.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-886** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202885285** | | | | |
| **Client Sample:** | **QC for batch 1305341** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1305341** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305341** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/31/2013 19:16** | **Analyst:** | **GRB2** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/31/2013 19:16** | | | | |
| **Data File:** | **053113V4\4M506SHAR.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 74-83-9 | Bromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-15-0 | Carbon disulfide | U | 5.00 | ug/L | 1.50 | 5.00 |
| 56-23-5 | Carbon tetrachloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-71-8 | Dichlorodifluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 97-63-2 | Ethyl methacrylate | | 240 | ug/L | 1.50 | 5.00 |
| 100-41-4 | Ethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | | 2900 | ug/L | 15.0 | 50.0 |
| 98-82-8 | Isopropylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 126-98-7 | Methacrylonitrile | | 268 | ug/L | 1.50 | 5.00 |
| 80-62-6 | Methyl methacrylate | | 245 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | U | 10.0 | ug/L | 3.00 | 10.0 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.400 | 1.00 |
| 107-12-0 | Propionitrile | | 280 | ug/L | 1.50 | 5.00 |
| 100-42-5 | Styrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 76-13-1 | Trichlorotrifluoroethane | | 236 | ug/L | 1.50 | 5.00 |
| 108-05-4 | Vinyl acetate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-01-4 | Vinyl chloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | U | 2.00 | ug/L | 0.300 | 2.00 |
| 71-36-3 | n-Butyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 104-51-8 | n-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-47-6 | o-Xylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-886** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202885285** | | | | |
| **Client Sample:** | **QC for batch 1305341** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1305341** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305341** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/31/2013 19:16** | **Analyst:** | **GRB2** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/31/2013 19:16** | | | | |
| **Data File:** | **053113V4\4M506SHAR.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 1634-04-4 | tert-Butyl methyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 47.9 | 50.0 | ug/L | 95.9 | (78%-124%) |
| Bromofluorobenzene | 50.5 | 50.0 | ug/L | 101 | (80%-120%) |
| Toluene-d8 | 49.2 | 50.0 | ug/L | 98.4 | (80%-120%) |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-886** | **Date Collected:** | **05/21/2013 11:08** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202885286** | **Date Received:** | **05/23/2013 08:50** | | |
| **Client Sample:** | **QC for batch 1305341** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **CAMO-13-30615PS** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305341** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **06/01/2013 03:43** | **Analyst:** | **GRB2** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **06/01/2013 03:43** | | | | |
| **Data File:** | **053113V4\4M524.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 630-20-6 | 1,1,1,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-34-3 | 1,1-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-35-4 | 1,1-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 142-28-9 | 1,3-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | U | 5.00 | ug/L | 2.00 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | | 36.7 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | U | 5.00 | ug/L | 2.20 | 5.00 |
| 106-43-4 | 4-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 67-64-1 | Acetone | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | U | 25.0 | ug/L | 8.00 | 25.0 |
| 107-02-8 | Acrolein | | 254 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | | 272 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | | 243 | ug/L | 1.50 | 5.00 |
| 71-43-2 | Benzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | U | 1.00 | ug/L | 0.300 | 1.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-886** | **Date Collected:** | **05/21/2013 11:08** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202885286** | **Date Received:** | **05/23/2013 08:50** | | |
| **Client Sample:** | **QC for batch 1305341** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **CAMO-13-30615PS** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305341** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **06/01/2013 03:43** | **Analyst:** | **GRB2** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **06/01/2013 03:43** | | | | |
| **Data File:** | **053113V4\4M524.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 74-83-9 | Bromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-15-0 | Carbon disulfide | U | 5.00 | ug/L | 1.50 | 5.00 |
| 56-23-5 | Carbon tetrachloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-71-8 | Dichlorodifluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 97-63-2 | Ethyl methacrylate | | 242 | ug/L | 1.50 | 5.00 |
| 100-41-4 | Ethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | | 2820 | ug/L | 15.0 | 50.0 |
| 98-82-8 | Isopropylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 126-98-7 | Methacrylonitrile | | 265 | ug/L | 1.50 | 5.00 |
| 80-62-6 | Methyl methacrylate | | 240 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | U | 10.0 | ug/L | 3.00 | 10.0 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.400 | 1.00 |
| 107-12-0 | Propionitrile | | 272 | ug/L | 1.50 | 5.00 |
| 100-42-5 | Styrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 76-13-1 | Trichlorotrifluoroethane | | 237 | ug/L | 1.50 | 5.00 |
| 108-05-4 | Vinyl acetate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-01-4 | Vinyl chloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | U | 2.00 | ug/L | 0.300 | 2.00 |
| 71-36-3 | n-Butyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 104-51-8 | n-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-47-6 | o-Xylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-886** | **Date Collected:** | **05/21/2013 11:08** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202885286** | **Date Received:** | **05/23/2013 08:50** | | |
| **Client Sample:** | **QC for batch 1305341** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **CAMO-13-30615PS** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305341** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **06/01/2013 03:43** | **Analyst:** | **GRB2** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **06/01/2013 03:43** | | | | |
| **Data File:** | **053113V4\4M524.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 1634-04-4 | tert-Butyl methyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 48.1 | 50.0 | ug/L | 96.3 | (78%-124%) |
| Bromofluorobenzene | 51.1 | 50.0 | ug/L | 102 | (80%-120%) |
| Toluene-d8 | 49.7 | 50.0 | ug/L | 99.3 | (80%-120%) |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-886** | **Date Collected:** | **05/21/2013 11:08** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202885287** | **Date Received:** | **05/23/2013 08:50** | | |
| **Client Sample:** | **QC for batch 1305341** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **CAMO-13-30615PSD** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305341** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **06/01/2013 04:11** | **Analyst:** | **GRB2** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **06/01/2013 04:11** | | | | |
| **Data File:** | **053113V4\4M525.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 630-20-6 | 1,1,1,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-34-3 | 1,1-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-35-4 | 1,1-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 142-28-9 | 1,3-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | U | 5.00 | ug/L | 2.00 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | | 36.0 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | U | 5.00 | ug/L | 2.20 | 5.00 |
| 106-43-4 | 4-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 67-64-1 | Acetone | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | U | 25.0 | ug/L | 8.00 | 25.0 |
| 107-02-8 | Acrolein | | 242 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | | 258 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | | 241 | ug/L | 1.50 | 5.00 |
| 71-43-2 | Benzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | U | 1.00 | ug/L | 0.300 | 1.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-886** | **Date Collected:** | **05/21/2013 11:08** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202885287** | **Date Received:** | **05/23/2013 08:50** | | |
| **Client Sample:** | **QC for batch 1305341** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **CAMO-13-30615PSD** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305341** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **06/01/2013 04:11** | **Analyst:** | **GRB2** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **06/01/2013 04:11** | | | | |
| **Data File:** | **053113V4\4M525.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 74-83-9 | Bromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-15-0 | Carbon disulfide | U | 5.00 | ug/L | 1.50 | 5.00 |
| 56-23-5 | Carbon tetrachloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-71-8 | Dichlorodifluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 97-63-2 | Ethyl methacrylate | | 242 | ug/L | 1.50 | 5.00 |
| 100-41-4 | Ethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | | 2650 | ug/L | 15.0 | 50.0 |
| 98-82-8 | Isopropylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 126-98-7 | Methacrylonitrile | | 260 | ug/L | 1.50 | 5.00 |
| 80-62-6 | Methyl methacrylate | | 241 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | U | 10.0 | ug/L | 3.00 | 10.0 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.400 | 1.00 |
| 107-12-0 | Propionitrile | | 258 | ug/L | 1.50 | 5.00 |
| 100-42-5 | Styrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 76-13-1 | Trichlorotrifluoroethane | | 235 | ug/L | 1.50 | 5.00 |
| 108-05-4 | Vinyl acetate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-01-4 | Vinyl chloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | U | 2.00 | ug/L | 0.300 | 2.00 |
| 71-36-3 | n-Butyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 104-51-8 | n-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-47-6 | o-Xylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-886** | **Date Collected:** | **05/21/2013 11:08** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202885287** | **Date Received:** | **05/23/2013 08:50** | | |
| **Client Sample:** | **QC for batch 1305341** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **CAMO-13-30615PSD** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305341** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **06/01/2013 04:11** | **Analyst:** | **GRB2** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **06/01/2013 04:11** | | | | |
| **Data File:** | **053113V4\4M525.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 1634-04-4 | tert-Butyl methyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 48.4 | 50.0 | ug/L | 96.7 | (78%-124%) |
| Bromofluorobenzene | 51.6 | 50.0 | ug/L | 103 | (80%-120%) |
| Toluene-d8 | 49.9 | 50.0 | ug/L | 99.7 | (80%-120%) |

# Miscellaneous

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 01-JUN-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| VOA GC/MS | SW846 8260B DOE-AL | Liquid | ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1305341 | See Below | | |

**Potentially affected work order(s)(SDG): 326213(2013-873),326426(2013-886),326435(2013-888)**

**Application Issues:**

Failed Recovery for LCS/LCSD

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1.QC sample 1202885284 (LCS) recovered above the limits for 2-Hexanone, Acetonitrile and Bromomethane. | 1. The unacceptable recoveries were less than 5% of the requested analyte list. This satisfies the client criteria. The results are reported. |

**Originator's Name:**

Gelester Baskett 01-JUN-13

**Data Validator/Group Leader:**

Erin Haubert 14-JUN-13

# Semi-Volatile Analysis

# Case Narrative

**Semi-Volatile Case Narrative**
**ARS International (ARSL)**
**SDG 2013-886**

## Method/Analysis Information

| | |
|---|---|
| **Procedure:** | **Analysis of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry** |
| Analytical Method: | SW846 8270C |
| Prep Method: | SW846 3510C |
| Analytical Batch Number: | 1304315 |
| Prep Batch Number: | 1304314 |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 8270C:

| Sample ID | Client ID |
|---|---|
| 326426001 | CAMO-13-30585 |
| 1202882572 | Method Blank (MB) |
| 1202882573 | 326435002(WST50-13-36043) Matrix Spike (MS) |
| 1202882574 | 326435002(WST50-13-36043) Matrix Spike Duplicate (MSD) |
| 1202882575 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

## Preparation/Analytical Method Verification

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-009 REV# 30.

Raw data reports are processed and reviewed by the analyst using the data analysis software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP).

## Calibration Information

A complete list of the initial calibration data files are shown in the Calibration History report located in the Standard Data section of the data package. The various calibration mixes may not be calibrated using all of the calibration levels. In addition, not all of the mixes are calibrated using the same levels.

Diphenylamine has now superseded N-Nitroso-diphenylamine on Quantitation Reports, Initial Calibration Reports, Calibration Check Standard Reports, etc. Previous versions of EPA Methodologies referenced N-Nitroso-diphenylamine. However, as stated in EPA Methodology, "N-Nitroso-diphenylamine decomposes in the gas chromatographic inlet and cannot be separated from Diphenylamine." Studies of these two compounds at

GEL, both independent of each other and together, showed that they not only co-elute, but also have similar mass spectra. N-Nitroso-diphenylamine and Diphenylamine will be reported as Diphenylamine on all reports and forms.

**Initial Calibration**
All initial calibration requirements have been met for this sample delivery group (SDG) in this batch. A second source initial calibration verification (ICV) was included in the standard section directly behind the initial calibration.

**CCV Requirements**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG in this batch met the acceptance criteria.

**Surrogate Recoveries**
All the surrogate recoveries were within the established acceptance criteria for this SDG in this batch.

**Laboratory Control Sample (LCS) Recovery**
The LCS(1202882575) recovered p-Nitroaniline at 138% (limits: 38%-133%) and Atrazine at 38% (limits: 47%-115%). The failures represent less than 5% of the total requested spike analyte list. That satisfied the acceptance criteria for the client and the data results have been reported. Please note that since p-Nitroaniline was not detected in the associated client samples, the biased high recovery had no adverse impact on the data and the results have been reported.

**QC Sample Designation**
Sample 326435002 (WST50-13-36043) was selected for analysis as the matrix spike and matrix spike duplicate.

**Matrix Spike (MS) Recovery Statement**
The MS, 1202882573 (WST50-13-36043), recovered spike analytes outside of the acceptance limits. Please see the QC Summary Report for specific failures. Since the MSD displayed similar spike recoveries to the MS, the failures were attributed to sample matrix interference and the data results have been reported.

**Matrix Spike Duplicate (MSD) Recovery Statement**
The MSD, 1202882574 (WST50-13-36043), recovered spike analytes outside of the acceptance limits. Please see the QC Summary Report for specific failures. Since the MSD displayed similar spike recoveries to the MS, the failures were attributed to sample matrix interference and the data results have been reported.

**MS/MSD Relative Percent Difference (RPD) Statement**
The MS(1202882573)/MSD(1202882574) pair displayed RPD values outside of the acceptance criteria. Please see the QC Summary Report for specific failures. Since the analytes were individually within the acceptance limits for the MS and MSD, the non-conformance had no adverse impact on the data and the results have been reported.

**Internal Standard (ISTD) Acceptance**
The internal standard responses used to quantitate the requested target analytes were within the required acceptance criteria for the SDG associated samples in this batch.

**Technical Information:**

**Holding Time Specifications**
All samples in this SDG in this batch met the specified holding time. GEL assigns holding times based on the associated methodology that assigns the date and time from sample collection or sample receipt. Those holding

times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

**Preparation/Analytical Method Verification**
All procedures were performed as stated in the SOP. All reported compound mass spectra met the detection specifications in the method.

**Sample Dilutions**
The LCS(1202882575) was analyzed at a dilution due to the presence of over range target analyte. The re-analysis data were reported for the over range analyte only and the original analysis data were reported for all other analytes.

**Sample Re-extraction/Re-analysis**
Re-extractions or re-analyses were not required in this SDG in this analytical batch unless confirmations or dilutions were required.

**Miscellaneous Information:**

**Data Exception (DER) Documentation**
Data exception report 1190965 was generated for the samples in this batch for this SDG.

**Manual Integrations**
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations. Manual integrations, if any, are included with the raw data.

**TIC Comment**
Tentatively identified compounds (TIC) were requested for sample 1202882572 (MB) and 326426001 (CAMO-13-30585) in this delivery group/work order. Please note that non-requested calibrated analytes detected in a client sample may be reported on the Form 1/Certificate of Analysis as TICs. TIC data, if requested, are included on the Sample Data Summary (Form 1) and are also included with the sample raw data.

**Additional Comments**
The additional comments field is used to address special issues associated with each analysis, clarify method/contractual issues pertaining to the analysis, and to list any report documents generated as a result of sample analysis or review. The following additional comments were required:

Due to rounding differences in the calculation, the data reported in the Surrogate Recovery Report may differ slightly from the raw data. Due to software issue, the raw data may not correctly display the updated SPC limits. Please see Sample Data Summary Report and Surrogate Recovery Report for the correct surrogate acceptance limits.

**Electronic Package Comment**

The following package was generated using an electronic data processing program referred to as "virtual packaging". In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from "traditional" packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative of each electronic package will indicate the reviewer name associated with the generation of the data and package. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**System Configuration**

The Semi-Volatile-GC/MS analysis was performed on the following instrument configuration:

| Instrument ID | Instrument | System Configuration | Column ID | Column Description |
|---|---|---|---|---|
| MSD8.I | Agilent 6890/5973 GC/MS w/ 7683 Autosampler | HP6890/HP5973 | DB-5MS | 25m x 0.2mm, 0.33um (5% Phenylmethylpolysiloxane) |

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-886  GEL Work Order: 326426

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

**  Analyte is a surrogate compound

E  Concentration of the target analyte exceeds the instrument calibration range

J  Value is estimated

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL  Indicates that sample is diluted.
RA  Indicates that sample is re-analyzed without re-extraction.
RE  Indicates that sample is re-extracted.

**Review/Validation**

GEL requires all analytical data to be verified by a qualified data reviewer.  In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

**Signature:** Barbara Bailey  **Name: Barbara Bailey**

**Date: 14 JUN 2013**  **Title: Data Validator**

# Sample Data Summary

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-886** | **Date Collected:** | **05/22/2013 13:01** | **Matrix:** | **W** |
| **Lab Sample ID:** | **326426001** | **Date Received:** | **05/24/2013 09:00** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30585** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1304315** | **Inst:** | **MSD8.I** | **Dilution:** | **1** |
| **Run Date:** | **05/29/2013 20:40** | **Analyst:** | **RMB** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/29/2013 10:30** | **Aliquot:** | **970 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s052913.B\s8E2906.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 62-75-9 | N-Methyl-N-nitrosomethylamine | U | 10.3 | ug/L | 3.09 | 10.3 |
| 110-86-1 | Pyridine | U | 10.3 | ug/L | 3.09 | 10.3 |
| 62-53-3 | Aniline | U | 10.3 | ug/L | 3.09 | 10.3 |
| 108-95-2 | Phenol | U | 10.3 | ug/L | 3.09 | 10.3 |
| 111-44-4 | bis(2-Chloroethyl) ether | U | 10.3 | ug/L | 3.09 | 10.3 |
| 95-57-8 | 2-Chlorophenol | U | 10.3 | ug/L | 3.09 | 10.3 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 10.3 | ug/L | 3.09 | 10.3 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 10.3 | ug/L | 3.09 | 10.3 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 10.3 | ug/L | 3.09 | 10.3 |
| 39638-32-9 | bis(2-Chloroisopropyl)ether | U | 10.3 | ug/L | 3.09 | 10.3 |
| 100-51-6 | Benzyl alcohol | U | 10.3 | ug/L | 3.09 | 10.3 |
| 95-48-7 | o-Cresol | U | 10.3 | ug/L | 3.09 | 10.3 |
| 65794-96-9 | m,p-Cresols | U | 10.3 | ug/L | 3.09 | 10.3 |
| 621-64-7 | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | U | 10.3 | ug/L | 3.09 | 10.3 |
| 67-72-1 | Hexachloroethane | U | 10.3 | ug/L | 3.09 | 10.3 |
| 98-95-3 | Nitrobenzene | U | 10.3 | ug/L | 3.09 | 10.3 |
| 78-59-1 | Isophorone | U | 10.3 | ug/L | 3.09 | 10.3 |
| 88-75-5 | 2-Nitrophenol | U | 10.3 | ug/L | 3.09 | 10.3 |
| 105-67-9 | 2,4-Dimethylphenol | U | 10.3 | ug/L | 3.09 | 10.3 |
| 111-91-1 | bis(2-Chloroethoxy)methane | U | 10.3 | ug/L | 3.09 | 10.3 |
| 120-83-2 | 2,4-Dichlorophenol | U | 10.3 | ug/L | 3.09 | 10.3 |
| 65-85-0 | Benzoic acid | U | 20.6 | ug/L | 6.19 | 20.6 |
| 106-47-8 | 4-Chloroaniline | U | 10.3 | ug/L | 3.40 | 10.3 |
| 87-68-3 | Hexachlorobutadiene | U | 10.3 | ug/L | 3.09 | 10.3 |
| 59-50-7 | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | U | 10.3 | ug/L | 3.09 | 10.3 |
| 91-57-6 | 2-Methylnaphthalene | U | 1.03 | ug/L | 0.309 | 1.03 |
| 91-20-3 | Naphthalene | U | 1.03 | ug/L | 0.309 | 1.03 |
| 90-12-0 | 1-Methylnaphthalene | U | 1.03 | ug/L | 0.309 | 1.03 |
| 77-47-4 | Hexachlorocyclopentadiene | U | 10.3 | ug/L | 3.09 | 10.3 |
| 88-06-2 | 2,4,6-Trichlorophenol | U | 10.3 | ug/L | 3.09 | 10.3 |
| 95-95-4 | 2,4,5-Trichlorophenol | U | 10.3 | ug/L | 3.09 | 10.3 |
| 91-58-7 | 2-Chloronaphthalene | U | 1.03 | ug/L | 0.309 | 1.03 |
| 88-74-4 | 2-Nitroaniline<br>*o-Nitroaniline* | U | 10.3 | ug/L | 3.09 | 10.3 |
| 99-09-2 | 3-Nitroaniline<br>*m-Nitroaniline* | U | 10.3 | ug/L | 3.09 | 10.3 |
| 131-11-3 | Dimethylphthalate | U | 10.3 | ug/L | 3.09 | 10.3 |
| 606-20-2 | 2,6-Dinitrotoluene | U | 10.3 | ug/L | 3.09 | 10.3 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-886** | **Date Collected:** | **05/22/2013 13:01** | **Matrix:** | **W** |
| **Lab Sample ID:** | **326426001** | **Date Received:** | **05/24/2013 09:00** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30585** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1304315** | **Inst:** | **MSD8.I** | **Dilution:** | **1** |
| **Run Date:** | **05/29/2013 20:40** | **Analyst:** | **RMB** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/29/2013 10:30** | **Aliquot:** | **970 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s052913.B\s8E2906.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 121-14-2 | 2,4-Dinitrotoluene | U | 10.3 | ug/L | 3.09 | 10.3 |
| 208-96-8 | Acenaphthylene | U | 1.03 | ug/L | 0.309 | 1.03 |
| 83-32-9 | Acenaphthene | U | 1.03 | ug/L | 0.309 | 1.03 |
| 51-28-5 | 2,4-Dinitrophenol | U | 20.6 | ug/L | 5.15 | 20.6 |
| 132-64-9 | Dibenzofuran | U | 10.3 | ug/L | 3.09 | 10.3 |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | U | 10.3 | ug/L | 3.09 | 10.3 |
| 84-66-2 | Diethylphthalate | U | 10.3 | ug/L | 3.09 | 10.3 |
| 100-02-7 | 4-Nitrophenol | U | 10.3 | ug/L | 3.09 | 10.3 |
| 86-73-7 | Fluorene | U | 1.03 | ug/L | 0.309 | 1.03 |
| 7005-72-3 | 4-Chlorophenylphenylether | U | 10.3 | ug/L | 3.09 | 10.3 |
| 100-01-6 | 4-Nitroaniline | U | 10.3 | ug/L | 3.09 | 10.3 |
| | *p-Nitroaniline* | | | | | |
| 534-52-1 | 2-Methyl-4,6-dinitrophenol | U | 10.3 | ug/L | 3.09 | 10.3 |
| 122-39-4 | Diphenylamine | U | 10.3 | ug/L | 3.09 | 10.3 |
| 122-66-7 | Azobenzene | U | 10.3 | ug/L | 3.09 | 10.3 |
| | *1,2-Diphenylhydrazine* | | | | | |
| 101-55-3 | 4-Bromophenylphenylether | U | 10.3 | ug/L | 3.09 | 10.3 |
| 118-74-1 | Hexachlorobenzene | U | 10.3 | ug/L | 3.09 | 10.3 |
| 87-86-5 | Pentachlorophenol | U | 10.3 | ug/L | 3.09 | 10.3 |
| 88-85-7 | Dinoseb | U | 10.3 | ug/L | 3.09 | 10.3 |
| 85-01-8 | Phenanthrene | U | 1.03 | ug/L | 0.309 | 1.03 |
| 120-12-7 | Anthracene | U | 1.03 | ug/L | 0.309 | 1.03 |
| 84-74-2 | Di-n-butylphthalate | U | 10.3 | ug/L | 3.09 | 10.3 |
| 206-44-0 | Fluoranthene | U | 1.03 | ug/L | 0.309 | 1.03 |
| 129-00-0 | Pyrene | U | 1.03 | ug/L | 0.309 | 1.03 |
| 85-68-7 | Butylbenzylphthalate | U | 10.3 | ug/L | 3.09 | 10.3 |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | U | 10.3 | ug/L | 3.09 | 10.3 |
| 56-55-3 | Benzo(a)anthracene | U | 1.03 | ug/L | 0.309 | 1.03 |
| 218-01-9 | Chrysene | U | 1.03 | ug/L | 0.309 | 1.03 |
| 117-84-0 | Di-n-octylphthalate | U | 10.3 | ug/L | 3.09 | 10.3 |
| 205-99-2 | Benzo(b)fluoranthene | U | 1.03 | ug/L | 0.309 | 1.03 |
| 207-08-9 | Benzo(k)fluoranthene | U | 1.03 | ug/L | 0.309 | 1.03 |
| 50-32-8 | Benzo(a)pyrene | U | 1.03 | ug/L | 0.454 | 1.03 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | U | 1.03 | ug/L | 0.309 | 1.03 |
| 53-70-3 | Dibenzo(a,h)anthracene | U | 1.03 | ug/L | 0.309 | 1.03 |
| 191-24-2 | Benzo(ghi)perylene | U | 1.03 | ug/L | 0.309 | 1.03 |
| 123-91-1 | 1,4-Dioxane | U | 10.3 | ug/L | 3.09 | 10.3 |
| 55-18-5 | N-Nitrosodiethylamine | U | 10.3 | ug/L | 3.09 | 10.3 |
| 930-55-2 | N-Nitrosopyrrolidine | U | 10.3 | ug/L | 3.09 | 10.3 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-886** | **Date Collected:** | **05/22/2013 13:01** | **Matrix:** | **W** |
| **Lab Sample ID:** | **326426001** | **Date Received:** | **05/24/2013 09:00** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30585** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1304315** | **Inst:** | **MSD8.I** | **Dilution:** | **1** |
| **Run Date:** | **05/29/2013 20:40** | **Analyst:** | **RMB** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/29/2013 10:30** | **Aliquot:** | **970 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s052913.B\s8E2906.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 924-16-3 | N-Nitrosodi-n-butylamine | U | 10.3 | ug/L | 3.09 | 10.3 |
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | U | 10.3 | ug/L | 3.09 | 10.3 |
| 608-93-5 | Pentachlorobenzene | U | 10.3 | ug/L | 3.09 | 10.3 |
| 1912-24-9 | Atrazine | U | 10.3 | ug/L | 3.09 | 10.3 |
| 92-87-5 | Benzidine | U | 10.3 | ug/L | 3.09 | 10.3 |
| 91-94-1 | 3,3'-Dichlorobenzidine | U | 10.3 | ug/L | 3.09 | 10.3 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 10.3 | ug/L | 3.09 | 10.3 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 2,4,6-Tribromophenol | 51.4 | 103 | ug/L | 49.9 | (26%-129%) |
| 2-Fluorobiphenyl | 38.0 | 51.5 | ug/L | 73.7 | (32%-102%) |
| 2-Fluorophenol | 32.6 | 103 | ug/L | 31.6 | (10%-78%) |
| Nitrobenzene-d5 | 44.1 | 51.5 | ug/L | 85.5 | (36%-125%) |
| Phenol-d5 | 26.6 | 103 | ug/L | 25.8 | (10%-104%) |
| p-Terphenyl-d14 | 46.4 | 51.5 | ug/L | 90.0 | (34%-135%) |

**Tentatively Identified Compound Summary**

| CAS No. | Tentatively Identified Compound (TIC) | RT | Estimated | Units | Fit | Qual |
|---|---|---|---|---|---|---|
| | unknown | 1.988 | 4.25 | ug/L | 0 | J |
| 000067-66-3 | Trichloromethane | 2.069 | 25.6 | ug/L | 95 | NJ |
| 005076-19-7 | Oxirane, trimethyl- | 2.106 | 23.7 | ug/L | 90 | NJ |
| | unknown | 2.427 | 33.4 | ug/L | 0 | J |

# Quality Control Summary

**Semi-Volatile**

## Surrogate Recovery Report

**SDG Number: 2013-886**

**Matrix Type: LIQUID**

| Sample ID | Client ID | 2FP %REC | | PHL %REC | | NBZ %REC | | FBP %REC | | TBP %REC | | TPH %REC | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1202882572 | MB for batch 1304314 | 45 | | 28 | | 75 | | 76 | | 83 | | 96 | |
| 1202882575 | LCS for batch 1304314 | 43 | | 28 | | 75 | | 66 | | 93 | | 84 | |
| 326426001 | CAMO-13-30585 | 32 | | 26 | | 85 | | 74 | | 50 | | 90 | |
| 1202882573 | WST50-13-36043MS | 64 | | 53 | | 83 | | 73 | | 89 | | 84 | |
| 1202882574 | WST50-13-36043MSD | 68 | | 56 | | 83 | | 72 | | 92 | | 101 | |
| 1202882575 | LCS for batch 1304314DL | 40 | D | 27 | D | 71 | D | 66 | D | 86 | D | 85 | D |

| Surrogate | | | Acceptance Limits |
|---|---|---|---|
| 2FP | = | 2-Fluorophenol | (10%-78%) |
| PHL | = | Phenol-d5 | (10%-104%) |
| NBZ | = | Nitrobenzene-d5 | (36%-125%) |
| FBP | = | 2-Fluorobiphenyl | (32%-102%) |
| TBP | = | 2,4,6-Tribromophenol | (26%-129%) |
| TPH | = | p-Terphenyl-d14 | (34%-135%) |

* Recovery outside Acceptance Limits

\# Column to be used to flag recovery values

D Sample Diluted

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-886**
**Client ID:** **WST50-13-36043MS**
**Lab Sample ID:** **1202882573**
**Instrument:** **MSD8.I**
**Analyst:** **RMB**
**Inj. Vol:** **1 uL**

**Sample Type:** **Matrix Spike**
**Matrix:** **W**
**Analysis Date:** **05/29/2013 21:43**
**Prep Batch ID:** **1304314**
**Batch ID:** **1304315**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 62-75-9 | MS | N-Methyl-N-nitrosomethylam | 106 | 0.00 | U | 69.1 | 65 | 21-88 |
| 110-86-1 | MS | Pyridine | 106 | 0.00 | U | 91.7 | 86 | 14-94 |
| 62-53-3 | MS | Aniline | 106 | 0.00 | U | 97.4 | 92 | 24-109 |
| 108-95-2 | MS | Phenol | 106 | 0.00 | U | 57.4 | 54 | 10-88 |
| 111-44-4 | MS | bis(2-Chloroethyl) ether | 106 | 0.00 | U | 85.4 | 80 | 25-114 |
| 95-57-8 | MS | 2-Chlorophenol | 106 | 0.00 | U | 86.7 | 82 | 31-103 |
| 541-73-1 | MS | 1,3-Dichlorobenzene | 106 | 0.00 | U | 65.4 | 62 | 18-83 |
| 106-46-7 | MS | 1,4-Dichlorobenzene | 106 | 0.00 | U | 67.6 | 64 | 20-86 |
| 95-50-1 | MS | 1,2-Dichlorobenzene | 106 | 0.00 | U | 67.8 | 64 | 21-85 |
| 39638-32-9 | MS | bis(2-Chloroisopropyl)ether | 106 | 0.00 | U | 76.5 | 72 | 16-121 |
| 100-51-6 | MS | Benzyl alcohol | 106 | 0.00 | U | 77.2 | 73 | 31-100 |
| 95-48-7 | MS | o-Cresol | 106 | 0.00 | U | 77.8 | 73 | 26-97 |
| 65794-96-9 | MS | m,p-Cresols | 106 | 0.00 | U | 92.1 | 87 | 24-110 |
| 621-64-7 | MS | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | 106 | 0.00 | U | 99.0 | 93 | 29-116 |
| 67-72-1 | MS | Hexachloroethane | 106 | 0.00 | U | 67.3 | 63 | 17-82 |
| 98-95-3 | MS | Nitrobenzene | 106 | 0.00 | U | 95.5 | 90 | 32-126 |
| 78-59-1 | MS | Isophorone | 106 | 0.00 | U | 98.0 | 92 | 36-139 |
| 88-75-5 | MS | 2-Nitrophenol | 106 | 0.00 | U | 87.7 | 82 | 29-117 |
| 105-67-9 | MS | 2,4-Dimethylphenol | 106 | 0.00 | U | 61.6 | 58 | 28-107 |
| 111-91-1 | MS | bis(2-Chloroethoxy)methane | 106 | 0.00 | U | 97.7 | 92 | 34-112 |
| 120-83-2 | MS | 2,4-Dichlorophenol | 106 | 0.00 | U | 87.1 | 82 | 34-111 |
| 65-85-0 | MS | Benzoic acid | 213 | 0.00 | U | 104 | 49 | 10-105 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-886**
**Client ID:** **WST50-13-36043MS**
**Lab Sample ID:** **1202882573**
**Instrument:** **MSD8.I**
**Analyst:** **RMB**
**Inj. Vol:** **1 uL**

**Sample Type:** **Matrix Spike**
**Matrix:** **W**
**Analysis Date:** **05/29/2013 21:43**
**Prep Batch ID:** **1304314**
**Batch ID:** **1304315**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 106-47-8 | MS | 4-Chloroaniline | 106 | 0.00 | U | 108 | 101 | 28-123 |
| 87-68-3 | MS | Hexachlorobutadiene | 106 | 0.00 | U | 67.1 | 63 | 11-97 |
| 59-50-7 | MS | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | 106 | 0.00 | U | 88.7 | 83 | 31-119 |
| 91-57-6 | MS | 2-Methylnaphthalene | 106 | 0.00 | U | 70.9 | 67 | 26-103 |
| 91-20-3 | MS | Naphthalene | 106 | 0.00 | U | 75.1 | 71 | 25-100 |
| 90-12-0 | MS | 1-Methylnaphthalene | 106 | 0.00 | U | 75.8 | 71 | 27-107 |
| 77-47-4 | MS | Hexachlorocyclopentadiene | 106 | 0.00 | U | 54.3 | 51 | 14-73 |
| 88-06-2 | MS | 2,4,6-Trichlorophenol | 106 | 0.00 | U | 82.9 | 78 | 31-113 |
| 95-95-4 | MS | 2,4,5-Trichlorophenol | 106 | 0.00 | U | 86.2 | 81 | 30-117 |
| 91-58-7 | MS | 2-Chloronaphthalene | 106 | 0.00 | U | 77.8 | 73 | 30-97 |
| 88-74-4 | MS | 2-Nitroaniline<br>*o-Nitroaniline* | 106 | 0.00 | U | 0.00 | 0 * | 28-122 |
| 99-09-2 | MS | 3-Nitroaniline<br>*m-Nitroaniline* | 106 | 0.00 | U | 83.7 | 79 | 29-125 |
| 131-11-3 | MS | Dimethylphthalate | 106 | 0.00 | U | 94.2 | 89 | 41-116 |
| 606-20-2 | MS | 2,6-Dinitrotoluene | 106 | 0.00 | U | 94.3 | 89 | 40-123 |
| 121-14-2 | MS | 2,4-Dinitrotoluene | 106 | 0.00 | U | 95.2 | 89 | 34-126 |
| 208-96-8 | MS | Acenaphthylene | 106 | 0.00 | U | 78.4 | 74 | 33-104 |
| 83-32-9 | MS | Acenaphthene | 106 | 0.00 | U | 76.0 | 71 | 31-103 |
| 51-28-5 | MS | 2,4-Dinitrophenol | 106 | 0.00 | U | 56.1 | 53 | 17-110 |
| 132-64-9 | MS | Dibenzofuran | 106 | 0.00 | U | 82.6 | 78 | 36-107 |
| 58-90-2 | MS | 2,3,4,6-Tetrachlorophenol | 106 | 0.00 | U | 90.6 | 85 | 29-126 |
| 84-66-2 | MS | Diethylphthalate | 106 | 0.00 | U | 97.0 | 91 | 41-117 |
| 100-02-7 | MS | 4-Nitrophenol | 106 | 0.00 | U | 46.9 | 44 | 16-71 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-886** **Sample Type:** **Matrix Spike**

**Client ID:** **WST50-13-36043MS** **Matrix:** **W**

**Lab Sample ID:** **1202882573**

**Instrument:** **MSD8.I** **Analysis Date:** **05/29/2013 21:43** **Dilution: 1**

**Analyst:** **RMB** **Prep Batch ID:** **1304314**

**Inj. Vol:** **1 uL** **Batch ID:** **1304315**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 86-73-7 | MS | Fluorene | 106 | 0.00 | U | 84.4 | 79 | 32-111 |
| 7005-72-3 | MS | 4-Chlorophenylphenylether | 106 | 0.00 | U | 84.5 | 79 | 30-112 |
| 100-01-6 | MS | 4-Nitroaniline<br>*p-Nitroaniline* | 106 | 0.00 | U | 9.26 | 9 * | 25-133 |
| 534-52-1 | MS | 2-Methyl-4,6-dinitrophenol | 106 | 0.00 | U | 101 | 95 | 22-118 |
| 122-39-4 | MS | Diphenylamine | 106 | 0.00 | U | 90.4 | 85 | 34-111 |
| 122-66-7 | MS | Azobenzene<br>*1,2-Diphenylhydrazine* | 106 | 0.00 | U | 90.0 | 85 | 30-112 |
| 101-55-3 | MS | 4-Bromophenylphenylether | 106 | 0.00 | U | 91.7 | 86 | 32-111 |
| 118-74-1 | MS | Hexachlorobenzene | 106 | 0.00 | U | 99.8 | 94 | 33-115 |
| 87-86-5 | MS | Pentachlorophenol | 106 | 0.00 | U | 69.4 | 65 | 19-112 |
| 85-01-8 | MS | Phenanthrene | 106 | 0.00 | U | 86.7 | 82 | 34-112 |
| 120-12-7 | MS | Anthracene | 106 | 0.00 | U | 84.2 | 79 | 33-108 |
| 84-74-2 | MS | Di-n-butylphthalate | 106 | 0.00 | U | 96.9 | 91 | 35-118 |
| 206-44-0 | MS | Fluoranthene | 106 | 0.00 | U | 88.2 | 83 | 31-118 |
| 129-00-0 | MS | Pyrene | 106 | 0.00 | U | 82.5 | 78 | 27-126 |
| 85-68-7 | MS | Butylbenzylphthalate | 106 | 0.00 | U | 84.3 | 79 | 29-121 |
| 117-81-7 | MS | bis(2-Ethylhexyl)phthalate | 106 | 0.00 | U | 87.9 | 83 | 29-120 |
| 56-55-3 | MS | Benzo(a)anthracene | 106 | 0.00 | U | 87.7 | 82 | 35-112 |
| 218-01-9 | MS | Chrysene | 106 | 0.00 | U | 91.1 | 86 | 32-116 |
| 117-84-0 | MS | Di-n-octylphthalate | 106 | 0.00 | U | 88.7 | 83 | 25-118 |
| 205-99-2 | MS | Benzo(b)fluoranthene | 106 | 0.00 | U | 89.8 | 84 | 34-116 |
| 207-08-9 | MS | Benzo(k)fluoranthene | 106 | 0.00 | U | 91.8 | 86 | 34-119 |
| 50-32-8 | MS | Benzo(a)pyrene | 106 | 0.00 | U | 85.2 | 80 | 34-110 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-886**
**Client ID:** **WST50-13-36043MS**
**Lab Sample ID:** **1202882573**
**Instrument:** **MSD8.I**
**Analyst:** **RMB**
**Inj. Vol:** **1 uL**

**Sample Type:** **Matrix Spike**
**Matrix:** **W**
**Analysis Date:** **05/29/2013 21:43**
**Prep Batch ID:** **1304314**
**Batch ID:** **1304315**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 193-39-5 | MS | Indeno(1,2,3-cd)pyrene | 106 | 0.00 | U | 89.4 | 84 | 25-122 |
| 53-70-3 | MS | Dibenzo(a,h)anthracene | 106 | 0.00 | U | 91.6 | 86 | 24-123 |
| 191-24-2 | MS | Benzo(ghi)perylene | 106 | 0.00 | U | 87.6 | 82 | 22-122 |
| 123-91-1 | MS | 1,4-Dioxane | 106 | 0.00 | U | 70.7 | 66 | 26-88 |
| 930-55-2 | MS | N-Nitrosopyrrolidine | 106 | 0.00 | U | 90.6 | 85 | 42-110 |
| 95-94-3 | MS | 1,2,4,5-Tetrachlorobenzene | 106 | 0.00 | U | 69.3 | 65 | 29-96 |
| 1912-24-9 | MS | Atrazine | 106 | 0.00 | U | 42.8 | 40 | 33-121 |
| 92-87-5 | MS | Benzidine | 213 | 0.00 | U | 15.7 | 7 * | 10-117 |
| 91-94-1 | MS | 3,3'-Dichlorobenzidine | 106 | 0.00 | U | 0.00 | 0 * | 22-111 |
| 120-82-1 | MS | 1,2,4-Trichlorobenzene | 106 | 0.00 | U | 70.1 | 66 | 20-90 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-886** **Sample Type:** **Matrix Spike Duplicate**

**Client ID:** **WST50-13-36043MSD** **Matrix:** **W**

**Lab Sample ID:** **1202882574**

**Instrument:** **MSD8.I** **Analysis Date:** **05/29/2013 22:15** **Dilution: 1**

**Analyst:** **RMB** **Prep Batch ID:** **1304314**

**Inj. Vol:** **1 uL** **Batch ID:** **1304315**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 62-75-9 | MSD | N-Methyl-N-nitrosomethylam | 106 | 0.00 | U | 74.0 | 70 | 21-88 | 7 | 0-30 |
| 110-86-1 | MSD | Pyridine | 106 | 0.00 | U | 107 | 100 * | 14-94 | 15 | 0-30 |
| 62-53-3 | MSD | Aniline | 106 | 0.00 | U | 102 | 96 | 24-109 | 5 | 0-30 |
| 108-95-2 | MSD | Phenol | 106 | 0.00 | U | 59.1 | 56 | 10-88 | 3 | 0-30 |
| 111-44-4 | MSD | bis(2-Chloroethyl) ether | 106 | 0.00 | U | 82.0 | 77 | 25-114 | 4 | 0-30 |
| 95-57-8 | MSD | 2-Chlorophenol | 106 | 0.00 | U | 87.3 | 82 | 31-103 | 1 | 0-30 |
| 541-73-1 | MSD | 1,3-Dichlorobenzene | 106 | 0.00 | U | 48.0 | 45 | 18-83 | 31 * | 0-30 |
| 106-46-7 | MSD | 1,4-Dichlorobenzene | 106 | 0.00 | U | 49.4 | 46 | 20-86 | 31 * | 0-30 |
| 95-50-1 | MSD | 1,2-Dichlorobenzene | 106 | 0.00 | U | 50.8 | 48 | 21-85 | 29 | 0-30 |
| 39638-32-9 | MSD | bis(2-Chloroisopropyl)ether | 106 | 0.00 | U | 67.9 | 64 | 16-121 | 12 | 0-30 |
| 100-51-6 | MSD | Benzyl alcohol | 106 | 0.00 | U | 81.8 | 77 | 31-100 | 6 | 0-30 |
| 95-48-7 | MSD | o-Cresol | 106 | 0.00 | U | 81.0 | 76 | 26-97 | 4 | 0-30 |
| 65794-96-9 | MSD | m,p-Cresols | 106 | 0.00 | U | 94.3 | 89 | 24-110 | 2 | 0-30 |
| 621-64-7 | MSD | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | 106 | 0.00 | U | 98.0 | 92 | 29-116 | 1 | 0-30 |
| 67-72-1 | MSD | Hexachloroethane | 106 | 0.00 | U | 48.3 | 45 | 17-82 | 33 * | 0-30 |
| 98-95-3 | MSD | Nitrobenzene | 106 | 0.00 | U | 88.6 | 83 | 32-126 | 8 | 0-30 |
| 78-59-1 | MSD | Isophorone | 106 | 0.00 | U | 96.7 | 91 | 36-139 | 1 | 0-30 |
| 88-75-5 | MSD | 2-Nitrophenol | 106 | 0.00 | U | 86.6 | 81 | 29-117 | 1 | 0-30 |
| 105-67-9 | MSD | 2,4-Dimethylphenol | 106 | 0.00 | U | 60.5 | 57 | 28-107 | 2 | 0-30 |
| 111-91-1 | MSD | bis(2-Chloroethoxy)methane | 106 | 0.00 | U | 96.1 | 90 | 34-112 | 2 | 0-30 |
| 120-83-2 | MSD | 2,4-Dichlorophenol | 106 | 0.00 | U | 87.0 | 82 | 34-111 | 0 | 0-30 |
| 65-85-0 | MSD | Benzoic acid | 213 | 0.00 | U | 113 | 53 | 10-105 | 8 | 0-30 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-886**
**Client ID:** **WST50-13-36043MSD**
**Lab Sample ID:** **1202882574**
**Instrument:** **MSD8.I**
**Analyst:** **RMB**
**Inj. Vol:** **1 uL**

**Sample Type:** **Matrix Spike Duplicate**
**Matrix:** **W**
**Analysis Date:** **05/29/2013 22:15**
**Prep Batch ID:** **1304314**
**Batch ID:** **1304315**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 106-47-8 | MSD | 4-Chloroaniline | 106 | 0.00 | U | 106 | 100 | 28-123 | 1 | 0-30 |
| 87-68-3 | MSD | Hexachlorobutadiene | 106 | 0.00 | U | 45.1 | 42 | 11-97 | 39 * | 0-30 |
| 59-50-7 | MSD | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | 106 | 0.00 | U | 91.7 | 86 | 31-119 | 3 | 0-30 |
| 91-57-6 | MSD | 2-Methylnaphthalene | 106 | 0.00 | U | 59.8 | 56 | 26-103 | 17 | 0-30 |
| 91-20-3 | MSD | Naphthalene | 106 | 0.00 | U | 60.5 | 57 | 25-100 | 22 | 0-30 |
| 90-12-0 | MSD | 1-Methylnaphthalene | 106 | 0.00 | U | 65.4 | 62 | 27-107 | 15 | 0-30 |
| 77-47-4 | MSD | Hexachlorocyclopentadiene | 106 | 0.00 | U | 44.1 | 41 | 14-73 | 21 | 0-30 |
| 88-06-2 | MSD | 2,4,6-Trichlorophenol | 106 | 0.00 | U | 81.9 | 77 | 31-113 | 1 | 0-30 |
| 95-95-4 | MSD | 2,4,5-Trichlorophenol | 106 | 0.00 | U | 87.6 | 82 | 30-117 | 2 | 0-30 |
| 91-58-7 | MSD | 2-Chloronaphthalene | 106 | 0.00 | U | 69.6 | 65 | 30-97 | 11 | 0-30 |
| 88-74-4 | MSD | 2-Nitroaniline<br>*o-Nitroaniline* | 106 | 0.00 | U | 0.00 | 0 * | 28-122 | 0 | 0-30 |
| 99-09-2 | MSD | 3-Nitroaniline<br>*m-Nitroaniline* | 106 | 0.00 | U | 85.0 | 80 | 29-125 | 2 | 0-30 |
| 131-11-3 | MSD | Dimethylphthalate | 106 | 0.00 | U | 94.4 | 89 | 41-116 | 0 | 0-30 |
| 606-20-2 | MSD | 2,6-Dinitrotoluene | 106 | 0.00 | U | 95.2 | 89 | 40-123 | 1 | 0-30 |
| 121-14-2 | MSD | 2,4-Dinitrotoluene | 106 | 0.00 | U | 95.4 | 90 | 34-126 | 0 | 0-30 |
| 208-96-8 | MSD | Acenaphthylene | 106 | 0.00 | U | 73.3 | 69 | 33-104 | 7 | 0-30 |
| 83-32-9 | MSD | Acenaphthene | 106 | 0.00 | U | 71.0 | 67 | 31-103 | 7 | 0-30 |
| 51-28-5 | MSD | 2,4-Dinitrophenol | 106 | 0.00 | U | 57.5 | 54 | 17-110 | 2 | 0-30 |
| 132-64-9 | MSD | Dibenzofuran | 106 | 0.00 | U | 79.8 | 75 | 36-107 | 3 | 0-30 |
| 58-90-2 | MSD | 2,3,4,6-Tetrachlorophenol | 106 | 0.00 | U | 91.9 | 86 | 29-126 | 1 | 0-30 |
| 84-66-2 | MSD | Diethylphthalate | 106 | 0.00 | U | 95.3 | 90 | 41-117 | 2 | 0-30 |
| 100-02-7 | MSD | 4-Nitrophenol | 106 | 0.00 | U | 47.0 | 44 | 16-71 | 0 | 0-30 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-886** **Sample Type:** **Matrix Spike Duplicate**

**Client ID:** **WST50-13-36043MSD** **Matrix:** **W**

**Lab Sample ID:** **1202882574**

**Instrument:** **MSD8.I** **Analysis Date:** **05/29/2013 22:15** **Dilution: 1**

**Analyst:** **RMB** **Prep Batch ID:** **1304314**

**Inj. Vol:** **1 uL** **Batch ID:** **1304315**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 86-73-7 | MSD | Fluorene | 106 | 0.00 | U | 83.4 | 78 | 32-111 | 1 | 0-30 |
| 7005-72-3 | MSD | 4-Chlorophenylphenylether | 106 | 0.00 | U | 82.8 | 78 | 30-112 | 2 | 0-30 |
| 100-01-6 | MSD | 4-Nitroaniline<br>*p-Nitroaniline* | 106 | 0.00 | U | 9.68 | 9 * | 25-133 | 4 | 0-30 |
| 534-52-1 | MSD | 2-Methyl-4,6-dinitrophenol | 106 | 0.00 | U | 105 | 99 | 22-118 | 4 | 0-30 |
| 122-39-4 | MSD | Diphenylamine | 106 | 0.00 | U | 93.1 | 88 | 34-111 | 3 | 0-30 |
| 122-66-7 | MSD | Azobenzene<br>*1,2-Diphenylhydrazine* | 106 | 0.00 | U | 91.3 | 86 | 30-112 | 1 | 0-30 |
| 101-55-3 | MSD | 4-Bromophenylphenylether | 106 | 0.00 | U | 92.8 | 87 | 32-111 | 1 | 0-30 |
| 118-74-1 | MSD | Hexachlorobenzene | 106 | 0.00 | U | 97.4 | 92 | 33-115 | 2 | 0-30 |
| 87-86-5 | MSD | Pentachlorophenol | 106 | 0.00 | U | 68.5 | 64 | 19-112 | 1 | 0-30 |
| 85-01-8 | MSD | Phenanthrene | 106 | 0.00 | U | 87.6 | 82 | 34-112 | 1 | 0-30 |
| 120-12-7 | MSD | Anthracene | 106 | 0.00 | U | 84.8 | 80 | 33-108 | 1 | 0-30 |
| 84-74-2 | MSD | Di-n-butylphthalate | 106 | 0.00 | U | 91.6 | 86 | 35-118 | 6 | 0-30 |
| 206-44-0 | MSD | Fluoranthene | 106 | 0.00 | U | 84.5 | 79 | 31-118 | 4 | 0-30 |
| 129-00-0 | MSD | Pyrene | 106 | 0.00 | U | 97.4 | 92 | 27-126 | 17 | 0-30 |
| 85-68-7 | MSD | Butylbenzylphthalate | 106 | 0.00 | U | 94.5 | 89 | 29-121 | 11 | 0-30 |
| 117-81-7 | MSD | bis(2-Ethylhexyl)phthalate | 106 | 0.00 | U | 95.4 | 90 | 29-120 | 8 | 0-30 |
| 56-55-3 | MSD | Benzo(a)anthracene | 106 | 0.00 | U | 88.5 | 83 | 35-112 | 1 | 0-30 |
| 218-01-9 | MSD | Chrysene | 106 | 0.00 | U | 90.6 | 85 | 32-116 | 1 | 0-30 |
| 117-84-0 | MSD | Di-n-octylphthalate | 106 | 0.00 | U | 86.8 | 82 | 25-118 | 2 | 0-30 |
| 205-99-2 | MSD | Benzo(b)fluoranthene | 106 | 0.00 | U | 93.3 | 88 | 34-116 | 4 | 0-30 |
| 207-08-9 | MSD | Benzo(k)fluoranthene | 106 | 0.00 | U | 96.0 | 90 | 34-119 | 4 | 0-30 |
| 50-32-8 | MSD | Benzo(a)pyrene | 106 | 0.00 | U | 85.2 | 80 | 34-110 | 0 | 0-30 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-886**
**Sample Type:** **Matrix Spike Duplicate**
**Client ID:** **WST50-13-36043MSD**
**Matrix:** **W**
**Lab Sample ID:** **1202882574**
**Instrument:** **MSD8.I**
**Analysis Date:** **05/29/2013 22:15**
**Dilution: 1**
**Analyst:** **RMB**
**Prep Batch ID:** **1304314**
**Inj. Vol:** **1 uL**
**Batch ID:** **1304315**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 193-39-5 | MSD | Indeno(1,2,3-cd)pyrene | 106 | 0.00 | U | 85.4 | 80 | 25-122 | 5 | 0-30 |
| 53-70-3 | MSD | Dibenzo(a,h)anthracene | 106 | 0.00 | U | 86.5 | 81 | 24-123 | 6 | 0-30 |
| 191-24-2 | MSD | Benzo(ghi)perylene | 106 | 0.00 | U | 84.6 | 79 | 22-122 | 3 | 0-30 |
| 123-91-1 | MSD | 1,4-Dioxane | 106 | 0.00 | U | 73.5 | 69 | 26-88 | 4 | 0-30 |
| 930-55-2 | MSD | N-Nitrosopyrrolidine | 106 | 0.00 | U | 96.1 | 90 | 42-110 | 6 | 0-30 |
| 95-94-3 | MSD | 1,2,4,5-Tetrachlorobenzene | 106 | 0.00 | U | 59.0 | 55 | 29-96 | 16 | 0-30 |
| 1912-24-9 | MSD | Atrazine | 106 | 0.00 | U | 42.4 | 40 | 33-121 | 1 | 0-30 |
| 92-87-5 | MSD | Benzidine | 213 | 0.00 | U | 15.6 | 7 * | 10-117 | 0 | 0-30 |
| 91-94-1 | MSD | 3,3'-Dichlorobenzidine | 106 | 0.00 | U | 0.00 | 0 * | 22-111 | 0 | 0-30 |
| 120-82-1 | MSD | 1,2,4-Trichlorobenzene | 106 | 0.00 | U | 53.1 | 50 | 20-90 | 28 | 0-30 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-886**
**Client ID:** **LCS for batch 1304314**
**Lab Sample ID:** **1202882575**
**Instrument:** **MSD8.I**
**Analyst:** **RMB**
**Inj. Vol:** **1 uL**

**Sample Type:** **Laboratory Control Sample**
**Matrix:** **WATER**
**Analysis Date:** **05/29/2013 20:08**
**Prep Batch ID:** **1304314**
**Batch ID:** **1304315**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 62-75-9 | LCS | N-Methyl-N-nitrosomethylam | 50.0 | 0.0 | 21.3 | 43 | 18-75 |
| 110-86-1 | LCS | Pyridine | 50.0 | 0.0 | 37.2 | 74 | 11-88 |
| 62-53-3 | LCS | Aniline | 50.0 | 0.0 | 47.2 | 94 | 35-107 |
| 108-95-2 | LCS | Phenol | 50.0 | 0.0 | 14.2 | 28 | 13-77 |
| 111-44-4 | LCS | bis(2-Chloroethyl) ether | 50.0 | 0.0 | 34.7 | 69 | 35-111 |
| 95-57-8 | LCS | 2-Chlorophenol | 50.0 | 0.0 | 36.0 | 72 | 39-99 |
| 541-73-1 | LCS | 1,3-Dichlorobenzene | 50.0 | 0.0 | 27.3 | 55 | 25-100 |
| 106-46-7 | LCS | 1,4-Dichlorobenzene | 50.0 | 0.0 | 27.7 | 55 | 24-88 |
| 95-50-1 | LCS | 1,2-Dichlorobenzene | 50.0 | 0.0 | 28.0 | 56 | 27-87 |
| 39638-32-9 | LCS | bis(2-Chloroisopropyl)ether | 50.0 | 0.0 | 30.1 | 60 | 23-120 |
| 100-51-6 | LCS | Benzyl alcohol | 50.0 | 0.0 | 25.8 | 52 | 33-90 |
| 95-48-7 | LCS | o-Cresol | 50.0 | 0.0 | 29.5 | 59 | 32-90 |
| 65794-96-9 | LCS | m,p-Cresols | 50.0 | 0.0 | 32.4 | 65 | 28-100 |
| 621-64-7 | LCS | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | 50.0 | 0.0 | 38.9 | 78 | 39-113 |
| 67-72-1 | LCS | Hexachloroethane | 50.0 | 0.0 | 27.7 | 55 | 20-85 |
| 98-95-3 | LCS | Nitrobenzene | 50.0 | 0.0 | 38.5 | 77 | 41-119 |
| 78-59-1 | LCS | Isophorone | 50.0 | 0.0 | 40.6 | 81 | 49-133 |
| 88-75-5 | LCS | 2-Nitrophenol | 50.0 | 0.0 | 35.1 | 70 | 42-111 |
| 105-67-9 | LCS | 2,4-Dimethylphenol | 50.0 | 0.0 | 34.5 | 69 | 43-99 |
| 111-91-1 | LCS | bis(2-Chloroethoxy)methane | 50.0 | 0.0 | 40.6 | 81 | 44-109 |
| 120-83-2 | LCS | 2,4-Dichlorophenol | 50.0 | 0.0 | 36.8 | 74 | 45-106 |
| 65-85-0 | LCS | Benzoic acid | 100 | 0.0 | 22.5 | 22 | 10-81 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-886**
**Client ID:** **LCS for batch 1304314**
**Lab Sample ID:** **1202882575**
**Instrument:** **MSD8.I**
**Analyst:** **RMB**
**Inj. Vol:** **1 uL**

**Sample Type:** **Laboratory Control Sample**
**Matrix:** **WATER**
**Analysis Date:** **05/29/2013 20:08**
**Prep Batch ID:** **1304314**
**Batch ID:** **1304315**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 106-47-8 | LCS | 4-Chloroaniline | 50.0 | 0.0 | 57.5 | 115 | 50-122 |
| 87-68-3 | LCS | Hexachlorobutadiene | 50.0 | 0.0 | 27.1 | 54 | 19-92 |
| 59-50-7 | LCS | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | 50.0 | 0.0 | 39.9 | 80 | 46-111 |
| 91-57-6 | LCS | 2-Methylnaphthalene | 50.0 | 0.0 | 30.2 | 60 | 33-102 |
| 91-20-3 | LCS | Naphthalene | 50.0 | 0.0 | 31.0 | 62 | 31-98 |
| 90-12-0 | LCS | 1-Methylnaphthalene | 50.0 | 0.0 | 32.3 | 65 | 35-106 |
| 77-47-4 | LCS | Hexachlorocyclopentadiene | 50.0 | 0.0 | 24.0 | 48 | 15-72 |
| 88-06-2 | LCS | 2,4,6-Trichlorophenol | 50.0 | 0.0 | 37.5 | 75 | 41-109 |
| 95-95-4 | LCS | 2,4,5-Trichlorophenol | 50.0 | 0.0 | 38.6 | 77 | 41-111 |
| 91-58-7 | LCS | 2-Chloronaphthalene | 50.0 | 0.0 | 35.5 | 71 | 36-98 |
| 88-74-4 | LCS | 2-Nitroaniline<br>*o-Nitroaniline* | 50.0 | 0.0 | 49.2 | 98 | 44-117 |
| 99-09-2 | LCS | 3-Nitroaniline<br>*m-Nitroaniline* | 50.0 | 0.0 | 60.4 | 121 | 45-124 |
| 131-11-3 | LCS | Dimethylphthalate | 50.0 | 0.0 | 43.2 | 86 | 53-112 |
| 606-20-2 | LCS | 2,6-Dinitrotoluene | 50.0 | 0.0 | 43.1 | 86 | 52-117 |
| 121-14-2 | LCS | 2,4-Dinitrotoluene | 50.0 | 0.0 | 44.4 | 89 | 45-124 |
| 208-96-8 | LCS | Acenaphthylene | 50.0 | 0.0 | 35.9 | 72 | 37-107 |
| 83-32-9 | LCS | Acenaphthene | 50.0 | 0.0 | 34.6 | 69 | 40-104 |
| 51-28-5 | LCS | 2,4-Dinitrophenol | 50.0 | 0.0 | 24.6 | 49 | 19-110 |
| 132-64-9 | LCS | Dibenzofuran | 50.0 | 0.0 | 38.6 | 77 | 45-107 |
| 58-90-2 | LCS | 2,3,4,6-Tetrachlorophenol | 50.0 | 0.0 | 42.0 | 84 | 45-120 |
| 84-66-2 | LCS | Diethylphthalate | 50.0 | 0.0 | 44.5 | 89 | 51-116 |
| 100-02-7 | LCS | 4-Nitrophenol | 50.0 | 0.0 | 15.2 | 30 | 16-77 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-886**
**Client ID:** **LCS for batch 1304314**
**Lab Sample ID:** **1202882575**
**Instrument:** **MSD8.I**
**Analyst:** **RMB**
**Inj. Vol:** **1 uL**

**Sample Type:** **Laboratory Control Sample**
**Matrix:** **WATER**
**Analysis Date:** **05/29/2013 20:08**
**Prep Batch ID:** **1304314**
**Batch ID:** **1304315**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 86-73-7 | LCS | Fluorene | 50.0 | 0.0 | 40.0 | 80 | 43-110 |
| 7005-72-3 | LCS | 4-Chlorophenylphenylether | 50.0 | 0.0 | 40.0 | 80 | 40-114 |
| 100-01-6 | LCS | 4-Nitroaniline<br>*p-Nitroaniline* | 50.0 | 0.0 | 69.2 | 138 * | 38-133 |
| 534-52-1 | LCS | 2-Methyl-4,6-dinitrophenol | 50.0 | 0.0 | 45.4 | 91 | 34-114 |
| 122-39-4 | LCS | Diphenylamine | 50.0 | 0.0 | 43.3 | 87 | 47-111 |
| 122-66-7 | LCS | Azobenzene<br>*1,2-Diphenylhydrazine* | 50.0 | 0.0 | 40.7 | 81 | 40-112 |
| 101-55-3 | LCS | 4-Bromophenylphenylether | 50.0 | 0.0 | 41.9 | 84 | 41-113 |
| 118-74-1 | LCS | Hexachlorobenzene | 50.0 | 0.0 | 43.8 | 88 | 43-116 |
| 87-86-5 | LCS | Pentachlorophenol | 50.0 | 0.0 | 31.6 | 63 | 27-102 |
| 85-01-8 | LCS | Phenanthrene | 50.0 | 0.0 | 40.2 | 80 | 47-111 |
| 120-12-7 | LCS | Anthracene | 50.0 | 0.0 | 40.2 | 80 | 46-110 |
| 84-74-2 | LCS | Di-n-butylphthalate | 50.0 | 0.0 | 43.3 | 87 | 49-116 |
| 206-44-0 | LCS | Fluoranthene | 50.0 | 0.0 | 41.1 | 82 | 45-118 |
| 129-00-0 | LCS | Pyrene | 50.0 | 0.0 | 37.4 | 75 | 38-127 |
| 85-68-7 | LCS | Butylbenzylphthalate | 50.0 | 0.0 | 38.3 | 77 | 40-122 |
| 117-81-7 | LCS | bis(2-Ethylhexyl)phthalate | 50.0 | 0.0 | 39.0 | 78 | 37-124 |
| 56-55-3 | LCS | Benzo(a)anthracene | 50.0 | 0.0 | 40.6 | 81 | 49-111 |
| 218-01-9 | LCS | Chrysene | 50.0 | 0.0 | 42.0 | 84 | 44-117 |
| 117-84-0 | LCS | Di-n-octylphthalate | 50.0 | 0.0 | 40.0 | 80 | 33-122 |
| 205-99-2 | LCS | Benzo(b)fluoranthene | 50.0 | 0.0 | 40.8 | 82 | 47-117 |
| 207-08-9 | LCS | Benzo(k)fluoranthene | 50.0 | 0.0 | 41.5 | 83 | 46-119 |
| 50-32-8 | LCS | Benzo(a)pyrene | 50.0 | 0.0 | 38.9 | 78 | 47-110 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-886**
**Client ID:** **LCS for batch 1304314**
**Lab Sample ID:** **1202882575**
**Instrument:** **MSD8.I**
**Analyst:** **RMB**
**Inj. Vol:** **1 uL**

**Sample Type:** **Laboratory Control Sample**
**Matrix:** **WATER**
**Analysis Date:** **05/29/2013 20:08**
**Prep Batch ID:** **1304314**
**Batch ID:** **1304315**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 193-39-5 | LCS | Indeno(1,2,3-cd)pyrene | 50.0 | 0.0 | 39.9 | 80 | 37-125 |
| 53-70-3 | LCS | Dibenzo(a,h)anthracene | 50.0 | 0.0 | 39.9 | 80 | 36-125 |
| 191-24-2 | LCS | Benzo(ghi)perylene | 50.0 | 0.0 | 39.6 | 79 | 33-126 |
| 123-91-1 | LCS | 1,4-Dioxane | 50.0 | 0.0 | 22.9 | 46 | 26-73 |
| 930-55-2 | LCS | N-Nitrosopyrrolidine | 50.0 | 0.0 | 34.9 | 70 | 42-106 |
| 95-94-3 | LCS | 1,2,4,5-Tetrachlorobenzene | 50.0 | 0.0 | 30.9 | 62 | 36-95 |
| 1912-24-9 | LCS | Atrazine | 50.0 | 0.0 | 18.9 | 38 * | 47-115 |
| 91-94-1 | LCS | 3,3'-Dichlorobenzidine | 50.0 | 0.0 | 41.1 | 82 | 31-113 |
| 120-82-1 | LCS | 1,2,4-Trichlorobenzene | 50.0 | 0.0 | 29.5 | 59 | 26-92 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-886**
**Client ID:** **LCS for batch 1304314DL**
**Lab Sample ID:** **1202882575**
**Instrument:** **MSD8.I**
**Analyst:** **RMB**
**Inj. Vol:** **1 uL**

**Sample Type:** **Laboratory Control Sample**
**Matrix:** **WATER**
**Analysis Date:** **05/30/2013 10:37**
**Prep Batch ID:** **1304314**
**Batch ID:** **1304315**
**Dilution: 2**

| CAS No | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|
| 92-87-5 | LCS Benzidine | 100 | 0.0 | 106 | 106 | 10-124 |

# Method Blank Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-886** | **Client:** | **ARSL001** | **Matrix:** | **WATER** |
| **Client ID:** | **MB for batch 1304314** | **Instrument ID:** | **MSD8.I** | **Data File:** | **s052913.B\s8E2904.D** |
| **Lab Sample ID:** | **1202882572** | **Prep Date:** | **05/29/2013 10:30** | **Analyzed:** | **05/29/13 19:36** |
| **Column:** | **DB-5ms** | | | | |

**This method blank applies to the following samples and quality control samples:**

| Client Sample ID | Lab Sample ID | File ID | Date Analyzed | Time Analyzed |
|---|---|---|---|---|
| 01 LCS for batch 1304314 | 1202882575 | s052913.B\s8E2905.D | 05/29/13 | 2008 |
| 02 CAMO-13-30585 | 326426001 | s052913.B\s8E2906.D | 05/29/13 | 2040 |
| 03 WST50-13-36043MS | 1202882573 | s052913.B\s8E2908.D | 05/29/13 | 2143 |
| 04 WST50-13-36043MSD | 1202882574 | s052913.B\s8E2909.D | 05/29/13 | 2215 |
| 05 LCS for batch 1304314DL | 1202882575 | s053013.B\s8E3005.D | 05/30/13 | 1037 |

# Quality Control Data

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-886** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202882572** | | | | |
| **Client Sample:** | **QC for batch 1304314** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **MB for batch 1304314** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1304315** | **Inst:** | **MSD8.I** | **Dilution:** | **1** |
| **Run Date:** | **05/29/2013 19:36** | **Analyst:** | **RMB** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/29/2013 10:30** | **Aliquot:** | **1000 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s052913.B\s8E2904.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 62-75-9 | N-Methyl-N-nitrosomethylamine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 110-86-1 | Pyridine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 62-53-3 | Aniline | U | 10.0 | ug/L | 3.00 | 10.0 |
| 108-95-2 | Phenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 111-44-4 | bis(2-Chloroethyl) ether | U | 10.0 | ug/L | 3.00 | 10.0 |
| 95-57-8 | 2-Chlorophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 39638-32-9 | bis(2-Chloroisopropyl)ether | U | 10.0 | ug/L | 3.00 | 10.0 |
| 100-51-6 | Benzyl alcohol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 95-48-7 | o-Cresol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 65794-96-9 | m,p-Cresols | U | 10.0 | ug/L | 3.00 | 10.0 |
| 621-64-7 | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | U | 10.0 | ug/L | 3.00 | 10.0 |
| 67-72-1 | Hexachloroethane | U | 10.0 | ug/L | 3.00 | 10.0 |
| 98-95-3 | Nitrobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 78-59-1 | Isophorone | U | 10.0 | ug/L | 3.00 | 10.0 |
| 88-75-5 | 2-Nitrophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 105-67-9 | 2,4-Dimethylphenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 111-91-1 | bis(2-Chloroethoxy)methane | U | 10.0 | ug/L | 3.00 | 10.0 |
| 120-83-2 | 2,4-Dichlorophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 65-85-0 | Benzoic acid | U | 20.0 | ug/L | 6.00 | 20.0 |
| 106-47-8 | 4-Chloroaniline | U | 10.0 | ug/L | 3.30 | 10.0 |
| 87-68-3 | Hexachlorobutadiene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 59-50-7 | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | U | 10.0 | ug/L | 3.00 | 10.0 |
| 91-57-6 | 2-Methylnaphthalene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 90-12-0 | 1-Methylnaphthalene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 77-47-4 | Hexachlorocyclopentadiene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 88-06-2 | 2,4,6-Trichlorophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 95-95-4 | 2,4,5-Trichlorophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 91-58-7 | 2-Chloronaphthalene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 88-74-4 | 2-Nitroaniline<br>*o-Nitroaniline* | U | 10.0 | ug/L | 3.00 | 10.0 |
| 99-09-2 | 3-Nitroaniline<br>*m-Nitroaniline* | U | 10.0 | ug/L | 3.00 | 10.0 |
| 131-11-3 | Dimethylphthalate | U | 10.0 | ug/L | 3.00 | 10.0 |
| 606-20-2 | 2,6-Dinitrotoluene | U | 10.0 | ug/L | 3.00 | 10.0 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-886** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202882572** | | | | |
| **Client Sample:** | **QC for batch 1304314** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **MB for batch 1304314** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1304315** | **Inst:** | **MSD8.I** | **Dilution:** | **1** |
| **Run Date:** | **05/29/2013 19:36** | **Analyst:** | **RMB** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/29/2013 10:30** | **Aliquot:** | **1000 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s052913.B\s8E2904.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 121-14-2 | 2,4-Dinitrotoluene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 208-96-8 | Acenaphthylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 83-32-9 | Acenaphthene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 51-28-5 | 2,4-Dinitrophenol | U | 20.0 | ug/L | 5.00 | 20.0 |
| 132-64-9 | Dibenzofuran | U | 10.0 | ug/L | 3.00 | 10.0 |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 84-66-2 | Diethylphthalate | U | 10.0 | ug/L | 3.00 | 10.0 |
| 100-02-7 | 4-Nitrophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 86-73-7 | Fluorene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 7005-72-3 | 4-Chlorophenylphenylether | U | 10.0 | ug/L | 3.00 | 10.0 |
| 100-01-6 | 4-Nitroaniline | U | 10.0 | ug/L | 3.00 | 10.0 |
| | *p-Nitroaniline* | | | | | |
| 534-52-1 | 2-Methyl-4,6-dinitrophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 122-39-4 | Diphenylamine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 122-66-7 | Azobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| | *1,2-Diphenylhydrazine* | | | | | |
| 101-55-3 | 4-Bromophenylphenylether | U | 10.0 | ug/L | 3.00 | 10.0 |
| 118-74-1 | Hexachlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 87-86-5 | Pentachlorophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 88-85-7 | Dinoseb | U | 10.0 | ug/L | 3.00 | 10.0 |
| 85-01-8 | Phenanthrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 120-12-7 | Anthracene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 84-74-2 | Di-n-butylphthalate | U | 10.0 | ug/L | 3.00 | 10.0 |
| 206-44-0 | Fluoranthene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 129-00-0 | Pyrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 85-68-7 | Butylbenzylphthalate | U | 10.0 | ug/L | 3.00 | 10.0 |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | U | 10.0 | ug/L | 3.00 | 10.0 |
| 56-55-3 | Benzo(a)anthracene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 218-01-9 | Chrysene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 117-84-0 | Di-n-octylphthalate | U | 10.0 | ug/L | 3.00 | 10.0 |
| 205-99-2 | Benzo(b)fluoranthene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 207-08-9 | Benzo(k)fluoranthene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 50-32-8 | Benzo(a)pyrene | U | 1.00 | ug/L | 0.440 | 1.00 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 53-70-3 | Dibenzo(a,h)anthracene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 191-24-2 | Benzo(ghi)perylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 123-91-1 | 1,4-Dioxane | U | 10.0 | ug/L | 3.00 | 10.0 |
| 55-18-5 | N-Nitrosodiethylamine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 930-55-2 | N-Nitrosopyrrolidine | U | 10.0 | ug/L | 3.00 | 10.0 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-886** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202882572** | | | | |
| **Client Sample:** | **QC for batch 1304314** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **MB for batch 1304314** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1304315** | **Inst:** | **MSD8.I** | **Dilution:** | **1** |
| **Run Date:** | **05/29/2013 19:36** | **Analyst:** | **RMB** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/29/2013 10:30** | **Aliquot:** | **1000 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s052913.B\s8E2904.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 924-16-3 | N-Nitrosodi-n-butylamine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 608-93-5 | Pentachlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 1912-24-9 | Atrazine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 92-87-5 | Benzidine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 91-94-1 | 3,3'-Dichlorobenzidine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 2,4,6-Tribromophenol | 82.8 | 100 | ug/L | 82.8 | (26%-129%) |
| 2-Fluorobiphenyl | 37.9 | 50.0 | ug/L | 75.7 | (32%-102%) |
| 2-Fluorophenol | 44.8 | 100 | ug/L | 44.8 | (10%-78%) |
| Nitrobenzene-d5 | 37.6 | 50.0 | ug/L | 75.3 | (36%-125%) |
| Phenol-d5 | 27.8 | 100 | ug/L | 27.8 | (10%-104%) |
| p-Terphenyl-d14 | 48.1 | 50.0 | ug/L | 96.2 | (34%-135%) |

**Tentatively Identified Compound Summary**

| CAS No. | Tentatively Identified Compound (TIC) | RT | Estimated | Units | Fit | Qual |
|---|---|---|---|---|---|---|
| 000067-66-3 | Trichloromethane | 2.085 | 27.9 | ug/L | 94 | NJ |
| | unknown | 2.427 | 22 | ug/L | 0 | J |
| | Unknown Aldol Condensate | 3.983 | 4.58 | ug/L | | AJ |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-886** | **Date Collected:** | **05/22/2013 10:45** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202882573** | **Date Received:** | **05/24/2013 09:00** | | |
| **Client Sample:** | **QC for batch 1304314** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **WST50-13-36043MS** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1304315** | **Inst:** | **MSD8.I** | **Dilution:** | **1** |
| **Run Date:** | **05/29/2013 21:43** | **Analyst:** | **RMB** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/29/2013 10:30** | **Aliquot:** | **470 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s052913.B\s8E2908.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 62-75-9 | N-Methyl-N-nitrosomethylamine | | 69.1 | ug/L | 6.38 | 21.3 |
| 110-86-1 | Pyridine | | 91.7 | ug/L | 6.38 | 21.3 |
| 62-53-3 | Aniline | | 97.4 | ug/L | 6.38 | 21.3 |
| 108-95-2 | Phenol | | 57.4 | ug/L | 6.38 | 21.3 |
| 111-44-4 | bis(2-Chloroethyl) ether | | 85.4 | ug/L | 6.38 | 21.3 |
| 95-57-8 | 2-Chlorophenol | | 86.7 | ug/L | 6.38 | 21.3 |
| 541-73-1 | 1,3-Dichlorobenzene | | 65.4 | ug/L | 6.38 | 21.3 |
| 106-46-7 | 1,4-Dichlorobenzene | | 67.6 | ug/L | 6.38 | 21.3 |
| 95-50-1 | 1,2-Dichlorobenzene | | 67.8 | ug/L | 6.38 | 21.3 |
| 39638-32-9 | bis(2-Chloroisopropyl)ether | | 76.5 | ug/L | 6.38 | 21.3 |
| 100-51-6 | Benzyl alcohol | | 77.2 | ug/L | 6.38 | 21.3 |
| 95-48-7 | o-Cresol | | 77.8 | ug/L | 6.38 | 21.3 |
| 65794-96-9 | m,p-Cresols | | 92.1 | ug/L | 6.38 | 21.3 |
| 621-64-7 | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | | 99.0 | ug/L | 6.38 | 21.3 |
| 67-72-1 | Hexachloroethane | | 67.3 | ug/L | 6.38 | 21.3 |
| 98-95-3 | Nitrobenzene | | 95.5 | ug/L | 6.38 | 21.3 |
| 78-59-1 | Isophorone | | 98.0 | ug/L | 6.38 | 21.3 |
| 88-75-5 | 2-Nitrophenol | | 87.7 | ug/L | 6.38 | 21.3 |
| 105-67-9 | 2,4-Dimethylphenol | | 61.6 | ug/L | 6.38 | 21.3 |
| 111-91-1 | bis(2-Chloroethoxy)methane | | 97.7 | ug/L | 6.38 | 21.3 |
| 120-83-2 | 2,4-Dichlorophenol | | 87.1 | ug/L | 6.38 | 21.3 |
| 65-85-0 | Benzoic acid | | 104 | ug/L | 12.8 | 42.6 |
| 106-47-8 | 4-Chloroaniline | | 108 | ug/L | 7.02 | 21.3 |
| 87-68-3 | Hexachlorobutadiene | | 67.1 | ug/L | 6.38 | 21.3 |
| 59-50-7 | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | | 88.7 | ug/L | 6.38 | 21.3 |
| 91-57-6 | 2-Methylnaphthalene | | 70.9 | ug/L | 0.638 | 2.13 |
| 91-20-3 | Naphthalene | | 75.1 | ug/L | 0.638 | 2.13 |
| 90-12-0 | 1-Methylnaphthalene | | 75.8 | ug/L | 0.638 | 2.13 |
| 77-47-4 | Hexachlorocyclopentadiene | | 54.3 | ug/L | 6.38 | 21.3 |
| 88-06-2 | 2,4,6-Trichlorophenol | | 82.9 | ug/L | 6.38 | 21.3 |
| 95-95-4 | 2,4,5-Trichlorophenol | | 86.2 | ug/L | 6.38 | 21.3 |
| 91-58-7 | 2-Chloronaphthalene | | 77.8 | ug/L | 0.638 | 2.13 |
| 88-74-4 | 2-Nitroaniline<br>*o-Nitroaniline* | U | 21.3 | ug/L | 6.38 | 21.3 |
| 99-09-2 | 3-Nitroaniline<br>*m-Nitroaniline* | | 83.7 | ug/L | 6.38 | 21.3 |
| 131-11-3 | Dimethylphthalate | | 94.2 | ug/L | 6.38 | 21.3 |
| 606-20-2 | 2,6-Dinitrotoluene | | 94.3 | ug/L | 6.38 | 21.3 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-886** | **Date Collected:** | **05/22/2013 10:45** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202882573** | **Date Received:** | **05/24/2013 09:00** | | |
| **Client Sample:** | **QC for batch 1304314** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **WST50-13-36043MS** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1304315** | **Inst:** | **MSD8.I** | **Dilution:** | **1** |
| **Run Date:** | **05/29/2013 21:43** | **Analyst:** | **RMB** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/29/2013 10:30** | **Aliquot:** | **470 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s052913.B\s8E2908.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 121-14-2 | 2,4-Dinitrotoluene | | 95.2 | ug/L | 6.38 | 21.3 |
| 208-96-8 | Acenaphthylene | | 78.4 | ug/L | 0.638 | 2.13 |
| 83-32-9 | Acenaphthene | | 76.0 | ug/L | 0.638 | 2.13 |
| 51-28-5 | 2,4-Dinitrophenol | | 56.1 | ug/L | 10.6 | 42.6 |
| 132-64-9 | Dibenzofuran | | 82.6 | ug/L | 6.38 | 21.3 |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | | 90.6 | ug/L | 6.38 | 21.3 |
| 84-66-2 | Diethylphthalate | | 97.0 | ug/L | 6.38 | 21.3 |
| 100-02-7 | 4-Nitrophenol | | 46.9 | ug/L | 6.38 | 21.3 |
| 86-73-7 | Fluorene | | 84.4 | ug/L | 0.638 | 2.13 |
| 7005-72-3 | 4-Chlorophenylphenylether | | 84.5 | ug/L | 6.38 | 21.3 |
| 100-01-6 | 4-Nitroaniline | J | 9.26 | ug/L | 6.38 | 21.3 |
| 534-52-1 | *p-Nitroaniline*<br>2-Methyl-4,6-dinitrophenol | | 101 | ug/L | 6.38 | 21.3 |
| 122-39-4 | Diphenylamine | | 90.4 | ug/L | 6.38 | 21.3 |
| 122-66-7 | Azobenzene | | 90.0 | ug/L | 6.38 | 21.3 |
| 101-55-3 | *1,2-Diphenylhydrazine*<br>4-Bromophenylphenylether | | 91.7 | ug/L | 6.38 | 21.3 |
| 118-74-1 | Hexachlorobenzene | | 99.8 | ug/L | 6.38 | 21.3 |
| 87-86-5 | Pentachlorophenol | | 69.4 | ug/L | 6.38 | 21.3 |
| 88-85-7 | Dinoseb | U | 21.3 | ug/L | 6.38 | 21.3 |
| 85-01-8 | Phenanthrene | | 86.7 | ug/L | 0.638 | 2.13 |
| 120-12-7 | Anthracene | | 84.2 | ug/L | 0.638 | 2.13 |
| 84-74-2 | Di-n-butylphthalate | | 96.9 | ug/L | 6.38 | 21.3 |
| 206-44-0 | Fluoranthene | | 88.2 | ug/L | 0.638 | 2.13 |
| 129-00-0 | Pyrene | | 82.5 | ug/L | 0.638 | 2.13 |
| 85-68-7 | Butylbenzylphthalate | | 84.3 | ug/L | 6.38 | 21.3 |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | | 87.9 | ug/L | 6.38 | 21.3 |
| 56-55-3 | Benzo(a)anthracene | | 87.7 | ug/L | 0.638 | 2.13 |
| 218-01-9 | Chrysene | | 91.1 | ug/L | 0.638 | 2.13 |
| 117-84-0 | Di-n-octylphthalate | | 88.7 | ug/L | 6.38 | 21.3 |
| 205-99-2 | Benzo(b)fluoranthene | | 89.8 | ug/L | 0.638 | 2.13 |
| 207-08-9 | Benzo(k)fluoranthene | | 91.8 | ug/L | 0.638 | 2.13 |
| 50-32-8 | Benzo(a)pyrene | | 85.2 | ug/L | 0.936 | 2.13 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | | 89.4 | ug/L | 0.638 | 2.13 |
| 53-70-3 | Dibenzo(a,h)anthracene | | 91.6 | ug/L | 0.638 | 2.13 |
| 191-24-2 | Benzo(ghi)perylene | | 87.6 | ug/L | 0.638 | 2.13 |
| 123-91-1 | 1,4-Dioxane | | 70.7 | ug/L | 6.38 | 21.3 |
| 55-18-5 | N-Nitrosodiethylamine | U | 21.3 | ug/L | 6.38 | 21.3 |
| 930-55-2 | N-Nitrosopyrrolidine | | 90.6 | ug/L | 6.38 | 21.3 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-886** | **Date Collected:** | **05/22/2013 10:45** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202882573** | **Date Received:** | **05/24/2013 09:00** | | |
| **Client Sample:** | **QC for batch 1304314** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **WST50-13-36043MS** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1304315** | **Inst:** | **MSD8.I** | **Dilution:** | **1** |
| **Run Date:** | **05/29/2013 21:43** | **Analyst:** | **RMB** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/29/2013 10:30** | **Aliquot:** | **470 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s052913.B\s8E2908.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 924-16-3 | N-Nitrosodi-n-butylamine | U | 21.3 | ug/L | 6.38 | 21.3 |
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | | 69.3 | ug/L | 6.38 | 21.3 |
| 608-93-5 | Pentachlorobenzene | U | 21.3 | ug/L | 6.38 | 21.3 |
| 1912-24-9 | Atrazine | | 42.8 | ug/L | 6.38 | 21.3 |
| 92-87-5 | Benzidine | J | 15.7 | ug/L | 6.38 | 21.3 |
| 91-94-1 | 3,3'-Dichlorobenzidine | U | 21.3 | ug/L | 6.38 | 21.3 |
| 120-82-1 | 1,2,4-Trichlorobenzene | | 70.1 | ug/L | 6.38 | 21.3 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 2,4,6-Tribromophenol | 188 | 213 | ug/L | 88.5 | (26%-129%) |
| 2-Fluorobiphenyl | 77.8 | 106 | ug/L | 73.1 | (32%-102%) |
| 2-Fluorophenol | 136 | 213 | ug/L | 64.1 | (10%-78%) |
| Nitrobenzene-d5 | 88.7 | 106 | ug/L | 83.4 | (36%-125%) |
| Phenol-d5 | 112 | 213 | ug/L | 52.5 | (10%-104%) |
| p-Terphenyl-d14 | 89.3 | 106 | ug/L | 83.9 | (34%-135%) |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-886** | **Date Collected:** | **05/22/2013 10:45** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202882574** | **Date Received:** | **05/24/2013 09:00** | | |
| **Client Sample:** | **QC for batch 1304314** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **WST50-13-36043MSD** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1304315** | **Inst:** | **MSD8.I** | **Dilution:** | **1** |
| **Run Date:** | **05/29/2013 22:15** | **Analyst:** | **RMB** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/29/2013 10:30** | **Aliquot:** | **470 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s052913.B\s8E2909.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 62-75-9 | N-Methyl-N-nitrosomethylamine | | 74.0 | ug/L | 6.38 | 21.3 |
| 110-86-1 | Pyridine | | 107 | ug/L | 6.38 | 21.3 |
| 62-53-3 | Aniline | | 102 | ug/L | 6.38 | 21.3 |
| 108-95-2 | Phenol | | 59.1 | ug/L | 6.38 | 21.3 |
| 111-44-4 | bis(2-Chloroethyl) ether | | 82.0 | ug/L | 6.38 | 21.3 |
| 95-57-8 | 2-Chlorophenol | | 87.3 | ug/L | 6.38 | 21.3 |
| 541-73-1 | 1,3-Dichlorobenzene | | 48.0 | ug/L | 6.38 | 21.3 |
| 106-46-7 | 1,4-Dichlorobenzene | | 49.4 | ug/L | 6.38 | 21.3 |
| 95-50-1 | 1,2-Dichlorobenzene | | 50.8 | ug/L | 6.38 | 21.3 |
| 39638-32-9 | bis(2-Chloroisopropyl)ether | | 67.9 | ug/L | 6.38 | 21.3 |
| 100-51-6 | Benzyl alcohol | | 81.8 | ug/L | 6.38 | 21.3 |
| 95-48-7 | o-Cresol | | 81.0 | ug/L | 6.38 | 21.3 |
| 65794-96-9 | m,p-Cresols | | 94.3 | ug/L | 6.38 | 21.3 |
| 621-64-7 | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | | 98.0 | ug/L | 6.38 | 21.3 |
| 67-72-1 | Hexachloroethane | | 48.3 | ug/L | 6.38 | 21.3 |
| 98-95-3 | Nitrobenzene | | 88.6 | ug/L | 6.38 | 21.3 |
| 78-59-1 | Isophorone | | 96.7 | ug/L | 6.38 | 21.3 |
| 88-75-5 | 2-Nitrophenol | | 86.6 | ug/L | 6.38 | 21.3 |
| 105-67-9 | 2,4-Dimethylphenol | | 60.5 | ug/L | 6.38 | 21.3 |
| 111-91-1 | bis(2-Chloroethoxy)methane | | 96.1 | ug/L | 6.38 | 21.3 |
| 120-83-2 | 2,4-Dichlorophenol | | 87.0 | ug/L | 6.38 | 21.3 |
| 65-85-0 | Benzoic acid | | 113 | ug/L | 12.8 | 42.6 |
| 106-47-8 | 4-Chloroaniline | | 106 | ug/L | 7.02 | 21.3 |
| 87-68-3 | Hexachlorobutadiene | | 45.1 | ug/L | 6.38 | 21.3 |
| 59-50-7 | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | | 91.7 | ug/L | 6.38 | 21.3 |
| 91-57-6 | 2-Methylnaphthalene | | 59.8 | ug/L | 0.638 | 2.13 |
| 91-20-3 | Naphthalene | | 60.5 | ug/L | 0.638 | 2.13 |
| 90-12-0 | 1-Methylnaphthalene | | 65.4 | ug/L | 0.638 | 2.13 |
| 77-47-4 | Hexachlorocyclopentadiene | | 44.1 | ug/L | 6.38 | 21.3 |
| 88-06-2 | 2,4,6-Trichlorophenol | | 81.9 | ug/L | 6.38 | 21.3 |
| 95-95-4 | 2,4,5-Trichlorophenol | | 87.6 | ug/L | 6.38 | 21.3 |
| 91-58-7 | 2-Chloronaphthalene | | 69.6 | ug/L | 0.638 | 2.13 |
| 88-74-4 | 2-Nitroaniline<br>*o-Nitroaniline* | U | 21.3 | ug/L | 6.38 | 21.3 |
| 99-09-2 | 3-Nitroaniline<br>*m-Nitroaniline* | | 85.0 | ug/L | 6.38 | 21.3 |
| 131-11-3 | Dimethylphthalate | | 94.4 | ug/L | 6.38 | 21.3 |
| 606-20-2 | 2,6-Dinitrotoluene | | 95.2 | ug/L | 6.38 | 21.3 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-886** | **Date Collected:** | **05/22/2013 10:45** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202882574** | **Date Received:** | **05/24/2013 09:00** | | |
| **Client Sample:** | **QC for batch 1304314** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **WST50-13-36043MSD** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1304315** | **Inst:** | **MSD8.I** | **Dilution:** | **1** |
| **Run Date:** | **05/29/2013 22:15** | **Analyst:** | **RMB** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/29/2013 10:30** | **Aliquot:** | **470 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s052913.B\s8E2909.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 121-14-2 | 2,4-Dinitrotoluene | | 95.4 | ug/L | 6.38 | 21.3 |
| 208-96-8 | Acenaphthylene | | 73.3 | ug/L | 0.638 | 2.13 |
| 83-32-9 | Acenaphthene | | 71.0 | ug/L | 0.638 | 2.13 |
| 51-28-5 | 2,4-Dinitrophenol | | 57.5 | ug/L | 10.6 | 42.6 |
| 132-64-9 | Dibenzofuran | | 79.8 | ug/L | 6.38 | 21.3 |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | | 91.9 | ug/L | 6.38 | 21.3 |
| 84-66-2 | Diethylphthalate | | 95.3 | ug/L | 6.38 | 21.3 |
| 100-02-7 | 4-Nitrophenol | | 47.0 | ug/L | 6.38 | 21.3 |
| 86-73-7 | Fluorene | | 83.4 | ug/L | 0.638 | 2.13 |
| 7005-72-3 | 4-Chlorophenylphenylether | | 82.8 | ug/L | 6.38 | 21.3 |
| 100-01-6 | 4-Nitroaniline<br>*p-Nitroaniline* | J | 9.68 | ug/L | 6.38 | 21.3 |
| 534-52-1 | 2-Methyl-4,6-dinitrophenol | | 105 | ug/L | 6.38 | 21.3 |
| 122-39-4 | Diphenylamine | | 93.1 | ug/L | 6.38 | 21.3 |
| 122-66-7 | Azobenzene<br>*1,2-Diphenylhydrazine* | | 91.3 | ug/L | 6.38 | 21.3 |
| 101-55-3 | 4-Bromophenylphenylether | | 92.8 | ug/L | 6.38 | 21.3 |
| 118-74-1 | Hexachlorobenzene | | 97.4 | ug/L | 6.38 | 21.3 |
| 87-86-5 | Pentachlorophenol | | 68.5 | ug/L | 6.38 | 21.3 |
| 88-85-7 | Dinoseb | U | 21.3 | ug/L | 6.38 | 21.3 |
| 85-01-8 | Phenanthrene | | 87.6 | ug/L | 0.638 | 2.13 |
| 120-12-7 | Anthracene | | 84.8 | ug/L | 0.638 | 2.13 |
| 84-74-2 | Di-n-butylphthalate | | 91.6 | ug/L | 6.38 | 21.3 |
| 206-44-0 | Fluoranthene | | 84.5 | ug/L | 0.638 | 2.13 |
| 129-00-0 | Pyrene | | 97.4 | ug/L | 0.638 | 2.13 |
| 85-68-7 | Butylbenzylphthalate | | 94.5 | ug/L | 6.38 | 21.3 |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | | 95.4 | ug/L | 6.38 | 21.3 |
| 56-55-3 | Benzo(a)anthracene | | 88.5 | ug/L | 0.638 | 2.13 |
| 218-01-9 | Chrysene | | 90.6 | ug/L | 0.638 | 2.13 |
| 117-84-0 | Di-n-octylphthalate | | 86.8 | ug/L | 6.38 | 21.3 |
| 205-99-2 | Benzo(b)fluoranthene | | 93.3 | ug/L | 0.638 | 2.13 |
| 207-08-9 | Benzo(k)fluoranthene | | 96.0 | ug/L | 0.638 | 2.13 |
| 50-32-8 | Benzo(a)pyrene | | 85.2 | ug/L | 0.936 | 2.13 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | | 85.4 | ug/L | 0.638 | 2.13 |
| 53-70-3 | Dibenzo(a,h)anthracene | | 86.5 | ug/L | 0.638 | 2.13 |
| 191-24-2 | Benzo(ghi)perylene | | 84.6 | ug/L | 0.638 | 2.13 |
| 123-91-1 | 1,4-Dioxane | | 73.5 | ug/L | 6.38 | 21.3 |
| 55-18-5 | N-Nitrosodiethylamine | U | 21.3 | ug/L | 6.38 | 21.3 |
| 930-55-2 | N-Nitrosopyrrolidine | | 96.1 | ug/L | 6.38 | 21.3 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-886** | **Date Collected:** | **05/22/2013 10:45** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202882574** | **Date Received:** | **05/24/2013 09:00** | | |
| **Client Sample:** | **QC for batch 1304314** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **WST50-13-36043MSD** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1304315** | **Inst:** | **MSD8.I** | **Dilution:** | **1** |
| **Run Date:** | **05/29/2013 22:15** | **Analyst:** | **RMB** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/29/2013 10:30** | **Aliquot:** | **470 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s052913.B\s8E2909.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 924-16-3 | N-Nitrosodi-n-butylamine | U | 21.3 | ug/L | 6.38 | 21.3 |
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | | 59.0 | ug/L | 6.38 | 21.3 |
| 608-93-5 | Pentachlorobenzene | U | 21.3 | ug/L | 6.38 | 21.3 |
| 1912-24-9 | Atrazine | | 42.4 | ug/L | 6.38 | 21.3 |
| 92-87-5 | Benzidine | J | 15.6 | ug/L | 6.38 | 21.3 |
| 91-94-1 | 3,3'-Dichlorobenzidine | U | 21.3 | ug/L | 6.38 | 21.3 |
| 120-82-1 | 1,2,4-Trichlorobenzene | | 53.1 | ug/L | 6.38 | 21.3 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 2,4,6-Tribromophenol | 195 | 213 | ug/L | 91.9 | (26%-129%) |
| 2-Fluorobiphenyl | 76.4 | 106 | ug/L | 71.8 | (32%-102%) |
| 2-Fluorophenol | 145 | 213 | ug/L | 68.3 | (10%-78%) |
| Nitrobenzene-d5 | 88.1 | 106 | ug/L | 82.8 | (36%-125%) |
| Phenol-d5 | 119 | 213 | ug/L | 55.7 | (10%-104%) |
| p-Terphenyl-d14 | 107 | 106 | ug/L | 101 | (34%-135%) |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-886** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202882575** | | | | |
| **Client Sample:** | **QC for batch 1304314** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1304314** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1304315** | **Inst:** | **MSD8.I** | **Dilution:** | **1** |
| **Run Date:** | **05/29/2013 20:08** | **Analyst:** | **RMB** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/29/2013 10:30** | **Aliquot:** | **1000 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s052913.B\s8E2905.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 62-75-9 | N-Methyl-N-nitrosomethylamine | | 21.3 | ug/L | 3.00 | 10.0 |
| 110-86-1 | Pyridine | | 37.2 | ug/L | 3.00 | 10.0 |
| 62-53-3 | Aniline | | 47.2 | ug/L | 3.00 | 10.0 |
| 108-95-2 | Phenol | | 14.2 | ug/L | 3.00 | 10.0 |
| 111-44-4 | bis(2-Chloroethyl) ether | | 34.7 | ug/L | 3.00 | 10.0 |
| 95-57-8 | 2-Chlorophenol | | 36.0 | ug/L | 3.00 | 10.0 |
| 541-73-1 | 1,3-Dichlorobenzene | | 27.3 | ug/L | 3.00 | 10.0 |
| 106-46-7 | 1,4-Dichlorobenzene | | 27.7 | ug/L | 3.00 | 10.0 |
| 95-50-1 | 1,2-Dichlorobenzene | | 28.0 | ug/L | 3.00 | 10.0 |
| 39638-32-9 | bis(2-Chloroisopropyl)ether | | 30.1 | ug/L | 3.00 | 10.0 |
| 100-51-6 | Benzyl alcohol | | 25.8 | ug/L | 3.00 | 10.0 |
| 95-48-7 | o-Cresol | | 29.5 | ug/L | 3.00 | 10.0 |
| 65794-96-9 | m,p-Cresols | | 32.4 | ug/L | 3.00 | 10.0 |
| 621-64-7 | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | | 38.9 | ug/L | 3.00 | 10.0 |
| 67-72-1 | Hexachloroethane | | 27.7 | ug/L | 3.00 | 10.0 |
| 98-95-3 | Nitrobenzene | | 38.5 | ug/L | 3.00 | 10.0 |
| 78-59-1 | Isophorone | | 40.6 | ug/L | 3.00 | 10.0 |
| 88-75-5 | 2-Nitrophenol | | 35.1 | ug/L | 3.00 | 10.0 |
| 105-67-9 | 2,4-Dimethylphenol | | 34.5 | ug/L | 3.00 | 10.0 |
| 111-91-1 | bis(2-Chloroethoxy)methane | | 40.6 | ug/L | 3.00 | 10.0 |
| 120-83-2 | 2,4-Dichlorophenol | | 36.8 | ug/L | 3.00 | 10.0 |
| 65-85-0 | Benzoic acid | | 22.5 | ug/L | 6.00 | 20.0 |
| 106-47-8 | 4-Chloroaniline | | 57.5 | ug/L | 3.30 | 10.0 |
| 87-68-3 | Hexachlorobutadiene | | 27.1 | ug/L | 3.00 | 10.0 |
| 59-50-7 | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | | 39.9 | ug/L | 3.00 | 10.0 |
| 91-57-6 | 2-Methylnaphthalene | | 30.2 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | | 31.0 | ug/L | 0.300 | 1.00 |
| 90-12-0 | 1-Methylnaphthalene | | 32.3 | ug/L | 0.300 | 1.00 |
| 77-47-4 | Hexachlorocyclopentadiene | | 24.0 | ug/L | 3.00 | 10.0 |
| 88-06-2 | 2,4,6-Trichlorophenol | | 37.5 | ug/L | 3.00 | 10.0 |
| 95-95-4 | 2,4,5-Trichlorophenol | | 38.6 | ug/L | 3.00 | 10.0 |
| 91-58-7 | 2-Chloronaphthalene | | 35.5 | ug/L | 0.300 | 1.00 |
| 88-74-4 | 2-Nitroaniline<br>*o-Nitroaniline* | | 49.2 | ug/L | 3.00 | 10.0 |
| 99-09-2 | 3-Nitroaniline<br>*m-Nitroaniline* | | 60.4 | ug/L | 3.00 | 10.0 |
| 131-11-3 | Dimethylphthalate | | 43.2 | ug/L | 3.00 | 10.0 |
| 606-20-2 | 2,6-Dinitrotoluene | | 43.1 | ug/L | 3.00 | 10.0 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-886** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202882575** | | | | |
| **Client Sample:** | **QC for batch 1304314** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1304314** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1304315** | **Inst:** | **MSD8.I** | **Dilution:** | **1** |
| **Run Date:** | **05/29/2013 20:08** | **Analyst:** | **RMB** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/29/2013 10:30** | **Aliquot:** | **1000 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s052913.B\s8E2905.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 121-14-2 | 2,4-Dinitrotoluene | | 44.4 | ug/L | 3.00 | 10.0 |
| 208-96-8 | Acenaphthylene | | 35.9 | ug/L | 0.300 | 1.00 |
| 83-32-9 | Acenaphthene | | 34.6 | ug/L | 0.300 | 1.00 |
| 51-28-5 | 2,4-Dinitrophenol | | 24.6 | ug/L | 5.00 | 20.0 |
| 132-64-9 | Dibenzofuran | | 38.6 | ug/L | 3.00 | 10.0 |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | | 42.0 | ug/L | 3.00 | 10.0 |
| 84-66-2 | Diethylphthalate | | 44.5 | ug/L | 3.00 | 10.0 |
| 100-02-7 | 4-Nitrophenol | | 15.2 | ug/L | 3.00 | 10.0 |
| 86-73-7 | Fluorene | | 40.0 | ug/L | 0.300 | 1.00 |
| 7005-72-3 | 4-Chlorophenylphenylether | | 40.0 | ug/L | 3.00 | 10.0 |
| 100-01-6 | 4-Nitroaniline | | 69.2 | ug/L | 3.00 | 10.0 |
| | *p-Nitroaniline* | | | | | |
| 534-52-1 | 2-Methyl-4,6-dinitrophenol | | 45.4 | ug/L | 3.00 | 10.0 |
| 122-39-4 | Diphenylamine | | 43.3 | ug/L | 3.00 | 10.0 |
| 122-66-7 | Azobenzene | | 40.7 | ug/L | 3.00 | 10.0 |
| | *1,2-Diphenylhydrazine* | | | | | |
| 101-55-3 | 4-Bromophenylphenylether | | 41.9 | ug/L | 3.00 | 10.0 |
| 118-74-1 | Hexachlorobenzene | | 43.8 | ug/L | 3.00 | 10.0 |
| 87-86-5 | Pentachlorophenol | | 31.6 | ug/L | 3.00 | 10.0 |
| 88-85-7 | Dinoseb | U | 10.0 | ug/L | 3.00 | 10.0 |
| 85-01-8 | Phenanthrene | | 40.2 | ug/L | 0.300 | 1.00 |
| 120-12-7 | Anthracene | | 40.2 | ug/L | 0.300 | 1.00 |
| 84-74-2 | Di-n-butylphthalate | | 43.3 | ug/L | 3.00 | 10.0 |
| 206-44-0 | Fluoranthene | | 41.1 | ug/L | 0.300 | 1.00 |
| 129-00-0 | Pyrene | | 37.4 | ug/L | 0.300 | 1.00 |
| 85-68-7 | Butylbenzylphthalate | | 38.3 | ug/L | 3.00 | 10.0 |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | | 39.0 | ug/L | 3.00 | 10.0 |
| 56-55-3 | Benzo(a)anthracene | | 40.6 | ug/L | 0.300 | 1.00 |
| 218-01-9 | Chrysene | | 42.0 | ug/L | 0.300 | 1.00 |
| 117-84-0 | Di-n-octylphthalate | | 40.0 | ug/L | 3.00 | 10.0 |
| 205-99-2 | Benzo(b)fluoranthene | | 40.8 | ug/L | 0.300 | 1.00 |
| 207-08-9 | Benzo(k)fluoranthene | | 41.5 | ug/L | 0.300 | 1.00 |
| 50-32-8 | Benzo(a)pyrene | | 38.9 | ug/L | 0.440 | 1.00 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | | 39.9 | ug/L | 0.300 | 1.00 |
| 53-70-3 | Dibenzo(a,h)anthracene | | 39.9 | ug/L | 0.300 | 1.00 |
| 191-24-2 | Benzo(ghi)perylene | | 39.6 | ug/L | 0.300 | 1.00 |
| 123-91-1 | 1,4-Dioxane | | 22.9 | ug/L | 3.00 | 10.0 |
| 55-18-5 | N-Nitrosodiethylamine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 930-55-2 | N-Nitrosopyrrolidine | | 34.9 | ug/L | 3.00 | 10.0 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-886** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202882575** | | | | |
| **Client Sample:** | **QC for batch 1304314** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1304314** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1304315** | **Inst:** | **MSD8.I** | **Dilution:** | **1** |
| **Run Date:** | **05/29/2013 20:08** | **Analyst:** | **RMB** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/29/2013 10:30** | **Aliquot:** | **1000 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s052913.B\s8E2905.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 924-16-3 | N-Nitrosodi-n-butylamine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | | 30.9 | ug/L | 3.00 | 10.0 |
| 608-93-5 | Pentachlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 1912-24-9 | Atrazine | | 18.9 | ug/L | 3.00 | 10.0 |
| 91-94-1 | 3,3'-Dichlorobenzidine | | 41.1 | ug/L | 3.00 | 10.0 |
| 120-82-1 | 1,2,4-Trichlorobenzene | | 29.5 | ug/L | 3.00 | 10.0 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 2,4,6-Tribromophenol | 92.7 | 100 | ug/L | 92.7 | (26%-129%) |
| 2-Fluorobiphenyl | 33.1 | 50.0 | ug/L | 66.1 | (32%-102%) |
| 2-Fluorophenol | 42.7 | 100 | ug/L | 42.7 | (10%-78%) |
| Nitrobenzene-d5 | 37.5 | 50.0 | ug/L | 75.0 | (36%-125%) |
| Phenol-d5 | 28.3 | 100 | ug/L | 28.3 | (10%-104%) |
| p-Terphenyl-d14 | 42.0 | 50.0 | ug/L | 83.9 | (34%-135%) |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-886** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202882575** | | | | |
| **Client Sample:** | **QC for batch 1304314** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1304314DL** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1304315** | **Inst:** | **MSD8.I** | **Dilution:** | **2** |
| **Run Date:** | **05/30/2013 10:37** | **Analyst:** | **RMB** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/29/2013 10:30** | **Aliquot:** | **1000 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s053013.B\s8E3005.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 92-87-5 | Benzidine | | 106 | ug/L | 6.00 | 20.0 |

| Surrogate/Tracer recovery | Result | Nominal | Recovery% | Acceptable Limits |
|---|---|---|---|---|

# Miscellaneous

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 31-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| SEMIVOA GC/MS | SW846 8270C | Liquid | ARSL (ESHL) |
| **Batch ID:** | **Sample Numbers:** | | |
| 1304315 | See Below | | |

**Potentially affected work order(s)(SDG): 326426(2013-886),326435(2013-888),326438**

**Application Issues:**

Failed Recovery for MS/PS

Failed RPD for MS/MSD, or PS/PSD

Failed Recovery for LCS/LCSD

Failed Yield for Surrogates

Failed Recovery for MSD/PSD

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Sample 326438001 recovered surrogate 2,4,6-Tribromophenol at 7.39%. The limits are 26%-129%. | 1. Since there was insufficient sample volume remaining for a re-extraction, the data results have been reported. |
| 2. The LCS(1202882575) recovered p-Nitroaniline at 138% (limits: 38%-133%) and Atrazine at 38% (limits: 47%-115%). | 2. The failures represent less than 5% of the total requested spike analyte list. That satisfied the acceptance criteria for the client and the data results have been reported. Please note that since p-Nitroaniline was not detected in the associated client samples, the biased high recovery had no adverse impact on the data and the results have been reported. |
| 3. The MS(1202882573) and MSD(1202882574) recovered spike analytes outside of the acceptance limits. Please see the QC Summary Report for specific failures. | 3. Since the MSD displayed similar spike recoveries to the MS, the failures were attributed to sample matrix interference and the data results have been reported. |
| 4. The MS(1202882573)/MSD(1202882574) pair displayed RPD values outside of the acceptance criteria. Please see the QC Summary Report for specific failures. | 4. Since the analytes were individually within the acceptance limits for the MS and MSD, the non-conformance had no adverse impact on the data and the results have been reported. |

**Originator's Name:**

Richard Bomar 31-MAY-13

**Data Validator/Group Leader:**

Barbara Bailey 14-JUN-13

# Perchlorates by LCMSMS Analysis

# Case Narrative

**Perchlorate by LC/MSMS**
**ARS International (ARSL)**
**SDG 2013-886**

## Method/Analysis Information

| | |
|---|---|
| **Procedure:** | **Definitive Low Level Perchlorate Analysis Utilizing Liquid Chromatography/Mass Spectrometry/Mass Spectrometry (LC/MS/MS) by EPA Method 6850 Modified (6850M)** |
| Analytical Method: | SW846 6850 Modified |
| Prep Method: | SW846 6850 Modified |
| Analytical Batch Number: | 1304740 |
| Prep Batch Number: | 1304739 |

## Sample Analysis

| Sample ID | Client ID |
|---|---|
| 326426002 | CAMO-13-30601 |
| 1202883693 | Interference Check Sample (ICS) |
| 1202883689 | Method Blank (MB) |
| 1202883690 | Laboratory Control Sample (LCS) |
| 1202883691 | 326214002(CASA-13-30557) Matrix Spike (MS) |
| 1202883692 | 326214002(CASA-13-30557) Matrix Spike Duplicate (MSD) |

The samples in this SDG were analyzed on an "as received" basis.

## Preparation/Analytical Method Verification

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-067 REV# 10.

## Calibration Information

**Initial Calibration**
All initial calibration requirements have been met for this SDG. Due to software constraints, all Initial Calibration Blanks must be designated as IPB001.

**ICV Requirements**
All associated initial calibration verification standard(s) (ICV) met the acceptance criteria.

**CCB Requirements**
All continuing calibration blanks (CCB) bracketing the analyses associated with this batch were within acceptance criteria.

**CCV Requirements**
All continuing calibration checks (CCV) requirements were met by all bracketing CCV standards.

**Low Level Standard (CRI) Requirements**
All low level calibration verification (CRI) requirements were met by all bracketing CRI standards.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Interference Check Sample (ICS)**
The ICS met all recovery acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recoveries met the acceptance limits.

**QC Sample Designation**
Client sample 326214002 (CASA-13-30557) was chosen for matrix spike and matrix spike duplicate analysis.

**Matrix Spike (MS) Recovery Statement**
The MS recoveries were within the established acceptance limits.

**Matrix Spike Duplicate (MSD) Recovery Statement**
The MSD recoveries were within the established acceptance limits.

**MS/MSD Relative Percent Difference (RPD) Statement**
The RPD(s) between the MS and MSD met the acceptance limits.

**Retention Time Standard Area Acceptance**
The retention time standard areas were within the required acceptance criteria for all samples and QC.

**Retention Time**
During the analysis of Perchlorate by LC/MS/MS, retention time shifts are commonly observed. These retention time shifts, which are caused by fouling of the column by the sample matrices, are problematic when the retention time is used as one of the criterion for confirmation. To overcome this problem, a known amount of O(18) labeled Perchlorate was added to each sample as a retention time standard. The presence of Perchlorate was confirmed by the relative retention time (RRT) of the Perchlorate peak and the O(18) standard. A RRT window of 0.98 to 1.02, as required by Method 332.0, has been used. In addition to the isotopic ratio, the presence of Perchlorate in the samples associated with this data package have been confirmed using the relative retention criteria stated above, not the absolute retention time.

**Technical Information**

**Holding Time Specifications**
All samples in this SDG in this analytical batch met the specified holding time. GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

**Preparation/Analytical Method Verification**
All procedures were performed as stated in the SOP.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-extraction/Re-analysis**
Sample 326426002 (CAMO-13-30601) was re-analyzed to confirm potential carryover from the previous sample analysis. The re-analysis was reported.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Manual Integrations**
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations.

**Method Comments**
The samples in this SDG were not originally analyzed using EPA Method 314.0.

**Additional Comments**
Because of the background concentration present in the parent sample, 326214002, the addition of the spike amount for the MS and MSD resulted in the detected concentration for the matrix spikes to be over-range. It was acceptable to report the data without further analysis. 1202883691 (CASA-13-30557) and 1202883692 (CASA-13-30557). The retention time marker, Perchlorate-O (18), is added to all samples, instrument blanks, and standards prior to injection. It is used to verify the retention time of Perchlorate and Perchlorate-101 and to insure an accurate injection occurred. Due to various anions affecting the recovery of Perchlorate-O (18) and not Perchlorate and Perchlorate-101, the calibration curves of Perchlorate and Perchlorate-101 are not internally corrected for using Perchlorate-O (18). They are external calibrations.

**Perchlorate Isotope Ratio**
The Perchlorate isotope ratio met acceptance criteria for all samples and QC samples. Please see the isotope ratio criteria in the Miscellaneous Section.

**System Configuration**

The laboratory utilizes a Waters LC 2795 liquid chromatography instrument for Perchlorate analysis. It is coupled with either a Micromass Quattro Micro Mass Spectrometer/ Mass Spectrometer, or a Micromass Quattro Ultima Mass Spectrometer/ Mass Spectrometer. Each being designated as LCMSMS #1 and LCMSMS #2, respectively. It is fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis. The laboratory may also utilize an Agilent 1100 liquid chromatography instrument for Perchlorate analysis. It is coupled with an Applied Biosystems 4000 Mass Spectrometer/ Mass Spectrometer, designated as LCMSMS #3 or LCMSMS #4. It is also fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and

dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Chromatographic Columns**

Chromatographic separation of Perchlorate is accomplished through analysis on the following anion column:

Dionex: IonPac AG-16 2 x 50 mm.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-886 GEL Work Order: 326426

**The Qualifiers in this report are defined as follows:**

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

**Review/Validation**

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

**Signature:** Pat Steele **Name: Patricia Steele**

**Date: 05 JUN 2013** **Title: Data Validator**

# Sample Data Summary

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1304739

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CAMO-13-30601

**Date Received:** 24-MAY-13

**GEL Job No (SDG):** 2013-886

**GEL Sample ID:** 326426002

**Date Filtered:** 30-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.235 | ug/L | | 1 | 30-MAY-13 16:26 | per0530035a |
| | Perchlorate Isotope Ratio | | | 3.03 | | | 1 | 30-MAY-13 16:26 | per0530035a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.244 | ug/L | | 1 | 30-MAY-13 16:26 | per0530035a |
| | Perchlorate-O(18) | | | 0.512 | ug/L | | 1 | 30-MAY-13 16:26 | per0530035a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Quality Control Summary

## Perchlorate Laboratory Control Sample

**Lab Name:** General Engineering Laboratories

**Lab Code:** GEL

**GEL Job No. (SDG):** 2013-886

**Extract Batch Code:** 1304739

**Date Filtered:** 30-MAY-13

**Matrix:** WATER

**Sample ID:** 1202883690

| Analyte^ | True | Found | Units | %Rec | Q | Control Limits |
|---|---|---|---|---|---|---|
| Perchlorate | 0.200 | .187 | ug/L | 93.6 | | 85 - 115 |
| Perchlorate Isotope Ratio | | 3.08 | | | | - |
| Perchlorate-101 | 0.200 | .191 | ug/L | 95.3 | | 85 - 115 |
| Perchlorate-O(18) | | .477 | ug/L | | | - |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

## Perchlorate Spike/Spike Duplicate Summary

**Lab Name:** General Engineering Laboratories

**Lab Code:** GEL

**GEL Job No (SDG):** 2013-886

**Extract Batch Code:** 1304739

**Date Extracted:** 30-MAY-13

**GEL MS/PS ID:** 1202883691

**Client ID:** CASA-13-30557

**GEL MSD/PSD ID:** 1202883692

**QC Type:** MS

| Compound^ | Spike Added | Sample Conc | Units | MS Conc | MS Rec # | MSD Conc | MSD Rec # | RPD # | RPD Limit | Recovery Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| Perchlorate | 0.200 | 0.938 | ug/L | 1.14 | 99.7 | 1.13 | 93.5 | 1.1 | 30 | 75 - 125 |
| Perchlorate Isotope Ratio | 0 | 3.11 | | 3.07 | | 3.06 | | .211 | | - |
| Perchlorate-101 | 0.200 | 0.948 | ug/L | 1.16 | 108 | 1.15 | 103 | .886 | 30 | 75 - 125 |
| Perchlorate-O(18) | 0 | 0.501 | ug/L | 0.520 | | .507 | | 2.46 | | - |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

# Quality Control Data

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** EPA 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1304739

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
MB

**Date Received:** 30-MAY-13

**GEL Job No (SDG):** 2013-886

**GEL Sample ID:** 1202883689

**Date Filtered:** 30-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.200 | ug/L | U | 1 | 30-MAY-13 14:50 | per0530023a |
| | Perchlorate Isotope Ratio | | | | | | 1 | 30-MAY-13 14:50 | per0530023a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.200 | ug/L | U | 1 | 30-MAY-13 14:50 | per0530023a |
| | Perchlorate-O(18) | | | 0.479 | ug/L | | 1 | 30-MAY-13 14:50 | per0530023a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** EPA 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1304739

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
LCS

**Date Received:** 30-MAY-13

**GEL Job No (SDG):** 2013-886

**GEL Sample ID:** 1202883690

**Date Filtered:** 30-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.187 | ug/L | J | 1 | 30-MAY-13 14:58 | per0530024a |
| | Perchlorate Isotope Ratio | | | 3.08 | | | 1 | 30-MAY-13 14:58 | per0530024a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.191 | ug/L | J | 1 | 30-MAY-13 14:58 | per0530024a |
| | Perchlorate-O(18) | | | 0.477 | ug/L | | 1 | 30-MAY-13 14:58 | per0530024a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1304739

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
ICS

**Date Received:**

**GEL Job No (SDG):** 2013-886

**GEL Sample ID:** 1202883693

**Date Filtered:** 30-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.198 | ug/L | J | 1 | 30-MAY-13 15:06 | per0530025a |
| | Perchlorate Isotope Ratio | | | 3.07 | | | 1 | 30-MAY-13 15:06 | per0530025a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.202 | ug/L | | 1 | 30-MAY-13 15:06 | per0530025a |
| | Perchlorate-O(18) | | | 0.509 | ug/L | | 1 | 30-MAY-13 15:06 | per0530025a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1304739

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CASA-13-30557MS

**Date Received:** 23-MAY-13

**GEL Job No (SDG):** 2013-886

**GEL Sample ID:** 1202883691

**Date Filtered:** 30-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 1.14 | ug/L | | 1 | 30-MAY-13 15:22 | per0530027a |
| | Perchlorate Isotope Ratio | | | 3.07 | | | 1 | 30-MAY-13 15:22 | per0530027a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 1.16 | ug/L | | 1 | 30-MAY-13 15:22 | per0530027a |
| | Perchlorate-O(18) | | | 0.520 | ug/L | | 1 | 30-MAY-13 15:22 | per0530027a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1304739

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CASA-13-30557MSD

**Date Received:** 23-MAY-13

**GEL Job No (SDG):** 2013-886

**GEL Sample ID:** 1202883692

**Date Filtered:** 30-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 1.13 | ug/L | | 1 | 30-MAY-13 15:30 | per0530028a |
| | Perchlorate Isotope Ratio | | | 3.06 | | | 1 | 30-MAY-13 15:30 | per0530028a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 1.15 | ug/L | | 1 | 30-MAY-13 15:30 | per0530028a |
| | Perchlorate-O(18) | | | 0.507 | ug/L | | 1 | 30-MAY-13 15:30 | per0530028a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Metals Analysis

# Case Narrative

**Metals Fractional Narrative**
**ARS International (ARSL)**
**SDG 2013-886**

## Sample Analysis

| Sample ID | Client ID |
|---|---|
| 326426002 | CAMO-13-30601 |
| 1202884377 | Method Blank (MB) **ICP** |
| 1202884378 | Laboratory Control Sample (LCS) |
| 1202884381 | 326426002(CAMO-13-30601L) Serial Dilution (SD) |
| 1202884379 | 326426002(CAMO-13-30601D) Sample Duplicate (DUP) |
| 1202884380 | 326426002(CAMO-13-30601S) Matrix Spike (MS) |
| 1202883954 | Method Blank (MB) **ICP-MS** |
| 1202883955 | Laboratory Control Sample (LCS) |
| 1202883958 | 325649002(CAMO-13-30594L) Serial Dilution (SD) |
| 1202883956 | 325649002(CAMO-13-30594D) Sample Duplicate (DUP) |
| 1202883957 | 325649002(CAMO-13-30594S) Matrix Spike (MS) |
| 1202883730 | Method Blank (MB) **CVAA** |
| 1202883731 | Laboratory Control Sample (LCS) |
| 1202883734 | 326426002(CAMO-13-30601L) Serial Dilution (SD) |
| 1202883732 | 326426002(CAMO-13-30601D) Sample Duplicate (DUP) |
| 1202883733 | 326426002(CAMO-13-30601S) Matrix Spike (MS) |

## Method/Analysis Information

| | |
|---|---|
| **Analytical Batch:** | 1304972, 1304840, 1304760 and 1308026 |
| **Prep Batch :** | 1304971, 1304838 and 1304759 |
| **Standard Operating Procedures:** | GL-MA-E-013 REV# 22, GL-MA-E-006 REV# 9, GL-MA-E-014 REV# 25, GL-MA-E-010 REV# 26 and GL-GC-E-107 REV# 8 |
| **Analytical Method:** | SW846 3005/6010B, SW846 3005/6020 DOE-AL, EPA 245.1/245.2 and SM 2340 B |
| **Prep Method :** | SW846 3005A and EPA 245.1/245.2 Prep |

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

**System Configuration**

The Hardness as CaCO3 is calculated from Calcium and Magnesium results.

The Metals analysis-ICP was performed on a P E 5300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN 9000 inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadruple mass spectrometer, and dual mode electron multiplier detector. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum. Operating conditions are set at 1400W power and combined argon pressures of 360+/-7 kPa for the plasma and auxiliary gases, and 0.85 L/min carrier gas flow, and an initial lens voltage of 5.2.

The Metals analysis-Mercury was performed on a Perkin-Elmer Flow Injection Mercury System (FIMS-100) automated mercury analyzer. The instrument consists of a cold vapor atomic absorption spectrometer set to detect mercury at a wavelength of 253.7 nm. Sample introduction through the flow injection system is performed via a peristaltic pump at 9 mL/min and nitrogen carrier gas rate of 80 mL/min.

**Calibration Information**

**Instrument Calibration**
All initial calibration requirements have been met for this sample delivery group (SDG).

**CRDL Requirements**
All CRDL standard(s) met the referenced advisory control limits.

**ICSA/ICSAB Statement**
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

**Continuing Calibration Blank (CCB) Requirements**
All continuing calibration blanks (CCB) bracketing this batch met the established

acceptance criteria.

**Continuing Calibration Verification (CCV) Requirements**
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

## Quality Control (QC) Information

**Method Blank (MB) Statement**
The MBs analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recoveries met the acceptance limits.

**Quality Control (QC) Sample Statement**
The following samples were selected as the quality control (QC) samples for this SDG: 326426002 (CAMO-13-30601)-ICP and CVAA and 325649002 (CAMO-13-30594)-ICP-MS.

**Matrix Spike (MS) Recovery Statement**
The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. All applicable elements met the acceptance criteria.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. All applicable analytes met these requirements.

**Serial Dilution % Difference Statement**
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations that are 25X the IDL/MDL for CVAA, 50X the IDL/MDL for ICP, and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the acceptance criteria of less than 10% difference (%D).

## Technical Information

**Holding Time Specifications**
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

**Preparation/Analytical Method Verification**
All procedures were performed as stated in the SOP.

**Sample Dilutions**
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. The samples in this SDG did not require dilutions.

**Preparation Information**
The samples in this SDG were prepared exactly according to the cited SOP.

**Miscellaneous Information**

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.
Total Hardness by Calculation is determined using the results of Total Calcium (Ca) and Total Magnesium (Mg) determined by ICP or ICP-MS.

Hardness = 2.497 (Ca) + 4.118 (Mg)

Please refer to the Total Ca and Total Mg data to validate results appearing on the Hardness Summary sheet. Both results are in the Inorganic/metals section of the package. There is no Batch QC for calculated results, and thus no QC Summary for the Hardness by Calculation Batch. The MDLs and PQLs are calculated using the higher of the two calculated values of Ca or Mg.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

**Review Validation:**

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

**The following data validator verified the information presented in this case narrative:**

**Reviewer:**_____ **Date:** 06/14/13

# Sample Data Summary

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-886  GEL Work Order: 326426

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

J  Value is estimated

N  Metals--The Matrix spike sample recovery is not within specified control limits

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____ 06/14/13

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−886 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

**SAMPLE ID:** 326426002 **BASIS:** As Received **DATE COLLECTED** 22−MAY−13

**CLIENT ID:** CAMO−13−30601 **LEVEL:** Low **DATE RECEIVED** 24−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7439−97−6 | Mercury | 0.20 | ug/L | U | 0.067 | 0.2 | 0.2 | 1 | AV | NOR1 | 05/31/13 11:17 | 053113W1−5 | 1304760 |

# METALS
## −1−
## INORGANICS ANALYSIS DATA PACKAGE

**SDG No:** 2013−886 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

**SAMPLE ID:** 326426002 **BASIS:** As Received **DATE COLLECTED** 22−MAY−13

**CLIENT ID:** CAMO−13−30601 **LEVEL:** Low **DATE RECEIVED** 24−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7429−90−5 | Aluminum | 200 | ug/L | U | 68 | 200 | 200 | 1 | P | HSC | 06/13/13 07:50 | 061313−1 | 1304972 |
| 7440−36−0 | Antimony | 3 | ug/L | U | 1 | 3 | 3 | 1 | MS | PRB | 06/08/13 04:03 | 130607−4 | 1304840 |
| 7440−38−2 | Arsenic | 5 | ug/L | U | 1.7 | 5 | 5 | 1 | MS | BAJ | 06/07/13 08:53 | 130606−2 | 1304840 |
| 7440−39−3 | Barium | 19.3 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/13/13 07:50 | 061313−1 | 1304972 |
| 7440−41−7 | Beryllium | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/13/13 07:50 | 061313−1 | 1304972 |
| 7440−42−8 | Boron | 20.5 | ug/L | J | 15 | 50 | 50 | 1 | P | HSC | 06/13/13 07:50 | 061313−1 | 1304972 |
| 7440−43−9 | Cadmium | 1 | ug/L | U | 0.11 | 1 | 1 | 1 | MS | BAJ | 06/07/13 08:53 | 130606−2 | 1304840 |
| 7440−70−2 | Calcium | 7690 | ug/L | | 50 | 200 | 200 | 1 | P | HSC | 06/13/13 07:50 | 061313−1 | 1304972 |
| 7440−47−3 | Chromium | 10 | ug/L | U | 2 | 10 | 10 | 1 | MS | BAJ | 06/07/13 08:53 | 130606−2 | 1304840 |
| 7440−48−4 | Cobalt | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/13/13 07:50 | 061313−1 | 1304972 |
| 7440−50−8 | Copper | 10 | ug/L | U | 3 | 10 | 10 | 1 | P | HSC | 06/13/13 07:50 | 061313−1 | 1304972 |
| 7439−89−6 | Iron | 167 | ug/L | | 30 | 100 | 100 | 1 | P | HSC | 06/13/13 07:50 | 061313−1 | 1304972 |
| 7439−92−1 | Lead | 2 | ug/L | U | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/07/13 08:53 | 130606−2 | 1304840 |
| 7439−95−4 | Magnesium | 3150 | ug/L | | 110 | 300 | 300 | 1 | P | HSC | 06/13/13 07:50 | 061313−1 | 1304972 |
| 7439−96−5 | Manganese | 71.4 | ug/L | | 2 | 10 | 10 | 1 | P | HSC | 06/13/13 07:50 | 061313−1 | 1304972 |
| 7439−98−7 | Molybdenum | 3.34 | ug/L | | 0.165 | 0.5 | 0.5 | 1 | MS | BAJ | 06/07/13 16:59 | 130607−3 | 1304840 |
| 7440−02−0 | Nickel | 1.01 | ug/L | J | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/07/13 08:53 | 130606−2 | 1304840 |
| 7440−09−7 | Potassium | 12500 | ug/L | | 50 | 150 | 150 | 1 | P | HSC | 06/13/13 07:50 | 061313−1 | 1304972 |
| 7782−49−2 | Selenium | 5 | ug/L | U | 1.5 | 5 | 5 | 1 | MS | BAJ | 06/07/13 08:53 | 130606−2 | 1304840 |
| 7631−86−9 | Silica | 91000 | ug/L | | 53 | 213 | 213 | 1 | P | HSC | 06/13/13 07:50 | 061313−1 | 1304972 |
| 7440−22−4 | Silver | 1 | ug/L | U | 0.2 | 1 | 1 | 1 | MS | BAJ | 06/07/13 08:53 | 130606−2 | 1304840 |
| 7440−23−5 | Sodium | 14200 | ug/L | | 100 | 300 | 300 | 1 | P | HSC | 06/13/13 07:50 | 061313−1 | 1304972 |
| 7440−24−6 | Strontium | 31.9 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/13/13 07:50 | 061313−1 | 1304972 |
| 7440−28−0 | Thallium | 2 | ug/L | U | 0.45 | 2 | 2 | 1 | MS | BAJ | 06/07/13 08:53 | 130606−2 | 1304840 |
| 7440−31−5 | Tin | 10 | ug/L | U | 2.5 | 10 | 10 | 1 | P | HSC | 06/13/13 07:50 | 061313−1 | 1304972 |
| 7440−61−1 | Uranium | 0.087 | ug/L | J | 0.067 | 0.2 | 0.2 | 1 | MS | BAJ | 06/07/13 16:59 | 130607−3 | 1304840 |
| 7440−62−2 | Vanadium | 7.88 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/13/13 07:50 | 061313−1 | 1304972 |
| 7440−66−6 | Zinc | 3.42 | ug/L | J | 3.3 | 10 | 10 | 1 | P | HSC | 06/13/13 07:50 | 061313−1 | 1304972 |

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−886 **CONTRACT:** ESHL00210 **METHOD TYPE:**

**SAMPLE ID:** 326426002 **BASIS:** As Received **DATE COLLECTED** 22−MAY−13

**CLIENT ID:** CAMO−13−30601 **LEVEL:** Low **DATE RECEIVED** 24−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Hardness as CaCO3 | 32.2 | mg/L | | 0.453 | 1.24 | 1.24 | 1 | | JJ2 | 06/13/13 15:11 | | 1308026 |

**Prep Information:**

| Analytical Batch | Prep Batch | Prep Method | Initial wt./vol. | Units | Final wt./vol. | Units | Date | Analyst |
|---|---|---|---|---|---|---|---|---|
| 1304760 | 1304759 | EPA 245.1/245.2 Prep | 20 | mL | 20 | mL | 05/30/13 | AXS5 |
| 1304840 | 1304838 | SW846 3005A | 50 | mL | 50 | mL | 06/06/13 | AXG2 |
| 1304972 | 1304971 | SW846 3005A | 50 | mL | 50 | mL | 06/12/13 | AXG2 |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**
**P** **SW846 3005/6010B**
**AV** **EPA 245.1/245.2**

# Quality Control Summary

**METALS**
**−3b−**
**PREPARATION BLANK SUMMARY**

**SDG NO.** 2013−886

**Contract:** ESHL00210

**Matrix:** W

| Sample ID | Analyte | Result | Units | Acceptance Window | Conc Qual | M* | MDL | RDL |
|---|---|---|---|---|---|---|---|---|
| 1202883730 | | | | | | | | |
| | Mercury | 0.067 | ug/L | +/−0.2 | U | AV | 0.067 | 0.2 |
| 1202883954 | | | | | | | | |
| | Antimony | 1 | ug/L | +/−3 | U | MS | 1 | 3 |
| | Arsenic | 1.7 | ug/L | +/−5 | U | MS | 1.7 | 5 |
| | Chromium | 2 | ug/L | +/−10 | U | MS | 2 | 10 |
| | Nickel | 0.5 | ug/L | +/−2 | U | MS | 0.5 | 2 |
| | Molybdenum | 0.165 | ug/L | +/−0.5 | U | MS | 0.165 | 0.5 |
| | Lead | 0.5 | ug/L | +/−2 | U | MS | 0.5 | 2 |
| | Cadmium | 0.11 | ug/L | +/−1 | U | MS | 0.11 | 1 |
| | Selenium | 1.5 | ug/L | +/−5 | U | MS | 1.5 | 5 |
| | Uranium | 0.067 | ug/L | +/−0.2 | U | MS | 0.067 | 0.2 |
| | Thallium | 0.45 | ug/L | +/−2 | U | MS | 0.45 | 2 |
| | Silver | 0.2 | ug/L | +/−1 | U | MS | 0.2 | 1 |
| 1202884377 | | | | | | | | |
| | Beryllium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Boron | 15 | ug/L | +/−50 | U | P | 15 | 50 |
| | Calcium | 50 | ug/L | +/−200 | U | P | 50 | 200 |
| | Cobalt | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Copper | 3 | ug/L | +/−10 | U | P | 3 | 10 |
| | Iron | 30 | ug/L | +/−100 | U | P | 30 | 100 |
| | Magnesium | 110 | ug/L | +/−300 | U | P | 110 | 300 |
| | Manganese | 2 | ug/L | +/−10 | U | P | 2 | 10 |
| | Barium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Aluminum | 68 | ug/L | +/−200 | U | P | 68 | 200 |
| | Potassium | 51.7 | ug/L | +/−150 | J | P | 50 | 150 |
| | Silica | 53 | ug/L | +/−213 | U | P | 53 | 213 |
| | Sodium | 100 | ug/L | +/−300 | U | P | 100 | 300 |
| | Strontium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Tin | 3.24 | ug/L | +/−10 | J | P | 2.5 | 10 |
| | Vanadium | 1.06 | ug/L | +/−5 | J | P | 1 | 5 |
| | Zinc | 3.3 | ug/L | +/−10 | U | P | 3.3 | 10 |

***Analytical Methods:**

| | |
|---|---|
| **MS** | **SW846 3005/6020 DOE−AL** |
| **P** | **SW846 3005/6010B** |
| **AV** | **EPA 245.1/245.2** |

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−886 **Client ID** CAMO−13−30601S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 326426002 **Spike ID:** 1202883733

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | ug/L | 75−125 | 1.93 | | 0.067 | U | 2 | 96.7 | | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−886 **Client ID** CAMO−13−30594S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 325649002 **Spike ID:** 1202883957

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ug/L | 75−125 | 55 | | 1 | U | 50 | 110 | | MS |
| Arsenic | ug/L | 75−125 | 52.4 | | 1.7 | U | 50 | 102 | | MS |
| Cadmium | ug/L | 75−125 | 54.8 | | 0.11 | U | 50 | 110 | | MS |
| Chromium | ug/L | 75−125 | 68.1 | | 17.5 | | 50 | 101 | | MS |
| Lead | ug/L | 75−125 | 51.2 | | 0.5 | U | 50 | 102 | | MS |
| Molybdenum | ug/L | 75−125 | 51.8 | | 0.849 | | 50 | 102 | | MS |
| Nickel | ug/L | 75−125 | 53.4 | | 2.22 | | 50 | 102 | | MS |
| Selenium | ug/L | 75−125 | 59.2 | | 1.5 | U | 50 | 116 | | MS |
| Silver | ug/L | 75−125 | 54 | | 0.2 | U | 50 | 108 | | MS |
| Thallium | ug/L | 75−125 | 47.3 | | 0.45 | U | 50 | 94.6 | | MS |
| Uranium | ug/L | 75−125 | 51.9 | | 0.429 | | 50 | 103 | | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−886 **Client ID** CAMO−13−30601S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 326426002 **Spike ID:** 1202884380

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | ug/L | 75−125 | 5180 | | 68 | U | 5000 | 103 | | P |
| Barium | ug/L | 75−125 | 508 | | 19.3 | | 500 | 97.8 | | P |
| Beryllium | ug/L | 75−125 | 502 | | 1 | U | 500 | 100 | | P |
| Boron | ug/L | 75−125 | 508 | | 20.5 | J | 500 | 97.5 | | P |
| Calcium | ug/L | 75−125 | 12500 | | 7690 | | 5000 | 96.7 | | P |
| Cobalt | ug/L | 75−125 | 491 | | 1 | U | 500 | 98.1 | | P |
| Copper | ug/L | 75−125 | 514 | | 3 | U | 500 | 103 | | P |
| Iron | ug/L | 75−125 | 5300 | | 167 | | 5000 | 103 | | P |
| Magnesium | ug/L | 75−125 | 8190 | | 3150 | | 5000 | 101 | | P |
| Manganese | ug/L | 75−125 | 551 | | 71.4 | | 500 | 95.9 | | P |
| Potassium | ug/L | 75−125 | 17200 | | 12500 | | 5000 | 93.3 | | P |
| Silica | ug/L | | 98700 | | 91000 | | 10700 | 72.3 | N/A | P |
| Sodium | ug/L | 75−125 | 19000 | | 14200 | | 5000 | 97.2 | | P |
| Strontium | ug/L | 75−125 | 536 | | 31.9 | | 500 | 101 | | P |
| Tin | ug/L | 75−125 | 482 | | 2.5 | U | 500 | 96.4 | | P |
| Vanadium | ug/L | 75−125 | 505 | | 7.88 | | 500 | 99.5 | | P |
| Zinc | ug/L | 75−125 | 471 | | 3.42 | J | 500 | 93.5 | | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−886 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CAMO−13−30601D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 326426002 **Duplicate ID:** 1202883732 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | ug/L | | 0.067 | U | 0.067 | U | | | AV |

***Analytical Methods:**

**AV EPA 245.1/245.2**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−886 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CAMO−13−30594D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325649002 **Duplicate ID:** 1202883956 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Antimony | ug/L | | 1 | U | 1 | U | | | MS |
| Arsenic | ug/L | | 1.7 | U | 1.7 | U | | | MS |
| Cadmium | ug/L | | 0.11 | U | 0.11 | U | | | MS |
| Chromium | ug/L | +/−10 | 17.5 | | 16 | | 9.39 | | MS |
| Lead | ug/L | | 0.5 | U | 0.5 | U | | | MS |
| Molybdenum | ug/L | +/−.5 | 0.849 | | 0.877 | | 3.24 | | MS |
| Nickel | ug/L | +/−2 | 2.22 | | 1.9 | J | 15.5 | | MS |
| Selenium | ug/L | | 1.5 | U | 1.5 | U | | | MS |
| Silver | ug/L | | 0.2 | U | 0.2 | U | | | MS |
| Thallium | ug/L | | 0.45 | U | 0.45 | U | | | MS |
| Uranium | ug/L | +/−.2 | 0.429 | | 0.42 | | 2.12 | | MS |

***Analytical Methods:**

**MS SW846 3005/6020 DOE−AL**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−886 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CAMO−13−30601D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 326426002 **Duplicate ID:** 1202884379 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | ug/L | | 68 | U | 68 | U | | | P |
| Barium | ug/L | +/−5 | 19.3 | | 19.1 | | 1.23 | | P |
| Beryllium | ug/L | | 1 | U | 1 | U | | | P |
| Boron | ug/L | +/−50 | 20.5 | J | 19.1 | J | 6.83 | | P |
| Calcium | ug/L | +/−20% | 7690 | | 7460 | | 3.14 | | P |
| Cobalt | ug/L | | 1 | U | 1 | U | | | P |
| Copper | ug/L | | 3 | U | 3 | U | | | P |
| Iron | ug/L | +/−100 | 167 | | 160 | | 4.17 | | P |
| Magnesium | ug/L | +/−20% | 3150 | | 3040 | | 3.75 | | P |
| Manganese | ug/L | +/−20% | 71.4 | | 68.9 | | 3.54 | | P |
| Potassium | ug/L | +/−20% | 12500 | | 12100 | | 3.51 | | P |
| Silica | ug/L | +/−20% | 91000 | | 87800 | | 3.6 | | P |
| Sodium | ug/L | +/−20% | 14200 | | 13700 | | 3.18 | | P |
| Strontium | ug/L | +/−20% | 31.9 | | 30.6 | | 4.26 | | P |
| Tin | ug/L | | 2.5 | U | 2.5 | U | | | P |
| Vanadium | ug/L | +/−5 | 7.88 | | 7.34 | | 7.1 | | P |
| Zinc | ug/L | | 3.42 | J | 3.3 | U | 200 | | P |

***Analytical Methods:**

**P SW846 3005/6010B**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−886

**Contract:** ESHL00210

**Aqueous LCS Source:** GEL **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202883731 | | | | | | | | |
| | Mercury | ug/L | 2 | 2.05 | | 102 | 85−115 | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−886

**Contract:** ESHL00210

**Aqueous LCS Source:** O2Si **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202883955 | | | | | | | | |
| | Selenium | ug/L | 50 | 59.7 | | 119 | 80−120 | MS |
| | Silver | ug/L | 50 | 53.8 | | 108 | 80−120 | MS |
| | Thallium | ug/L | 50 | 46.7 | | 93.5 | 80−120 | MS |
| | Uranium | ug/L | 50 | 49.6 | | 99.3 | 80−120 | MS |
| | Antimony | ug/L | 50 | 55.6 | | 111 | 80−120 | MS |
| | Arsenic | ug/L | 50 | 51.7 | | 103 | 80−120 | MS |
| | Cadmium | ug/L | 50 | 54.4 | | 109 | 80−120 | MS |
| | Chromium | ug/L | 50 | 52.9 | | 106 | 80−120 | MS |
| | Lead | ug/L | 50 | 51.4 | | 103 | 80−120 | MS |
| | Molybdenum | ug/L | 50 | 50.2 | | 100 | 80−120 | MS |
| | Nickel | ug/L | 50 | 52.7 | | 105 | 80−120 | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−886

**Contract:** ESHL00210

**Aqueous LCS Source:** OS2I **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202884378 | | | | | | | | |
| | Aluminum | ug/L | 5000 | 5270 | | 105 | 80−120 | P |
| | Barium | ug/L | 500 | 499 | | 99.8 | 80−120 | P |
| | Beryllium | ug/L | 500 | 500 | | 100 | 80−120 | P |
| | Boron | ug/L | 500 | 486 | | 97.2 | 80−120 | P |
| | Calcium | ug/L | 5000 | 5230 | | 105 | 80−120 | P |
| | Cobalt | ug/L | 500 | 500 | | 100 | 80−120 | P |
| | Copper | ug/L | 500 | 506 | | 101 | 80−120 | P |
| | Iron | ug/L | 5000 | 5180 | | 104 | 80−120 | P |
| | Magnesium | ug/L | 5000 | 5310 | | 106 | 80−120 | P |
| | Manganese | ug/L | 500 | 489 | | 97.8 | 80−120 | P |
| | Potassium | ug/L | 5000 | 5090 | | 102 | 80−120 | P |
| | Silica | ug/L | 10700 | 10500 | | 98 | 80−120 | P |
| | Sodium | ug/L | 5000 | 5200 | | 104 | 80−120 | P |
| | Strontium | ug/L | 500 | 513 | | 103 | 80−120 | P |
| | Tin | ug/L | 500 | 496 | | 99.1 | 80−120 | P |
| | Vanadium | ug/L | 500 | 503 | | 101 | 80−120 | P |
| | Zinc | ug/L | 500 | 484 | | 96.9 | 80−120 | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−886 **Client ID** CAMO−13−30601L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 326426002 **Serial Dilution ID:** 1202883734

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Mercury | .067 | U | .335 | U | | | | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−886 **Client ID** CAMO−13−30594L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325649002 **Serial Dilution ID:** 1202883958

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Antimony | 1 | U | 5 | U | | | | MS |
| Arsenic | 1.7 | U | 8.5 | U | | | | MS |
| Cadmium | .11 | U | .55 | U | | | | MS |
| Chromium | 17.5 | | 16.6 | J | 5.12 | | | MS |
| Lead | .5 | U | 2.5 | U | | | | MS |
| Molybdenum | .849 | | 1.15 | J | 35.5 | | | MS |
| Nickel | 2.22 | | 2.5 | U | 100 | | | MS |
| Selenium | 1.5 | U | 7.5 | U | | | | MS |
| Silver | .2 | U | 1 | U | | | | MS |
| Thallium | .45 | U | 2.25 | U | | | | MS |
| Uranium | .429 | | .53 | J | 23.5 | | | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−886 **Client ID** CAMO−13−30601L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 326426002 **Serial Dilution ID:** 1202884381

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Aluminum | 68 | U | 340 | U | | | | P |
| Barium | 19.3 | | 19.8 | J | 2.49 | | | P |
| Beryllium | 1 | U | 5 | U | | | | P |
| Boron | 20.5 | J | 75 | U | 100 | | | P |
| Calcium | 7690 | | 7440 | | 3.3 | | 10 | P |
| Cobalt | 1 | U | 5 | U | | | | P |
| Copper | 3 | U | 15 | U | | | | P |
| Iron | 167 | | 164 | J | 1.76 | | | P |
| Magnesium | 3150 | | 3170 | | .534 | | | P |
| Manganese | 71.4 | | 72.4 | | 1.46 | | | P |
| Potassium | 12500 | | 12800 | | 2.81 | | 10 | P |
| Silica | 91000 | | 89100 | | 2.05 | | 10 | P |
| Sodium | 14200 | | 14400 | | 1.87 | | 10 | P |
| Strontium | 31.9 | | 36.5 | | 14.5 | | | P |
| Tin | 2.5 | U | 12.5 | U | | | | P |
| Vanadium | 7.88 | | 7.26 | J | 7.87 | | | P |
| Zinc | 3.42 | J | 16.5 | U | 100 | | | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

# General Chem Analysis

# Case Narrative

**General Chemistry Narrative**
**ARS International (ARSL)**
**SDG 2013-886**

## Method/Analysis Information

**Product:** **Carbon, Total Organic**

**Analytical Batch:** 1304466 **Method:** SW 9060 Total Organic Carbon

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9060:

| Sample ID | Client ID |
|---|---|
| 326426001 | CAMO-13-30585 |
| 1202882946 | Method Blank (MB) |
| 1202882947 | 326056003(CASA-13-30548) Sample Duplicate (DUP) |
| 1202882948 | 326056003(CASA-13-30548) Post Spike (PS) |
| 1202882949 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-093 REV# 12.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Carbon analysis was performed on a O-I Analytical Model 1010 Total Organic Carbon Analyzer.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

## Quality Control (QC) Information

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 326056003 (CASA-13-30548).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

## Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

## Miscellaneous Information

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Specific Conductivity** | | |
| **Analytical Batch:** | 1306822 | **Method:** | EPA120.1 Specific Conductivity |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 120.1:

| Sample ID | Client ID |
|---|---|
| 326426002 | CAMO-13-30601 |
| 1202889242 | Laboratory Control Sample (LCS) |
| 1202889244 | 327172002(CAPU-13-34781) Sample Duplicate (DUP) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-009 REV# 11.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Conductivity analysis was performed on a Orion 160 Conductivity Meter.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 327172002 (CAPU-13-34781).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

**Product:** **pH**

**Analytical Batch:** 1304453 **Method:** EPA 150.1 pH

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 150.1:

| Sample ID | Client ID |
|---|---|
| 326426002 | CAMO-13-30601 |
| 1202882909 | 326426002(CAMO-13-30601) Sample Duplicate (DUP) |
| 1202882910 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-008 REV# 21.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Electrode analysis was performed on a PerpHect pH Meter Orion 370.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**

The following sample was selected for QC analysis: 326426002 (CAMO-13-30601).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
The following sample from this sample group was received by the lab outside of the method specified holding time: 326426002 (CAMO-13-30601).

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1190572 326426002 (CAMO-13-30601).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Ion Chromatography** | | |
| **Analytical Batch:** | 1303846 | **Method:** | EPA 300.0 Anions Liquid 28 day |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

| Sample ID | Client ID |
|---|---|
| 326426002 | CAMO-13-30601 |
| 1202881256 | Method Blank (MB) |
| 1202881257 | 325847002(CASA-13-30555) Sample Duplicate (DUP) |
| 1202881258 | 325847002(CASA-13-30555) Post Spike (PS) |
| 1202881259 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 21.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-3000 Ion Chromatograph.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325847002 (CASA-13-30555).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The spike recovery falls outside of the established acceptance limits due to matrix interference: 1202881258 (CASA-13-30555).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1193509 1202881258 (CASA-13-30555).

**Manual Integrations**
The following samples from this sample group had to be manually integrated due to errors in the instrument software peak integration: 1202881257 (CASA-13-30555), 1202881258 (CASA-13-30555) and 326426002 (CAMO-13-30601).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an

effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Ammonia Nitrogen** | | |
| **Analytical Batch:** | 1304209 | **Method:** | EPA 350.1 Nitrogen and Ammonia L |
| **Prep Batch :** | 1304208 | **Method:** | EEPA 350.2 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 350.1:

| Sample ID | Client ID |
|---|---|
| 326426002 | CAMO-13-30601 |
| 1202882330 | Method Blank (MB) |
| 1202882331 | 326213002(CAMO-13-30619) Sample Duplicate (DUP) |
| 1202882332 | 326427001(SWWS46-13-33497) Sample Duplicate (DUP) |
| 1202882333 | 326213002(CAMO-13-30619) Matrix Spike (MS) |
| 1202882334 | 326427001(SWWS46-13-33497) Matrix Spike (MS) |
| 1202882335 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-106 REV# 9.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following samples were selected for QC analysis: 326213002 (CAMO-13-30619) and 326427001 (SWWS46-13-33497).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recoveries for this sample set were within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
One or more of the values for the sample and/or duplicate are less than 5 times the Practical Quantitation Limit (PQL), and the difference is within one PQL value; therefore, the RPD is not applicable. 1202882331 (CAMO-13-30619).

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The following sample was re-analyzed due to instrument failure: 1202882335 (LCS). The following samples were re-analyzed due to CCV failure: 1202882330 (MB), 1202882331 (CAMO-13-30619), 1202882333 (CAMO-13-30619) and 1202882335 (LCS).

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced

SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Total Kjeldahl Nitrogen** | | |
| **Analytical Batch:** | 1303595 | **Method:** | Nitrogen and Total Kjeldahl (TKN) |
| **Prep Batch :** | 1303594 | **Method:** | EEPA 351.2 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 351.2:

| Sample ID | Client ID |
|---|---|
| 326426001 | CAMO-13-30585 |
| 1202880630 | Method Blank (MB) |
| 1202880631 | Laboratory Control Sample (LCS) |
| 1202882338 | 326020001(CAMO-13-30584) Sample Duplicate (DUP) |
| 1202882339 | 326020001(CAMO-13-30584) Matrix Spike (MS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-104 REV# 14.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 326020001 (CAMO-13-30584).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The spike recovery falls outside of the established acceptance limits due to matrix interference: 1202882339 (CAMO-13-30584).

**Duplicate Relative Percent Difference (RPD) Statement**
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202882338 (CAMO-13-30584).

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1191929 1202882339 (CAMO-13-30584).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an

effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Nitrate Nitrite by Cadmium Reduction** | | |
| **Analytical Batch:** | 1304211 | **Method:** | EPA 353.2 Nitrogen and Nitrate/Nitrite |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 353.2:

| Sample ID | Client ID |
|---|---|
| 326426002 | CAMO-13-30601 |
| 1202882340 | Method Blank (MB) |
| 1202882342 | 326213002(CAMO-13-30619) Sample Duplicate (DUP) |
| 1202882344 | 326427001(SWWS46-13-33497) Sample Duplicate (DUP) |
| 1202882346 | 326213002(CAMO-13-30619) Post Spike (PS) |
| 1202882348 | 326427001(SWWS46-13-33497) Post Spike (PS) |
| 1202882349 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-128 REV# 8.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8500 Series.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following samples were selected for QC analysis: 326213002 (CAMO-13-30619) and 326427001 (SWWS46-13-33497).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The spike recovery falls outside of the GEL acceptance limits but within the client specified limits. 1202882348 (SWWS46-13-33497).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1190497 1202882348 (SWWS46-13-33497).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Total Phosphorus** | | |
| **Analytical Batch:** | 1305420 | **Method:** | EPA 365.4 Phosphorus and Total in |
| **Prep Batch :** | 1305419 | **Method:** | EEPA 365.4 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 365.4:

| Sample ID | Client ID |
|---|---|
| 326426002 | CAMO-13-30601 |
| 1202885474 | Method Blank (MB) |
| 1202885475 | 326056002(CASA-13-30553) Sample Duplicate (DUP) |
| 1202885477 | 326056002(CASA-13-30553) Matrix Spike (MS) |
| 1202885479 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-103 REV# 10.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

## Quality Control (QC) Information

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 326056002 (CASA-13-30553).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202885475 (CASA-13-30553).

## Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The following sample in this sample group was diluted due to high concentration: 326426002 (CAMO-13-30601).

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

## Miscellaneous Information

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are

present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Solids, Total Dissolved** | | |
| **Analytical Batch:** | 1304309 | **Method:** | EPA 160.1 Solids and Dissolved-F |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 160.1:

| Sample ID | Client ID |
|---|---|
| 326426002 | CAMO-13-30601 |
| 1202882565 | Method Blank (MB) |
| 1202882566 | 326426002(CAMO-13-30601) Sample Duplicate (DUP) |
| 1202882567 | 326427006(SWWS46-13-33505) Sample Duplicate (DUP) |
| 1202882568 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-001 REV# 13.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Solids analysis was performed on a Sartorius Balance BAL216. Solids lab

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

## Quality Control (QC) Information

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following samples were selected for QC analysis: 326426002 (CAMO-13-30601) and 326427006 (SWWS46-13-33505).

**Duplicate Relative Percent Difference (RPD) Statement**
The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample: 1202882566 (CAMO-13-30601).

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Sample Aliquot**
A sufficient amount of sample was provided by the client for analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1190365 1202882566 (CAMO-13-30601).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

**Product:** **Alkalinity**

**Analytical Batch:** 1305339 **Method:** EPA 310.1 Total Alkalinity

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 310.1:

| Sample ID | Client ID |
|---|---|
| 326426002 | CAMO-13-30601 |
| 1202885271 | 326213002(CAMO-13-30619) Sample Duplicate (DUP) |
| 1202885274 | 326213002(CAMO-13-30619) Matrix Spike (MS) |
| 1202885275 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-033 REV# 10.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Titration analysis was performed on a Manually operated buret.

**Initial Standardization**
The titrant was properly standardized

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 326213002 (CAMO-13-30619).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**

The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

**Review Validation:**

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

**The following data validator verified the information presented in this case narrative:**

**Reviewer:**_____ **Date:**_____19Jun13_____

# Sample Data Summary

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-886  GEL Work Order: 326426

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

**  Analyte is a Tracer compound

**  Analyte is a surrogate compound

E  Concentration of the target analyte exceeds the instrument calibration range

H  Analytical holding time was exceeded

J  Value is estimated

N  Metals--The Matrix spike sample recovery is not within specified control limits

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: June 14, 2013

| | |
|---|---|
| Company : | Los Alamos National Laboratory |
| Address : | PO Box 1663<br>TA-03, SM271, Drop Pt. 02U, Rm111<br>Los Alamos, New Mexico 87545 |
| Contact: | Keith Greene |
| Project: | LANL-WQH Water Samples |

Client SDG: 2013-886

| | | | |
|---|---|---|---|
| Client Sample ID: | CAMO-13-30585 | Project: | ESHL00210 |
| Sample ID: | 326426001 | Client ID: | ARSL001 |
| Matrix: | W | | |
| Collect Date: | 22-MAY-13 13:01 | | |
| Receive Date: | 24-MAY-13 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon Analysis | | | | | | | | | | | |
| SW 9060 Total Organic Carbon "As Received" | | | | | | | | | | | |
| Total Organic Carbon Average | | 1.50 | 0.330 | 1.00 | mg/L | 1 | TSM | 05/31/13 | 2116 | 1304466 | 1 |
| Nutrient Analysis | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl (TKN) "As Received" | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | 0.205 | 0.033 | 0.100 | mg/L | 1 | KLP1 | 06/04/13 | 1403 | 1303595 | 2 |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 351.2 Prep | EPA 351.2 Total Kjeldahl Nitrogen Prep | KLP1 | 06/03/13 | 1700 | 1303594 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | SW846 9060 | |
| 2 | EPA 351.2 | |

**Notes:**

# GEL LABORATORIES LLC

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## Certificate of Analysis

Report Date: June 14, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-886

Client Sample ID: CAMO-13-30601
Sample ID: 326426002
Matrix: W
Collect Date: 22-MAY-13 13:01
Receive Date: 24-MAY-13
Collector: Client
Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Conductivity Analysis | | | | | | | | | | | |
| EPA120.1 Specific Conductivity "As Received" | | | | | | | | | | | |
| Conductivity | | 149 | 1.00 | 1.00 | umhos/cm | 1 | LXA1 | 06/11/13 | 1113 | 1306822 | 1 |
| Electrode Analysis | | | | | | | | | | | |
| EPA 150.1 pH "As Received" | | | | | | | | | | | |
| pH at Temp 12.4C | H | 7.02 | 0.010 | 0.100 | SU | 1 | LYG1 | 05/29/13 | 0747 | 1304453 | 2 |
| Ion Chromatography | | | | | | | | | | | |
| EPA 300.0 Anions Liquid 28 day "As Received" | | | | | | | | | | | |
| Bromide | U | ND | 0.067 | 0.200 | mg/L | 1 | MAR1 | 06/09/13 | 2301 | 1303846 | 3 |
| Chloride | | 1.98 | 0.067 | 0.200 | mg/L | 1 | | | | | |
| Fluoride | | 0.521 | 0.033 | 0.100 | mg/L | 1 | | | | | |
| Sulfate | | 2.16 | 0.133 | 0.400 | mg/L | 1 | | | | | |
| Nutrient Analysis | | | | | | | | | | | |
| EPA 350.1 Nitrogen, Ammonia L "As Received" | | | | | | | | | | | |
| Nitrogen, Ammonia | | 0.0534 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/29/13 | 1512 | 1304209 | 4 |
| EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received" | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | 0.242 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/29/13 | 1423 | 1304211 | 5 |
| EPA 365.4 Phosphorus, Total in "As Received" | | | | | | | | | | | |
| Phosphorus, Total as P | | 4.67 | 0.085 | 0.250 | mg/L | 5 | KLP1 | 06/05/13 | 1120 | 1305420 | 6 |
| Solids Analysis | | | | | | | | | | | |
| EPA 160.1 Solids, Dissolved-F "As Received" | | | | | | | | | | | |
| Total Dissolved Solids | | 136 | 3.40 | 14.3 | mg/L | | LYG1 | 05/28/13 | 1312 | 1304309 | 7 |
| Titration Analysis | | | | | | | | | | | |
| EPA 310.1 Total Alkalinity "As Received" | | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | 59.9 | 0.725 | 1.00 | mg/L | | LXA1 | 06/03/13 | 1418 | 1305339 | 8 |
| Carbonate alkalinity (CaCO3) | U | ND | 0.725 | 1.00 | mg/L | | | | | | |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 350.2 Prep | EPA 350.1 Ammonia Nitrogen Prep | KLP1 | 05/29/13 | 1257 | 1304208 |
| EPA 365.4 Prep | EPA 365.4 Phosphorus, Total in liquid PR | KLP1 | 06/04/13 | 1700 | 1305419 |

# GEL LABORATORIES LLC

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## Certificate of Analysis

Report Date: June 14, 2013

| | | | |
|---|---|---|---|
| Company : | Los Alamos National Laboratory | | |
| Address : | PO Box 1663<br>TA-03, SM271, Drop Pt. 02U, Rm111<br>Los Alamos, New Mexico 87545 | | |
| Contact: | Keith Greene | Client SDG: | 2013-886 |
| Project: | LANL-WQH Water Samples | | |

| | | | |
|---|---|---|---|
| Client Sample ID: | CAMO-13-30601 | Project: | ESHL00210 |
| Sample ID: | 326426002 | Client ID: | ARSL001 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | EPA 120.1 | |
| 2 | EPA 150.1 | |
| 3 | EPA 300.0 | |
| 4 | EPA 350.1 | |
| 5 | EPA 353.2 | |
| 6 | EPA 365.4 | |
| 7 | EPA 160.1 | |
| 8 | EPA 310.1 | |

**Notes:**

# Quality Control Summary

# GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

## QC Summary

**Report Date: June 14, 2013**


**Los Alamos National Laboratory**
**PO Box 1663**
**TA-03, SM271, Drop Pt. 02U, Rm111**
**Los Alamos, New Mexico**

**Contact:** **Keith Greene**

**Workorder:** **326426**

| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Carbon Analysis** | | | | | | | | | | | | |
| Batch 1304466 | | | | | | | | | | | | |
| QC1202882947 326056003 DUP | | | | | | | | | | | | |
| Total Organic Carbon Average | | | 1.54 | | 1.57 | mg/L | 2.12 | ^ | | (+/-1.00) | TSM | 05/31/13 19:40 |
| QC1202882949 LCS | | | | | | | | | | | | |
| Total Organic Carbon Average | 10.0 | | | | 10.0 | mg/L | | | 100 | (85%-115%) | | 05/31/13 18:24 |
| QC1202882946 MB | | | | | | | | | | | | |
| Total Organic Carbon Average | | | | U | ND | mg/L | | | | | | 05/31/13 18:15 |
| QC1202882948 326056003 PS | | | | | | | | | | | | |
| Total Organic Carbon Average | 10.0 | | 1.54 | | 11.0 | mg/L | | | 94.4 | (65%-120%) | | 05/31/13 20:00 |
| **Conductivity Analysis** | | | | | | | | | | | | |
| Batch 1306822 | | | | | | | | | | | | |
| QC1202889244 327172002 DUP | | | | | | | | | | | | |
| Conductivity | | | 447 | | 451 | umhos/cm | 0.891 | | | (0%-10%) | LXA1 | 06/11/13 11:22 |
| QC1202889242 LCS | | | | | | | | | | | | |
| Conductivity | 1410 | | | | 1440 | umhos/cm | | | 102 | (95%-105%) | | 06/11/13 11:08 |
| **Electrode Analysis** | | | | | | | | | | | | |
| Batch 1304453 | | | | | | | | | | | | |
| QC1202882909 326426002 DUP | | | | | | | | | | | | |
| pH | | H | 7.02 | H | 7.03 | SU | 0.142 | | | (0%-10%) | LYG1 | 05/29/13 07:48 |
| QC1202882910 LCS | | | | | | | | | | | | |
| pH | 7.00 | | | | 7.00 | SU | | | 100 | (99%-101%) | | 05/29/13 07:44 |
| **Ion Chromatography** | | | | | | | | | | | | |
| Batch 1303846 | | | | | | | | | | | | |
| QC1202881257 325847002 DUP | | | | | | | | | | | | |
| Bromide | | J | 0.0687 | U | ND | mg/L | N/A | ^ | | | MAR1 | 06/09/13 15:03 |
| Chloride | | | 4.23 | | 4.18 | mg/L | 1.07 | | | (0%-20%) | | |
| Fluoride | | | 0.319 | | 0.306 | mg/L | 4.45 | ^ | | (+/-0.100) | | |
| Sulfate | | | 4.82 | | 4.95 | mg/L | 2.59 | | | (0%-20%) | | |
| QC1202881259 LCS | | | | | | | | | | | | |
| Bromide | 1.25 | | | | 1.29 | mg/L | | | 103 | (90%-110%) | | 06/09/13 14:03 |

## QC Summary

**Workorder: 326426**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Ion Chromatography** | | | | | | | | | | | |
| Batch 1303846 | | | | | | | | | | | |
| Chloride | 5.00 | | | | 5.22 | mg/L | | 104 | (90%-110%) | MAR1 | 06/09/13 14:03 |
| Fluoride | 2.50 | | | | 2.66 | mg/L | | 106 | (90%-110%) | | |
| Sulfate | 10.0 | | | | 10.3 | mg/L | | 103 | (90%-110%) | | |
| QC1202881256 MB | | | | | | | | | | | |
| Bromide | | | | U | ND | mg/L | | | | | 06/09/13 13:33 |
| Chloride | | | | U | ND | mg/L | | | | | |
| Fluoride | | | | U | ND | mg/L | | | | | |
| Sulfate | | | | U | ND | mg/L | | | | | |
| QC1202881258 325847002 PS | | | | | | | | | | | |
| Bromide | 1.25 | J | 0.0687 | | 1.33 | mg/L | | 101 | (90%-110%) | | 06/09/13 15:33 |
| Chloride | 5.00 | | 4.23 | | 9.90 | mg/L | | 113* | (90%-110%) | | |
| Fluoride | 2.50 | | 0.319 | | 2.87 | mg/L | | 102 | (90%-110%) | | |
| Sulfate | 10.0 | | 4.82 | | 15.3 | mg/L | | 104 | (90%-110%) | | |
| **Nutrient Analysis** | | | | | | | | | | | |
| Batch 1303595 | | | | | | | | | | | |
| QC1202882338 326020001 DUP | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | U | ND | U | ND | mg/L | N/A | | | KLP1 | 06/04/13 13:47 |
| QC1202880631 LCS | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | | | | 1.01 | mg/L | | 101 | (90%-110%) | | 06/04/13 13:45 |
| QC1202880630 MB | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | | | U | ND | mg/L | | | | | 06/04/13 13:44 |
| QC1202882339 326020001 MS | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | U | ND | | 1.28 | mg/L | | 128* | (90%-110%) | | 06/04/13 13:47 |
| Batch 1304209 | | | | | | | | | | | |
| QC1202882331 326213002 DUP | | | | | | | | | | | |
| Nitrogen, Ammonia | | | 0.0781 | J | 0.048 | mg/L | 47.7 ^ | | (+/-0.050) | KLP1 | 05/29/13 15:01 |
| QC1202882332 326427001 DUP | | | | | | | | | | | |
| Nitrogen, Ammonia | | | 0.226 | | 0.238 | mg/L | 5.17 ^ | | (+/-0.050) | | 05/29/13 15:13 |

## QC Summary

**Workorder: 326426**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Nutrient Analysis** | | | | | | | | | | | |
| Batch 1304209 | | | | | | | | | | | |
| QC1202882335 LCS | | | | | | | | | | | |
| Nitrogen, Ammonia | 1.00 | | | | 1.06 | mg/L | | 106 | (90%-110%) | KLP1 | 05/29/13 15:10 |
| QC1202882330 MB | | | | | | | | | | | |
| Nitrogen, Ammonia | | | | J | 0.0321 | mg/L | | | | | 05/29/13 14:58 |
| QC1202882333 326213002 MS | | | | | | | | | | | |
| Nitrogen, Ammonia | 1.00 | | 0.0781 | | 1.06 | mg/L | | 98.2 | (90%-110%) | | 05/29/13 15:02 |
| QC1202882334 326427001 MS | | | | | | | | | | | |
| Nitrogen, Ammonia | 1.00 | | 0.226 | | 1.23 | mg/L | | 100 | (90%-110%) | | 05/29/13 15:14 |
| Batch 1304211 | | | | | | | | | | | |
| QC1202882342 326213002 DUP | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | | 0.314 | | 0.315 | mg/L | 0.318 | | (0%-20%) | KLP1 | 05/29/13 14:13 |
| QC1202882344 326427001 DUP | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | | 0.207 | | 0.207 | mg/L | 0.00 ^ | | (+/-0.050) | | 05/29/13 14:30 |
| QC1202882349 LCS | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | 1.00 | | | | 1.01 | mg/L | | 101 | (90%-110%) | | 05/29/13 13:57 |
| QC1202882340 MB | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | | | U | ND | mg/L | | | | | 05/29/13 13:55 |
| QC1202882346 326213002 PS | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | 1.00 | | 0.314 | | 1.28 | mg/L | | 96.6 | (90%-110%) | | 05/29/13 14:14 |
| QC1202882348 326427001 PS | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | 1.00 | | 0.207 | | 1.07 | mg/L | | 86.3* | (90%-110%) | | 05/29/13 14:31 |
| Batch 1305420 | | | | | | | | | | | |
| QC1202885475 326056002 DUP | | | | | | | | | | | |
| Phosphorus, Total as P | | U | ND | U | ND | mg/L | N/A | | | KLP1 | 06/05/13 10:57 |
| QC1202885479 LCS | | | | | | | | | | | |
| Phosphorus, Total as P | 1.00 | | | | 0.919 | mg/L | | 91.9 | (76%-120%) | | 06/05/13 10:55 |
| QC1202885474 MB | | | | | | | | | | | |
| Phosphorus, Total as P | | | | U | ND | mg/L | | | | | 06/05/13 10:54 |
| QC1202885477 326056002 MS | | | | | | | | | | | |
| Phosphorus, Total as P | 1.00 | U | ND | | 0.975 | mg/L | | 96.3 | (62%-139%) | | 06/05/13 10:58 |
| **Solids Analysis** | | | | | | | | | | | |
| Batch 1304309 | | | | | | | | | | | |

## QC Summary

**Workorder: 326426**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Solids Analysis** | | | | | | | | | | |
| Batch 1304309 | | | | | | | | | | |
| QC1202882566 326426002 DUP | | | | | | | | | | |
| Total Dissolved Solids | | 136 | | 160 | mg/L | 16.4* | | (0%-10%) | LYG1 | 05/28/13 13:12 |
| QC1202882567 326427006 DUP | | | | | | | | | | |
| Total Dissolved Solids | | 393 | | 396 | mg/L | 0.725 | | (0%-10%) | | 05/28/13 13:12 |
| QC1202882568 LCS | | | | | | | | | | |
| Total Dissolved Solids | 300 | | | 286 | mg/L | | 95.2 | (95%-105%) | | 05/28/13 13:12 |
| QC1202882565 MB | | | | | | | | | | |
| Total Dissolved Solids | | | U | ND | mg/L | | | | | 05/28/13 13:12 |
| **Titration Analysis** | | | | | | | | | | |
| Batch 1305339 | | | | | | | | | | |
| QC1202885271 326213002 DUP | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | 55.8 | | 56.3 | mg/L | 0.905 | | (0%-20%) | LXA1 | 06/03/13 13:56 |
| Carbonate alkalinity (CaCO3) | U | ND | U | ND | mg/L | N/A | | | | |
| QC1202885275 LCS | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | 50.0 | | | 50.8 | mg/L | | 102 | (90%-110%) | | 06/03/13 12:27 |
| QC1202885274 326213002 MS | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | 50.0 | 55.8 | | 105 | mg/L | | 97.4 | (80%-120%) | | 06/03/13 13:59 |

**Notes:**

| | |
|---|---|
| ** | Analyte is a Tracer compound |
| ** | Analyte is a surrogate compound |
| < | Result is less than value reported |
| > | Result is greater than value reported |
| A | The TIC is a suspected aldol-condensation product |
| B | The target analyte was detected in the associated blank. |
| BD | Results are either below the MDC or tracer recovery is low |
| C | Analyte has been confirmed by GC/MS analysis |
| D | Results are reported from a diluted aliquot of the sample |
| E | %difference of sample and SD is >10%. Sample concentration must meet flagging criteria |
| E | Concentration of the target analyte exceeds the instrument calibration range |
| E | General Chemistry--Concentration of the target analyte exceeds the instrument calibration range |
| FA | Failed analysis. |
| FB | Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies |

## QC Summary

**Workorder:** **326426**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|

| | |
|---|---|
| H | Analytical holding time was exceeded |
| J | Value is estimated |
| JNX | Non Calibrated Compound |
| K | Analyte present. Reported value may be biased high. Actual value is expected to be lower. |
| L | Analyte present. Reported value may be biased low. Actual value is expected to be higher. |
| M | M if above MDC and less than LLD |
| M | REMP Result > MDC/CL and < RDL |
| N | Metals--The Matrix spike sample recovery is not within specified control limits |
| N | Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N | Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N/A | RPD or %Recovery limits do not apply. |
| N1 | See case narrative |
| ND | Analyte concentration is not detected above the detection limit |
| NJ | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| P | Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70% |
| Q | One or more quality control criteria have not been met. Refer to the applicable narrative or DER. |
| R | Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes. |
| R | Sample results are rejected |
| U | Analyte was analyzed for, but not detected above the MDL, MDA, or LOD. |
| UI | Gamma Spectroscopy--Uncertain identification |
| UJ | Compound cannot be extracted |
| UJ | Gamma Spectroscopy--Uncertain identification |
| UL | Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias. |
| X | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| Y | Other specific qualifiers were required to properly define the results. Consult case narrative. |
| Y | QC Samples were not spiked with this compound |
| Z | Paint Filter Test--Particulates passed through the filter, however no free liquids were observed. |
| ^ | RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry. |
| d | 5-day BOD--The 2:1 depletion requirement was not met for this sample |
| h | Preparation or preservation holding time was exceeded |

## QC Summary

**Workorder:** **326426**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

# Miscellaneous

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 29-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| BALANCE | EPA 160.1 | Liquid | ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1304309 | See below. | | |

**Potentially affected work order(s)(SDG): 326426(2013-886),326427(2013-887),326443**

**Application Issues:**

Failed RPD for DUP

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed RPD for DUP:<br><br>QC 1202882566DUP | 1. The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample. |

**Originator's Name:**

Lisa Gregory 30-MAY-13

**Data Validator/Group Leader:**

Julia Hamilton 30-MAY-13

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 30-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| LACHAT Flow Injection Analyzer | EPA 353.2 | Liquid | ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1304211 | See below. | | |

**Potentially affected work order(s)(SDG): 326066,326213(2013-873),326214(2013-874),326221,326426(2013-886),326427(2013-887),326443**

**Application Issues:**

Failed Recovery for MS/PS

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed Recovery for PS:<br><br>QC 1202882348PS | 1. The spike recovery falls outside of the GEL acceptance limits but within the client specified limits. |

**Originator's Name:**

Kristen Parson 30-MAY-13

**Data Validator/Group Leader:**

Julia Hamilton 30-MAY-13

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 30-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| ELECTRODE | EPA 150.1 | Liquid | ESHL, PAES |
| **Batch ID:** | **Sample Numbers:** | | |
| 1304453 | See below. | | |

**Potentially affected work order(s)(SDG): 326426(2013-886),326499**

**Application Issues:**

Sample received out of holding

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Sample received out of holding:<br><br>326426 002<br><br>326499 001,002 | 1. Samples were received out of holding. |

**Originator's Name:**

Lisa Gregory 30-MAY-13

**Data Validator/Group Leader:**

Julia Hamilton 31-MAY-13

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 04-JUN-13 | Industrial | Specifications | Process |
| **Instrument Type:** LACHAT Flow Injection Analyzer | **Test / Method:** EPA 351.2 | **Matrix Type:** Liquid | **Client Code:** ANRL, DSMN, ESHL, SOOP, |
| **Batch ID:** 1303595 | **Sample Numbers:** See below. | | |

**Potentially affected work order(s)(SDG): 326020(2013-866),326183,326213(2013-873),326214(2013-874),326426(2013-886),326558,326681,326804,326805**

**Application Issues:**

Failed Recovery for MS/PS

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed Recovery for MS:<br><br>QC 1202880633MS and QC 1202882339MS | 1. The spike recoveries fall outside of the established acceptance limits due to matrix interference. |

**Originator's Name:**
Kristen Parson 04-JUN-13

**Data Validator/Group Leader:**
Julia Hamilton 05-JUN-13

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 11-JUN-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| IC | EPA 300.0 | Liquid | ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1303846 | See Below | | |

**Potentially affected work order(s)(SDG):** **325847(2013-847),325922(2013-855),325923(2013-856),326018(2013-865),326020(2013-866),326056(2013-868),326057(2013-869),326213(2013-873),326214(2013-874),326426(2013-886)**

**Application Issues:**

Failed Recovery for MS/PS

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed Recovery for MS/PS:<br><br>QC 1202881258PS | 1. The MS/PS mixture contains seven anions of interest. Of those, all requested anions except chloride met normal acceptance criteria for recovery (90 - 110%). This failure is attributed to the matrix of the sample because the successful recovery of the other compounds indicate that the laboratory process was in control. This variance is judged to have no negative impact on the data. The deviation is noted in the Case Narrative and DER, and the data has been reported. |

**Originator's Name:**
Mary Sherwood 11-JUN-13

**Data Validator/Group Leader:**
Virginia Wininger 11-JUN-13

# Radiological Analysis

**Radiochemistry Case Narrative**
**ARS International (ARSL)**
**SDG 2013-886**
**Work Order 326426**

**Method/Analysis Information**

| | |
|---|---|
| **Product:** | **Alphaspec Am241 Liquid** |
| Analytical Method: | DOE EML HASL-300, Am-05-RC Modified |
| Analytical Batch Number: | 1304594 |

| Sample ID | Client ID |
|---|---|
| 326426001 | CAMO-13-30585 |
| 1202883317 | Method Blank (MB) |
| 1202883318 | 326426001(CAMO-13-30585) Sample Duplicate (DUP) |
| 1202883319 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 24.

**Calibration Information:**

**Calibration Information**
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

**Standards Information**
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

**Sample Geometry**
All counting sources were prepared in the same geometry as the calibration standards.

**Quality Control (QC) Information:**

**Blank Information**
Aliquots for samples 1202883317 (MB) and 1202883319 (LCS) were changed to 1.0 per client request.

**Designated QC**
The following sample was used for QC: 326426001 (CAMO-13-30585). The QC was from ARSL work order 326426.

**QC Information**

All of the QC samples met the required acceptance limits.

**CSU**
The blank result is less than 1.65 times the CSU.

**Technical Information:**

**Holding Time**
All sample procedures for this sample set were performed within the required holding time.

**Sample Re-prep/Re-analysis**
Sample 1202883318 (CAMO-13-30585) was recounted due to high MDC. The recount is reported.

**Miscellaneous Information:**

**Data Exception (DER) Documentation**
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Manual Integration**
No manual integrations were performed on data in this batch.

**Additional Comments**
The MDCs are calculated using a blank population.

**Blank Decision Level**
The blank result is less than the decision level.

**Qualifier Information**

Manual qualifiers were not required.

**Method/Analysis Information**

| | |
|---|---|
| **Product:** | **Alphaspec Pu, Liquid** |
| Analytical Method: | DOE EML HASL-300, Pu-11-RC Modified |
| Analytical Batch Number: | 1304597 |

| Sample ID | Client ID |
|---|---|
| 326426001 | CAMO-13-30585 |
| 1202883320 | Method Blank (MB) |
| 1202883321 | 326426001(CAMO-13-30585) Sample Duplicate (DUP) |
| 1202883322 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as

Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 24.

**Calibration Information:**

**Calibration Information**
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

**Standards Information**
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

**Sample Geometry**
All counting sources were prepared in the same geometry as the calibration standards.

**Quality Control (QC) Information:**

**Blank Information**
Aliquots for samples 1202883320 (MB) and 1202883322 (LCS) were changed to 1.0 per client request.

**Designated QC**
The following sample was used for QC: 326426001 (CAMO-13-30585). The QC was from ARSL work order 326426.

**QC Information**
All of the QC samples met the required acceptance limits.

**CSU**
The blank result is less than 1.65 times the CSU.

**Technical Information:**

**Holding Time**
All sample procedures for this sample set were performed within the required holding time.

**Sample Re-prep/Re-analysis**
Samples 1202883321 (CAMO-13-30585) and 326426001 (CAMO-13-30585) were recounted due to high MDCs. The recounts are reported.

**Miscellaneous Information:**

**Data Exception (DER) Documentation**
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Manual Integration**
No manual integrations were performed on data in this batch.

**Additional Comments**
The MDCs are calculated using a blank population.

**Blank Decision Level**
The Pu-238 blank result is greater than the decision level but less than the MDC.

**Qualifier Information**

Manual qualifiers were not required.

**Method/Analysis Information**

| | |
|---|---|
| **Product:** | **Alphaspec U, Liquid** |
| Analytical Method: | DOE EML HASL-300, U-02-RC Modified |
| Analytical Batch Number: | 1304598 |

| Sample ID | Client ID |
|---|---|
| 326426001 | CAMO-13-30585 |
| 1202883333 | Method Blank (MB) |
| 1202883334 | 326426001(CAMO-13-30585) Sample Duplicate (DUP) |
| 1202883335 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 24.

**Calibration Information:**

**Calibration Information**
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

**Standards Information**
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

**Sample Geometry**
All counting sources were prepared in the same geometry as the calibration standards.

**Quality Control (QC) Information:**

**Blank Information**
Aliquots for samples 1202883333 (MB) and 1202883335 (LCS) were changed to 1.0 per client request.

**Designated QC**
The following sample was used for QC: 326426001 (CAMO-13-30585). The QC was from ARSL work order 326426.

**QC Information**
All of the QC samples met the required acceptance limits.

**CSU**
The blank result is less than 1.65 times the CSU.

**Technical Information:**

**Holding Time**
All sample procedures for this sample set were performed within the required holding time.

**Sample Re-prep/Re-analysis**
None of the samples in this sample set required reprep or reanalysis.

**Miscellaneous Information:**

**Data Exception (DER) Documentation**
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Manual Integration**
No manual integrations were performed on data in this batch.

**Additional Comments**
The MDCs are calculated using a blank population.

**Blank Decision Level**
The blank result is less than the decision level.

**Qualifier Information**

Manual qualifiers were not required.

**Method/Analysis Information**

| | |
|---|---|
| **Product:** | **Gammaspec** |
| Analytical Method: | EPA 901.1 |
| Analytical Batch Number: | 1304286 |

| Sample ID | Client ID |
|---|---|
| 326426001 | CAMO-13-30585 |
| 1202882531 | Method Blank (MB) |
| 1202882532 | 326426001(CAMO-13-30585) Sample Duplicate (DUP) |
| 1202882533 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-013 REV# 25.

**Calibration Information:**

**Calibration Information**
All initial and continuing calibration requirements have been met. The initial Calibrations were performed in June 2012, July 2012, August 2012 and January 2013.

**Standards Information**
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

**Sample Geometry**
All counting sources were prepared in the same geometry as the calibration standards.

**Quality Control (QC) Information:**

**Blank Information**
The blank volume is representative of the sample volume in this batch.

**Designated QC**
The following sample was used for QC: 326426001 (CAMO-13-30585). The QC was from ARSL work order 326426.

**QC Information**
All of the QC samples met the required acceptance limits.

**CSU**
The blank 1202882531 (MB) result is greater than 1.65 times the combined standard uncertainty but less than the minimum detectable concentration for Bi-212 and Pa-234m.

**Technical Information:**

**Holding Time**
All sample procedures for this sample set were performed within the required holding time.

**Sample Re-prep/Re-analysis**
None of the samples in this sample set required reprep or reanalysis.

**Miscellaneous Information:**

**Data Exception (DER) Documentation**
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this sample set.

**Blank Decision Level**
The blank 1202882531 (MB) result is greater than the critical level but less than the minimum detectable concentration for Bi-212 and Pa-234m.

**Qualifier Information**

Manual qualifiers were not required.

**Method/Analysis Information**

| | |
|---|---|
| **Product:** | **WSP-GrossA/B** |
| Analytical Method: | EPA 900.0/SW846 9310 |
| Analytical Batch Number: | 1304583 |

| Sample ID | Client ID |
|---|---|
| 326426001 | CAMO-13-30585 |
| 1202883282 | Method Blank (MB) |
| 1202883283 | 326426001(CAMO-13-30585) Sample Duplicate (DUP) |
| 1202883284 | 326426001(CAMO-13-30585) Matrix Spike (MS) |
| 1202883285 | 326426001(CAMO-13-30585) Matrix Spike Duplicate (MSD) |
| 1202883286 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-001 REV# 16.

**Calibration Information:**

**Calibration Information**
All initial and continuing calibration requirements have been met. The initial Calibration was performed in December 2012.

**Standards Information**
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

**Sample Geometry**
All counting sources were prepared in the same geometry as the calibration standards.

**Quality Control (QC) Information:**

**Blank Information**
Aliquots for samples 1202883282 (MB) and 1202883286 (LCS) were changed to 1.0 per client request.

**Designated QC**
The following sample was used for QC: 326426001 (CAMO-13-30585). The QC was from ARSL work order 326426.

**QC Information**
All of the QC samples met the required acceptance limits.

**CSU**
The blank result is less than 1.65 times the CSU.

**Technical Information:**

**Holding Time**
All sample procedures for this sample set were performed within the required holding time.

**Sample Re-prep/Re-analysis**
Sample 1202883286 (LCS) was recounted due to high recovery. The recount is reported. Samples 1202883282 (MB) and 1202883285 (CAMO-13-30585) were recounted due to a detector lock out condition. The recounts are reported.

**Chemical Recoveries**
All chemical recoveries meet the required acceptance limits for this sample set.

**Gross Alpha/Beta Preparation Information**
High hygroscopic salt content in evaporated samples can cause the sample mass to fluctuate due to moisture absorption. To minimize this interference, the salts are converted to oxides by heating the sample under a flame until a dull red color is obtained. The conversion to oxides stabilizes the sample weight and ensures that proper alpha/beta efficiencies are assigned for each sample. Volatile radioisotopes of carbon, hydrogen, technetium, polonium and cesium may be lost during sample heating, especially to a dull red heat. For this sample set, the prepared planchet was counted for beta activity before being flamed. After flaming, the planchet was counted for alpha activity.

**Miscellaneous Information:**

**Data Exception (DER) Documentation**
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
The matrix spike and matrix spike duplicate, 1202883284 (CAMO-13-30585) and 1202883285 (CAMO-13-30585), aliquots were reduced to conserve sample volume.

**Blank Decision Level**
The blank result is less than the decision level.

**Qualifier Information**

Manual qualifiers were not required.

**Method/Analysis Information**

| | |
|---|---|
| **Product:** | **GFPC, Sr90, liquid** |
| Analytical Method: | EPA 905.0 Modified |
| Analytical Batch Number: | 1305999 |

| Sample ID | Client ID |
|---|---|
| 326426001 | CAMO-13-30585 |
| 1202887094 | Method Blank (MB) |
| 1202887095 | 326938001(CAPU-13-34774) Sample Duplicate (DUP) |

1202887096 326938001(CAPU-13-34774) Matrix Spike (MS)
1202887097 Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-004 REV# 16.

**Calibration Information:**

**Calibration Information**
All initial and continuing calibration requirements have been met. The initial Calibration was performed in March 2013.

**Standards Information**
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

**Sample Geometry**
All counting sources were prepared in the same geometry as the calibration standards.

**Quality Control (QC) Information:**

**Blank Information**
Aliquots for samples 1202887094 (MB) and 1202887097 (LCS) were changed to 1.0 per client request.

**Designated QC**
The following sample was used for QC: 326938001 (CAPU-13-34774). The QC was from ARSL work order 326938.

**QC Information**
All of the QC samples met the required acceptance limits.

**CSU**
The blank result is less than 1.65 times the CSU.

**Technical Information:**

**Holding Time**
All sample procedures for this sample set were performed within the required holding time.

**Sample Re-prep/Re-analysis**
Sample 1202887095 (CAPU-13-34774) was recounted due to high MDC. The recount is reported. Sample 1202887094 (MB) was recounted due to a suspected blank false positive. The recount is reported.

**Chemical Recoveries**
All chemical recoveries meet the required acceptance limits for this sample set.

**Miscellaneous Information:**

**Data Exception (DER) Documentation**
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
The matrix spike, 1202887096 (CAPU-13-34774), aliquot was reduced to conserve sample volume.

**Blank Decision Level**
The blank result is less than the decision level.

**Qualifier Information**

Manual qualifiers were not required.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-886  GEL Work Order: 326426

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

**  Analyte is a Tracer compound

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

**Review/Validation**

GEL requires all analytical data to be verified by a qualified data reviewer.  In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

**Signature:** **Name: Kate Gellatly**

**Date: 18 JUN 2013**  **Title: Analyst I**

# Sample Data Summary

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

# Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: June 18, 2013

Contact: Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-30585
Sample ID: 326426001
Matrix: W
Collect Date: 22-MAY-13
Receive Date: 24-MAY-13
Collector: Client

Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | Uncertainty | MDC | Lc | TPU | RL | Units | DF | Analyst | Date | Time | Batch | Mtd. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Rad Alpha Spec Analysis** | | | | | | | | | | | | | | |
| *Alphaspec Am241 Liquid "As Received"* | | | | | | | | | | | | | | |
| Americium-241 | U | 0.0173 | +/-0.0096 | 0.0376 | 0.0155 | +/-0.00962 | 0.050 | pCi/L | | MXS2 | 06/11/13 | 0944 | 1304594 | 1 |
| *Alphaspec Pu, Liquid "As Received"* | | | | | | | | | | | | | | |
| Plutonium-238 | U | 0.00432 | +/-0.00529 | 0.0202 | 0.00718 | +/-0.00529 | 0.050 | pCi/L | | MXS2 | 06/12/13 | 1224 | 1304597 | 2 |
| Plutonium-239/240 | U | 0.0173 | +/-0.00748 | 0.0425 | 0.0183 | +/-0.00751 | 0.050 | pCi/L | | | | | | |
| *Alphaspec U, Liquid "As Received"* | | | | | | | | | | | | | | |
| Uranium-234 | | 0.212 | +/-0.0313 | 0.0912 | 0.040 | +/-0.0346 | 1.00 | pCi/L | | MXS2 | 06/11/13 | 1947 | 1304598 | 3 |
| Uranium-235/236 | U | 0.0103 | +/-0.0126 | 0.0709 | 0.0285 | +/-0.0126 | 1.00 | pCi/L | | | | | | |
| Uranium-238 | | 0.124 | +/-0.0242 | 0.0582 | 0.0235 | +/-0.0257 | 0.500 | pCi/L | | | | | | |
| **Rad Gamma Spec Analysis** | | | | | | | | | | | | | | |
| *Gammaspec "As Received"* | | | | | | | | | | | | | | |
| Cesium-137 | U | -3.04 | +/-1.21 | 3.75 | 1.74 | +/-1.41 | 8.00 | pCi/L | | MXR1 | 06/05/13 | 1256 | 1304286 | 4 |
| Cobalt-60 | U | 1.06 | +/-0.972 | 3.79 | 1.71 | +/-1.00 | 8.00 | pCi/L | | | | | | |
| Neptunium-237 | U | 0.771 | +/-3.39 | 7.44 | 3.55 | +/-3.39 | 10.0 | pCi/L | | | | | | |
| Potassium-40 | U | 25.9 | +/-13.4 | 50.5 | 23.3 | +/-14.7 | 10.0 | pCi/L | | | | | | |
| Sodium-22 | U | 1.58 | +/-0.957 | 3.84 | 1.74 | +/-1.03 | 10.0 | pCi/L | | | | | | |
| **Rad Gas Flow Proportional Counting** | | | | | | | | | | | | | | |
| *GFPC, Sr90, liquid "As Received"* | | | | | | | | | | | | | | |
| Strontium-90 | U | -0.0161 | +/-0.139 | 0.472 | 0.229 | +/-0.139 | 0.500 | pCi/L | | JXR1 | 06/12/13 | 1958 | 1305999 | 5 |
| *WSP-GrossA/B "As Received"* | | | | | | | | | | | | | | |
| Beta | | 10.9 | +/-1.27 | 2.35 | 1.01 | +/-1.56 | 3.00 | pCi/L | | DYT1 | 06/09/13 | 1213 | 1304583 | 6 |
| Alpha | | 1.26 | +/-0.310 | 0.845 | 0.368 | +/-0.330 | 3.00 | pCi/L | | DYT1 | 06/10/13 | 1950 | 1304583 | 7 |

**The following Analytical Methods were performed**

| Method | Description |
|---|---|
| 1 | DOE EML HASL-300, Am-05-RC Modified |
| 2 | DOE EML HASL-300, Pu-11-RC Modified |
| 3 | DOE EML HASL-300, U-02-RC Modified |
| 4 | EPA 901.1 |
| 5 | EPA 905.0 Modified |
| 6 | EPA 900.0/SW846 9310 |
| 7 | EPA 900.0/SW846 9310 |

| Surrogate/Tracer Recovery | Test | Batch ID | Recovery% | Acceptable Limits |
|---|---|---|---|---|
| Americium-243 Tracer | Alphaspec Am241 Liquid "As Received" | 1304594 | 89.6 | (50%-105%) |
| Plutonium-242 Tracer | Alphaspec Pu, Liquid "As Received" | 1304597 | 72.0 | (50%-105%) |
| Uranium-232 Tracer | Alphaspec U, Liquid "As Received" | 1304598 | 51.1 | (50%-105%) |

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: June 18, 2013

Contact: Keith Greene

Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-30585
Sample ID: 326426001

Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | Uncertainty | MDC | Lc | TPU | RL | Units | DF | Analyst | Date | Time | Batch | Mtd. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| Surrogate/Tracer Recovery | Test | Batch ID | Recovery% | Acceptable Limits |
|---|---|---|---|---|
| Strontium Carrier | GFPC, Sr90, liquid "As Received" | 1305999 | 74.9 | (50%-105%) |

**Notes:**

TPU and Counting Uncertainty are calculated at the 68% confidence level (1-sigma).

# Quality Control Data

## QC Summary

**Report Date: June 18, 2013**


**Client :** **Los Alamos National Laboratory**
**PO Box 1663**
**TA-03, SM271, Drop Pt. 02U, Rm111**
**Los Alamos, New Mexico**

**Contact:** **Keith Greene**

**Workorder:** **326426**

| Parmname | NOM | Sample | Qual | QC | Units | RER | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Rad Alpha Spec** | | | | | | | | | | |
| Batch 1304594 | | | | | | | | | | |
| QC1202883318 326426001 DUP | | | | | | | | | | |
| Americium-241 | U | 0.0173 | U | -0.0056 | pCi/L | 0.621 | | (0-1) | MXS2 | 06/13/1311:22 |
| | Uncert: | +/-0.0096 | | +/-0.00886 | | | | | | |
| | TPU: | +/-0.00962 | | +/-0.00886 | | | | | | |
| **Americium-243 Tracer | 2.62 | 2.35 | | 1.55 | pCi/L | | 59.3 | (50%-105%) | | |
| | Uncert: | +/-0.0802 | | +/-0.0855 | | | | | | |
| | TPU: | +/-0.135 | | +/-0.142 | | | | | | |
| QC1202883319 LCS | | | | | | | | | | |
| Americium-241 | 1.41 | | | 1.43 | pCi/L | | 101 | (80%-120%) | MXS2 | 06/11/1309:44 |
| | Uncert: | | | +/-0.0686 | | | | | | |
| | TPU: | | | +/-0.0975 | | | | | | |
| **Americium-243 Tracer | 2.09 | | | 1.14 | pCi/L | | 54.6 | (50%-105%) | | |
| | Uncert: | | | +/-0.0824 | | | | | | |
| | TPU: | | | +/-0.131 | | | | | | |
| QC1202883317 MB | | | | | | | | | | |
| Americium-241 | | | U | 0.00224 | pCi/L | | | | MXS2 | 06/11/1309:44 |
| | Uncert: | | | +/-0.005 | | | | | | |
| | TPU: | | | +/-0.005 | | | | | | |
| **Americium-243 Tracer | 2.09 | | | 1.65 | pCi/L | | 78.8 | (50%-105%) | | |
| | Uncert: | | | +/-0.0681 | | | | | | |
| | TPU: | | | +/-0.113 | | | | | | |
| Batch 1304597 | | | | | | | | | | |
| QC1202883321 326426001 DUP | | | | | | | | | | |
| Plutonium-238 | U | 0.00432 | U | -0.00234 | pCi/L | 0.290 | | (0-1) | MXS2 | 06/13/1310:12 |
| | Uncert: | +/-0.00529 | | +/-0.00619 | | | | | | |
| | TPU: | +/-0.00529 | | +/-0.00619 | | | | | | |
| Plutonium-239/240 | U | 0.0173 | U | 0.00936 | pCi/L | 0.280 | | (0-1) | | |
| | Uncert: | +/-0.00748 | | +/-0.00662 | | | | | | |
| | TPU: | +/-0.00751 | | +/-0.00663 | | | | | | |
| **Plutonium-242 Tracer | 2.44 | 1.76 | | 1.67 | pCi/L | | 68.3 | (50%-105%) | | |
| | Uncert: | +/-0.0727 | | +/-0.0762 | | | | | | |
| | TPU: | +/-0.123 | | +/-0.128 | | | | | | |
| QC1202883322 LCS | | | | | | | | | | |
| Plutonium-238 | | | | 0.0246 | pCi/L | | | (80%-120%) | MXS2 | 06/11/1309:44 |
| | Uncert: | | | +/-0.00922 | | | | | | |
| | TPU: | | | +/-0.00929 | | | | | | |
| Plutonium-239/240 | 1.97 | | | 2.06 | pCi/L | | 105 | (80%-120%) | | |
| | Uncert: | | | +/-0.0717 | | | | | | |
| | TPU: | | | +/-0.118 | | | | | | |
| **Plutonium-242 Tracer | 1.95 | | | 1.37 | pCi/L | | 70.2 | (50%-105%) | | |
| | Uncert: | | | +/-0.0696 | | | | | | |
| | TPU: | | | +/-0.113 | | | | | | |
| QC1202883320 MB | | | | | | | | | | |

## QC Summary

**Workorder:** **326426**



| Parmname | NOM | Sample | Qual | QC | Units | RER | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Rad Alpha Spec** | | | | | | | | | | |
| Batch 1304597 | | | | | | | | | | |
| Plutonium-238 | | | U | 0.00928 | pCi/L | | | | MXS2 | 06/11/1309:44 |
| | Uncert: | | | +/-0.00656 | | | | | | |
| | TPU: | | | +/-0.00658 | | | | | | |
| Plutonium-239/240 | | | U | 0.00232 | pCi/L | | | | | |
| | Uncert: | | | +/-0.00519 | | | | | | |
| | TPU: | | | +/-0.00519 | | | | | | |
| **Plutonium-242 Tracer | 1.95 | | | 1.49 | pCi/L | | 76.1 | (50%-105%) | | |
| | Uncert: | | | +/-0.0674 | | | | | | |
| | TPU: | | | +/-0.110 | | | | | | |
| Batch 1304598 | | | | | | | | | | |
| QC1202883334 326426001 DUP | | | | | | | | | | |
| Uranium-234 | | 0.212 | | 0.190 | pCi/L | 0.172 | | (0-1) | MXS2 | 06/11/1319:47 |
| | Uncert: | +/-0.0313 | | +/-0.0257 | | | | | | |
| | TPU: | +/-0.0346 | | +/-0.0286 | | | | | | |
| Uranium-235/236 | U | 0.0103 | U | 0.0117 | pCi/L | 0.0322 | | (0-1) | | |
| | Uncert: | +/-0.0126 | | +/-0.0104 | | | | | | |
| | TPU: | +/-0.0126 | | +/-0.0104 | | | | | | |
| Uranium-238 | | 0.124 | | 0.123 | pCi/L | 0.0111 | | (0-1) | | |
| | Uncert: | +/-0.0242 | | +/-0.0208 | | | | | | |
| | TPU: | +/-0.0257 | | +/-0.0223 | | | | | | |
| **Uranium-232 Tracer | 2.69 | 1.38 | | 1.91 | pCi/L | | 71 | (50%-105%) | | |
| | Uncert: | +/-0.106 | | +/-0.0927 | | | | | | |
| | TPU: | +/-0.214 | | +/-0.201 | | | | | | |
| QC1202883335 LCS | | | | | | | | | | |
| Uranium-234 | | | | 2.49 | pCi/L | | | | MXS2 | 06/11/1319:47 |
| | Uncert: | | | +/-0.0747 | | | | | | |
| | TPU: | | | +/-0.178 | | | | | | |
| Uranium-235/236 | | | | 0.0965 | pCi/L | | | | | |
| | Uncert: | | | +/-0.0168 | | | | | | |
| | TPU: | | | +/-0.0179 | | | | | | |
| Uranium-238 | 2.70 | | | 2.73 | pCi/L | | 101 | (80%-120%) | | |
| | Uncert: | | | +/-0.0784 | | | | | | |
| | TPU: | | | +/-0.194 | | | | | | |
| **Uranium-232 Tracer | 2.15 | | | 1.62 | pCi/L | | 75.3 | (50%-105%) | | |
| | Uncert: | | | +/-0.0696 | | | | | | |
| | TPU: | | | +/-0.156 | | | | | | |
| QC1202883333 MB | | | | | | | | | | |
| Uranium-234 | | | U | 0.00452 | pCi/L | | | | MXS2 | 06/11/1319:47 |
| | Uncert: | | | +/-0.00553 | | | | | | |
| | TPU: | | | +/-0.00554 | | | | | | |
| Uranium-235/236 | | | U | -0.00279 | pCi/L | | | | | |
| | Uncert: | | | +/-0.00624 | | | | | | |
| | TPU: | | | +/-0.00625 | | | | | | |
| Uranium-238 | | | U | 0.00678 | pCi/L | | | | | |
| | Uncert: | | | +/-0.00505 | | | | | | |
| | TPU: | | | +/-0.00507 | | | | | | |
| **Uranium-232 Tracer | 2.15 | | | 1.72 | pCi/L | | 79.9 | (50%-105%) | | |
| | Uncert: | | | +/-0.0702 | | | | | | |

## QC Summary

**Workorder:** **326426**



| Parmname | NOM | Sample | Qual | QC | Units | RER | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Rad Alpha Spec** | | | | | | | | | | |
| Batch 1304598 | | | | | | | | | | |
| | TPU: | | | +/-0.157 | | | | | | |
| **Rad Gamma Spec** | | | | | | | | | | |
| Batch 1304286 | | | | | | | | | | |
| QC1202882532 326426001 DUP | | | | | | | | | | |
| Cesium-137 | U | -3.04 | U | 0.111 | pCi/L | 0.546 | | (0-1) | MXR1 | 06/06/1307:59 |
| | Uncert: | +/-1.21 | | +/-1.48 | | | | | | |
| | TPU: | +/-1.41 | | +/-1.48 | | | | | | |
| Cobalt-60 | U | 1.06 | U | 0.431 | pCi/L | 0.135 | | (0-1) | | |
| | Uncert: | +/-0.972 | | +/-1.31 | | | | | | |
| | TPU: | +/-1.00 | | +/-1.32 | | | | | | |
| Neptunium-237 | U | 0.771 | U | -0.105 | pCi/L | 0.0734 | | (0-1) | | |
| | Uncert: | +/-3.39 | | +/-2.57 | | | | | | |
| | TPU: | +/-3.39 | | +/-2.57 | | | | | | |
| Potassium-40 | U | 25.9 | U | -6.83 | pCi/L | 0.494 | | (0-1) | | |
| | Uncert: | +/-13.4 | | +/-18.4 | | | | | | |
| | TPU: | +/-14.7 | | +/-18.5 | | | | | | |
| Sodium-22 | U | 1.58 | U | 0.222 | pCi/L | 0.258 | | (0-1) | | |
| | Uncert: | +/-0.957 | | +/-1.61 | | | | | | |
| | TPU: | +/-1.03 | | +/-1.61 | | | | | | |
| QC1202882533 LCS | | | | | | | | | | |
| Americium-241 | 2780 | | | 2910 | pCi/L | | 105 | (80%-120%) | MXR1 | 06/06/1308:54 |
| | Uncert: | | | +/-170 | | | | | | |
| | TPU: | | | +/-287 | | | | | | |
| Cesium-137 | 6010 | | | 5770 | pCi/L | | 95.9 | (80%-120%) | | |
| | Uncert: | | | +/-55.8 | | | | | | |
| | TPU: | | | +/-278 | | | | | | |
| Cobalt-60 | 5250 | | | 5270 | pCi/L | | 100 | (80%-120%) | | |
| | Uncert: | | | +/-64.1 | | | | | | |
| | TPU: | | | +/-233 | | | | | | |
| Neptunium-237 | | | U | 27.1 | pCi/L | | | | | |
| | Uncert: | | | +/-23.7 | | | | | | |
| | TPU: | | | +/-24.5 | | | | | | |
| Potassium-40 | | | U | 15.9 | pCi/L | | | | | |
| | Uncert: | | | +/-57.8 | | | | | | |
| | TPU: | | | +/-58.0 | | | | | | |
| Sodium-22 | | | U | -6.07 | pCi/L | | | | | |
| | Uncert: | | | +/-7.18 | | | | | | |
| | TPU: | | | +/-7.32 | | | | | | |
| QC1202882531 MB | | | | | | | | | | |
| Cesium-137 | | | U | -0.12 | pCi/L | | | | MXR1 | 06/05/1312:57 |
| | Uncert: | | | +/-0.928 | | | | | | |
| | TPU: | | | +/-0.928 | | | | | | |
| Cobalt-60 | | | U | 1.31 | pCi/L | | | | | |
| | Uncert: | | | +/-1.47 | | | | | | |
| | TPU: | | | +/-1.50 | | | | | | |
| Neptunium-237 | | | U | 0.0627 | pCi/L | | | | | |
| | Uncert: | | | +/-1.77 | | | | | | |
| | TPU: | | | +/-1.77 | | | | | | |

## QC Summary

**Workorder:** **326426**



| Parmname | NOM | Sample | Qual | QC | Units | RER | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Rad Gamma Spec** | | | | | | | | | | |
| Batch 1304286 | | | | | | | | | | |
| Potassium-40 | | | U | 0.725 | pCi/L | | | | | |
| | Uncert: | | | +/-12.6 | | | | | | |
| | TPU: | | | +/-12.6 | | | | | | |
| Sodium-22 | | | U | -2.09 | pCi/L | | | | | |
| | Uncert: | | | +/-1.05 | | | | | | |
| | TPU: | | | +/-1.15 | | | | | | |
| **Rad Gas Flow** | | | | | | | | | | |
| Batch 1304583 | | | | | | | | | | |
| QC1202883283 326426001 DUP | | | | | | | | | | |
| Alpha | | 1.26 | | 2.13 | pCi/L | 0.507 | | (0-1) | DYT1 | 06/10/1318:46 |
| | Uncert: | +/-0.310 | | +/-0.493 | | | | | | |
| | TPU: | +/-0.330 | | +/-0.526 | | | | | | |
| Beta | | 10.9 | | 9.89 | pCi/L | 0.167 | | (0-1) | | 06/09/1312:13 |
| | Uncert: | +/-1.27 | | +/-1.23 | | | | | | |
| | TPU: | +/-1.56 | | +/-1.48 | | | | | | |
| QC1202883286 LCS | | | | | | | | | | |
| Alpha | 12.3 | | | 11.3 | pCi/L | | 91.9 | (80%-120%) | DYT1 | 06/11/1308:16 |
| | Uncert: | | | +/-0.640 | | | | | | |
| | TPU: | | | +/-1.32 | | | | | | |
| Beta | 48.5 | | | 47.1 | pCi/L | | 97.2 | (80%-120%) | | 06/09/1312:13 |
| | Uncert: | | | +/-0.879 | | | | | | |
| | TPU: | | | +/-4.01 | | | | | | |
| QC1202883282 MB | | | | | | | | | | |
| Alpha | | | U | 0.0195 | pCi/L | | | | DYT1 | 06/10/1318:46 |
| | Uncert: | | | +/-0.0152 | | | | | | |
| | TPU: | | | +/-0.0153 | | | | | | |
| Beta | | | U | 0.00638 | pCi/L | | | | | 06/10/1308:34 |
| | Uncert: | | | +/-0.109 | | | | | | |
| | TPU: | | | +/-0.109 | | | | | | |
| QC1202883284 326426001 MS | | | | | | | | | | |
| Alpha | 494 | 1.26 | | 595 | pCi/L | | 120 | (75%-125%) | DYT1 | 06/10/1316:36 |
| | Uncert: | +/-0.310 | | +/-28.5 | | | | | | |
| | TPU: | +/-0.330 | | +/-57.6 | | | | | | |
| Beta | 1940 | 10.9 | | 2250 | pCi/L | | 116 | (75%-125%) | | 06/09/1312:13 |
| | Uncert: | +/-1.27 | | +/-40.2 | | | | | | |
| | TPU: | +/-1.56 | | +/-193 | | | | | | |
| QC1202883285 326426001 MSD | | | | | | | | | | |
| Alpha | 494 | 1.26 | | 606 | pCi/L | 0.050 | 123 | (0-1) | DYT1 | 06/10/1316:36 |
| | Uncert: | +/-0.310 | | +/-30.1 | | | | | | |
| | TPU: | +/-0.330 | | +/-59.5 | | | | | | |
| Beta | 1940 | 10.9 | | 2150 | pCi/L | 0.142 | 110 | (0-1) | | 06/10/1308:35 |
| | Uncert: | +/-1.27 | | +/-38.2 | | | | | | |
| | TPU: | +/-1.56 | | +/-182 | | | | | | |
| Batch 1305999 | | | | | | | | | | |
| QC1202887095 326938001 DUP | | | | | | | | | | |
| Strontium-90 | U | 0.350 | U | 0.350 | pCi/L | 0.000136 | | (0-1) | JXR1 | 06/14/1312:39 |
| | Uncert: | +/-0.148 | | +/-0.154 | | | | | | |
| | TPU: | +/-0.150 | | +/-0.156 | | | | | | |

## QC Summary

**Workorder:** **326426**



| Parmname | NOM | Sample | Qual | QC | Units | RER | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Rad Gas Flow** | | | | | | | | | | |
| Batch 1305999 | | | | | | | | | | |
| **Strontium Carrier | 8.55 | 6.40 | | 5.30 | mg | | 62 | (50%-105%) | | |
| QC1202887097 LCS | | | | | | | | | | |
| Strontium-90 | 24.3 | | | 26.1 | pCi/L | | 107 | (80%-120%) | JXR1 | 06/12/1319:49 |
| | Uncert: | | | +/-0.764 | | | | | | |
| | TPU: | | | +/-2.21 | | | | | | |
| **Strontium Carrier | 8.55 | | | 6.50 | mg | | 76 | (50%-105%) | | |
| QC1202887094 MB | | | | | | | | | | |
| Strontium-90 | | | U | -0.819 | pCi/L | | | | JXR1 | 06/13/1317:43 |
| | Uncert: | | | +/-0.0765 | | | | | | |
| | TPU: | | | +/-0.0765 | | | | | | |
| **Strontium Carrier | 8.55 | | | 6.30 | mg | | 73.7 | (50%-105%) | | |
| QC1202887096 326938001 MS | | | | | | | | | | |
| Strontium-90 | 243 U | 0.350 | | 277 | pCi/L | | 114 | (75%-125%) | JXR1 | 06/12/1319:49 |
| | Uncert: | +/-0.148 | | +/-8.25 | | | | | | |
| | TPU: | +/-0.150 | | +/-23.4 | | | | | | |
| **Strontium Carrier | 8.55 | 6.40 | | 6.00 | mg | | 70.2 | (50%-105%) | | |

**Notes:**

TPU and Counting Uncertainty are calculated at the 68% confidence level (1-sigma).

The Qualifiers in this report are defined as follows:

| | |
|---|---|
| ** | Analyte is a Tracer compound |
| ** | Analyte is a surrogate compound |
| < | Result is less than value reported |
| > | Result is greater than value reported |
| A | The TIC is a suspected aldol-condensation product |
| B | The target analyte was detected in the associated blank. |
| BD | Results are either below the MDC or tracer recovery is low |
| C | Analyte has been confirmed by GC/MS analysis |
| D | Results are reported from a diluted aliquot of the sample |
| E | %difference of sample and SD is >10%. Sample concentration must meet flagging criteria |
| E | Concentration of the target analyte exceeds the instrument calibration range |
| E | General Chemistry--Concentration of the target analyte exceeds the instrument calibration range |
| FA | Failed analysis. |
| FB | Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies |
| H | Analytical holding time was exceeded |
| J | Value is estimated |
| JNX | Non Calibrated Compound |
| K | Analyte present. Reported value may be biased high. Actual value is expected to be lower. |
| L | Analyte present. Reported value may be biased low. Actual value is expected to be higher. |
| M | M if above MDC and less than LLD |
| M | REMP Result > MDC/CL and < RDL |
| N | Metals--The Matrix spike sample recovery is not within specified control limits |
| N | Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |

## QC Summary

**Workorder:** **326426**



| Parmname | NOM | Sample | Qual | QC | Units | RER | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|

| | |
|---|---|
| N | Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N/A | RPD or %Recovery limits do not apply. |
| N1 | See case narrative |
| ND | Analyte concentration is not detected above the detection limit |
| NJ | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| P | Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, the difference is >70%. |
| Q | One or more quality control criteria have not been met. Refer to the applicable narrative or DER. |
| R | Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes. |
| R | Sample results are rejected |
| U | Analyte was analyzed for, but not detected above the MDL, MDA, or LOD. |
| UI | Gamma Spectroscopy--Uncertain identification |
| UJ | Compound cannot be extracted |
| UJ | Gamma Spectroscopy--Uncertain identification |
| UL | Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias. |
| X | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| Y | Other specific qualifiers were required to properly define the results. Consult case narrative. |
| Y | QC Samples were not spiked with this compound |
| Z | Paint Filter Test--Particulates passed through the filter, however no free liquids were observed. |
| ^ | RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry. |
| d | 5-day BOD--The 2:1 depletion requirement was not met for this sample |
| h | Preparation or preservation holding time was exceeded |

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
** Indicates analyte is a surrogate/tracer compound.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

American Radiation Services - Primary

1726 Wooddale Court
Baton Rouge LA 70806

# Chain of Custody/Analysis Request

COC/Lab Request #: 2013-877



**Client Contact:**

**Lab Agreement # :** 63641-001-10

**Project Number :**

**Analysis Turnaround Time:**

- 24 Hour - ☐ Other - ☐
- 7 Day - ☐
- 14 Day - ☐
- 21 Day - ☐
- 28 Day - ☒

**Site Name:** Los Alamos National Laboratory

**Rad Screening Info:** Yes, Below Background

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | WSP-LL-H-3 | Special Instructions: |
|---|---|---|---|---|---|
| CAMO-13-30585 | May 22 2013 | 13:01 | W | 1 | |

Special Instructions:

| | | | |
|---|---|---|---|
| Relinquished by: Melissa Montoya | | Date/Time: 5/22/13 3:00 | Received by: |
| Relinquished by: | | Date/Time: | Received by: |
| Relinquished by: | | Date/Time: | Received by: |

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30585

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | 05/22/2013 | FIELD MATRIX: WG | | OK |
| TIME COLLECTED (HH:MM): | | 1301 | MEDIA: UA | | ↓ |
| PRS ID: | | OK | SAMPLE TECH CODE: UA | | GSP |
| LOCATION ID: R-61 S2 | | ↓ | FIELD PREP: UF | | OK |
| LOCATION TYPE: MON | | ↓ | FIELD QC TYPE: REG | | ↓ |
| PORT: P2A | | | SAMPLE USAGE: INV | | |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-8260B-VOA | 40 ML SEPTUM AMBER GLASS | 2 | HCL | Y | NA |
| ↓ | WSP-8270C-SVOA | 1 LITER AMBER GLASS | ~~1~~ 0 | ICE WS5/22/13 | ↓ | ↓ |
| ↓ | WSP-GrossA/B | 1 LITER POLY | 1 | NONE | ↓ | ↓ |
| ↓ | WSP-LL-H-3 | 1 LITER POLY | 1 | NONE | ↓ | ↓ |
| ↓ | WSP-RAD | 1 GAL POLY | 1 | HNO3 | ↓ | ↓ |
| ↓ | WSP-TKN+TOC | 500 ML AMBER GLASS | 1 | H2SO4 | ↓ | ↓ |

**SAMPLE COMMENTS:** Sampled within 50' of running diesel generator

**LOCATION COMMENTS:** NA

**FIELD PARAMETERS:**

Dissolved Oxygen 2.96 mg/L  Oxidation-Reduction Potential 93.6 MV  pH 6.56 SU

Specific Conductance 152 uS/cm  Temperature 21.05 deg C  Turbidity 12.3 NTU

**COLLECTED BY (PRINT)** W. Shaw

| RELINQUISHED BY (Printed Name) (Signature) | Date/Time | RECEIVED BY (Printed Name) (Signature) | Date/Time |
|---|---|---|---|
| Andrew Stokes | 5/22/13 1345 | S. Sherwood | 5/22/13 1345 |
| RELINQUISHED BY (Printed Name) (Signature) | Date/Time | RECEIVED BY (Printed Name) (Signature) | Date/Time |

Report Date 04/30/2013

Data Validation Report

Chain Of Custody No. 2013-877

**1. Distribution Of Samples In EDD.**

| SDG | Analytical Method | Regular Samples | Field Duplicates | Trip Blanks | Field Blanks | Equipment Blanks |
|---|---|---|---|---|---|---|
| ARS1-13-01040 | Generic:Low_Level_Tritium | 1 | | | | |

| SDG | Analytical Method | Analysis Lot ID | Prep Lot ID | Regular Samples | Field Duplicates | Trip Blanks | Field Blanks | Equipment Blanks | Method Blanks | Matrix Spikes | Matrix Spike Dups |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ARS1-13-01040 | Generic:Low_Level_Tritium | ARS1-B13-01094 | ARS1-B13-01094 | 1 | | | | | 1 | | |

**2. Distribution Of Analytes In EDD.**

| Analytical Method | Method Category | Field Sample ID | Lab Sample ID | Sample Purpose | Target Analytes | Surrogates | Spikes | TICS |
|---|---|---|---|---|---|---|---|---|
| Generic:Low_Level_Tritium | RAD | CAMO-13-30585 | ARS1-B13-01094-06 | REG | 1 | 0 | 0 | 0 |
| Generic:Low_Level_Tritium | RAD | LCS | ARS1-B13-01094-01 | LCS | 0 | 0 | 1 | 0 |
| Generic:Low_Level_Tritium | RAD | LCSD | ARS1-B13-01094-02 | LCSD | 0 | 0 | 1 | 0 |
| Generic:Low_Level_Tritium | RAD | MB | ARS1-B13-01094-03 | MB | 1 | 0 | 0 | 0 |

**3. Are any analytes missing?**

No.

**4. Were any holding times exceeded?**

No.

**5. Any contaminants in blanks?**

No.

**Any samples affected by the presence of contaminants in blanks?**

No.

**6. Any surrogate recoveries outside the control limits?**

No.

**7. Any MS/MSD recoveries or RPDs outside the control limits?**

No.

**8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?**

| LCS | LCSD | Analytical | Parameter | Lab | Analysis | Sample | LCS | LCSD | Upper | Lower | Lower Reject |
|---|---|---|---|---|---|---|---|---|---|---|---|

Data Validation Report for:

Chain Of Custody No. 2013-877

| Analytical Spikes | Post-Digestion Spikes | Lab Control Samples | Lab Control Sample Dups | Blank Spikes | Blank Spike Dups | Lab Duplicates | Storage Blanks | Preparation Blanks | Reagent Blanks |
|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 1 | | | | | | |

| | | |
|---|---|---|
| Upper Reject | | RPD |

| Sample ID | Sample ID | Method | Name | Lot ID | Date | Matrix | Recovery | Recovery | Limit | Limit | Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ARS1-B13-01094-01 | ARS1-B13-01094-02 | Generic:Low_Level_Tritium | Tritium | ARS1-B13-01094 | 6/14/2013 | W | 70 | 47 | 120 | 80 | 10 |

**9. Any Field Duplicate RPDs outside the desired limits?**

No.

**10. Any Lab Duplicate RPDs outside the desired limits?**

No.

**11. Any required reporting limits exceeded?**

No.

**12. Additional Validator's Coments.**

None.

**13. Display Flagged Data.**

| Location ID | Chain Of Custody No | Field Sample ID | Sample Purpose | Analysis Type Code | Analytical Suite | Analytical Method | Parameter Name | Lab Qualifier | Validation Qualifier | Validation Reason Codes | Detected |
|---|---|---|---|---|---|---|---|---|---|---|---|
| R-61 S2 | 2013-877 | CAMO-13-30585 | REG | INIT | RAD | Generic:Low_Level_Tritium | Tritium | U | U | R5 | N |

| Reason Code | Description |
|---|---|
| R5 | Analyte is not detected because the amount reported is less than the MDC. |

**14. Useable Result Count.**

| Field Sample ID | Location ID | Sample Purpose | Analytical Method | No. Unuseable Records | Total No. Of Records |
|---|---|---|---|---|---|
| CAMO-13-30585 | R-61 S2 | REG | Generic:Low_Level_Tritium | 0 | 1 |

Data Validation Report for:

Chain Of Custody No. 2013-877

| Limit | RPD | Limit |
|---|---|---|
| | 39.5746 | |

| Lab Result | Lab Units | Report Result | Report Units | Report MDA | Report Uncertainty | Lab Matrix | Sample Date | Percent Moisture | Analysis Lot ID | Validation Status Code | Use Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.575 | pCi/L | 0.575 | pCi/L | 2.289 | 0.69 | W | 5/22/2013 | | ARS1-813-01094 | VAL | Y |

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# American Radiation Services Analytical Reports

for

# Los Alamos National Laboratory

# Request Number: 2013-877

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# American Radiation Services Analytical Reports

for

# Los Alamos National Laboratory Request: 2013-877

# Original COC

American Radiation Services - Primary

1726 Wooddale Court
Baton Rouge LA 70806

# Chain of Custody/Analysis Request

COC/Lab Request #: 2013-877



**Client Contact:**

**Lab Agreement # :** 63641-001-10

**Project Number :**

**Analysis Turnaround Time:**

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

**Site Name:** Los Alamos National Laboratory

**Rad Screening Info:** Yes, Below Background

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | WSP-LL-H-3 |
|---|---|---|---|---|
| CAMO-13-30585 | May 22 2013 | 13:01 | W | 1 |

**Special Instructions:**

Special Instructions:

| | | | | |
|---|---|---|---|---|
| Relinquished by: Melissa Montoya | | Date/Time: 5/22/13 3:00 | Received by: | 5-23-13 / 1000 |
| Relinquished by: | | Date/Time: | Received by: | |
| Relinquished by: | | Date/Time: | Received by: | |

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# American Radiation Services Analytical Reports

for

# Los Alamos National Laboratory Request: 2013-877

# Case Narrative

ARS INTERNATIONAL

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June 19, 2013

LANL
Keith Greene
PO Box 1663 MS M992
Los Alamos, NM 87545

Request Number: **2013-877**
LANL Sample ID: **CAMO-13-30585**

Dear Mr. Greene;

On May 23, 2013, ARS International received one (1) water sample to be analyzed for Low Level Tritium.

The samples underwent enrichment and were counted, along with the QA/QC samples. The appropriate counting equipment and QA/QC for this type of analysis was used, and results of the analysis and QA/QC are attached in the data package. Samples were counted with a count time sufficient to meet quality control parameters for counting equipment and were within acceptance criteria and statistical sound detection limits.

If you have any questions please do not hesitate to call at 225.381.2991 or email LANL@amrad.com.

Sincerely,

James D. Lee

Laboratory Management
**ARS International**

ARS INTERNATIONAL
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# COVER PAGE

**PROJECT SAMPLE IDENTIFICATION**
**CROSS-REFERENCE**
## TO ARS SAMPLE LABORATORY IDs
Subcontract (LANL Agreement Number) 63641-001-10

| Request Number | LANL PROJECT SAMPLE ID NUMBER | American Radiation Services SAMPLE ID NUMBER(S) |
|---|---|---|
| 2013-877 | CAMO-13-30585 | ARS1-13-01040-001 |

**ANALYTICAL METHODS**
Tritium analyses were performed using **ARS-040 Tritium Assay in Water Samples Using Electrolytic Enrichment.**

**ANALYTICAL RESULTS**
LCS/LCSD recovery was biased low, and duplicate criteria was elevated; all other QC requirements were met. The result data that are flagged with "U" indicate that the activity is below the MDC.

**American Radiation Services Project Manager/Laboratory Director's Comments:**
*"I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this sample data package and the computer-readable EDD, as applicable, submitted on diskette or by modem, has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature."*

*"I certify that this electronic image and all hardcopies produced from this image accurately represent the data and is in compliance with the LANL specific requirements, both technically and for completeness, other than the conditions detailed above or in the sample data package narrative. Release, by submission through email, the data contained in this electronic image and the computer-readable EDD (as applicable), has been authorized by the laboratory Manager/Technical Director or the Manager's designee."*

| James D. [illegible] | Laboratory Management, ARS International | 6-19-13 |
|---|---|---|
| **Signature** | **Title** | **Date** |

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# American Radiation Services Analytical Reports

for

# Los Alamos National Laboratory

# Low Level Tritium by Low Level Liquid Scintillation Counting

AMRAD
AMERICAN RADIATION SERVICES, LLC

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

| | | | |
|---|---|---|---|
| **ARS Sample Delivery Group:** | ARS1-13-01040 | **Request or PO Number:** | 2013-877 |
| **Client Sample ID:** | CAMO-13-30585 | **ARS Sample ID:** | ARS1-13-01040-001 |
| **Sample Collection Date:** | 05/22/13 | **Date Received:** | 05/23/13 |
| **Sample Matrix:** | Aqueous | **Report Date:** | 06/19/13 |

| Analysis Description | Analysis Results | Analysis Error +/- 1 s | MDC | DLC | Qual | Analysis Units | Analysis Test Method | Analysis Date/Time | Analysis Technician | Tracer/Chem Recovery |
|---|---|---|---|---|---|---|---|---|---|---|
| Enriched H-3 | 0.575 | 0.690 | 2.289 | 1.105 | U | pCi/L | ARS-040 | 06/14/13 21:41 | PDS | NA |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

**NOTES: Lab Agreement 63641-001-10**

Project Manager Review

***Notes:*** *American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the American Radiation Services, Inc.*

LELAP Certificate# 01949

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1 (800) 401-4277 FAX (225) 381-2996

# QC Results Report

**Sample Delivery Group:** ARS1-13-01040
**Date Received:** 5/23/2013

## Laboratory Control Sample Evaluation

| Analysis Batch | QC Type | Analyte | Analysis Results | CSU 1 (1s) | MDC | Expected Value | Qual | Report Units | Analysis Test Method | Analysis Date/Time | Analysis Technician | Percent Recovery (%) | LCS Acceptance Range |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ARS1-B13-01094 | LCS | H3 | 17.347 | 2.780 | 2.286 | 24.839 | | pCi/L | ARS-040 | 6/14/13 2:56 | PDS | 70 | 80%-120% |

## Blank Evaluation

| Analysis Batch | QC Type | Analyte | Analysis Results | CSU 1 (1s) | MDC | Expected Value | Qual | Report Units | Analysis Test Method | Analysis Date/Time | Analysis Technician |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ARS1-B13-01094 | MBL | H3 | 1.028 | 0.659 | 2.109 | NA | U | pCi/L | ARS-040 | 6/14/13 2:56 | PDS |

## Sample RER Duplicate Evaluation

| Analysis Batch | QC Type | Analysis Description | Result 1 | CSU 1 (1s) | Result 2 | CSU 2 (1s) | Qual | Analysis Units | Analysis Test Method | Analysis Date/Time | Analysis Technician | RER | RER AcceptanceRange |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ARS1-B13-01094 | LCSD | H3 | 17.347 | 2.780 | 11.616 | 1.962 | | pCi/L | ARS-040 | 6/14/13 2:56 | PDS | 1.21 | < 1 |

## Sample DER Duplicate Evaluation

| Analysis Batch | QC Type | Analysis Description | Result 1 | CSU 1 (1s) | Result 2 | CSU 2 (1s) | Qual | Analysis Units | Analysis Test Method | Analysis Date/Time | Analysis Technician | DER | DER AcceptanceRange |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ARS1-B13-01094 | LCSD | H3 | 17.347 | 2.780 | 11.616 | 1.962 | | pCi/L | ARS-040 | 6/14/13 2:56 | PDS | 3.37 | < 3 |

Project Manager Review

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of ARS International.

LELAP Certificate# 01949 NELAP Certificate # E87558

# QC Evaluation

**EPA Method: ARS-040**
**Batch ID: ARS1-B13-01094**
**SDG's: ARS1-13-01039; 1040**

| | | | |
|---|---|---|---|
| **LCS** | 17.3470 | **CSU (2s)** | 5.4480 |
| **LCSD** | 11.6160 | **CSU-D (2s)** | 3.8450 |

**DER =** $\frac{\text{abs(LSC-LSCD)}}{\text{sqr((2s CSU/2)^2)+(( 2s CSU-D/2)^2)}}$ = **< 3**

*at 1 sigma*

**DER** $\frac{5.731}{3.334094}$ = 1.718908 **< 3**

**% RPD=** $\frac{\text{ABS( LCS - LSCD)}}{\text{(LCS+LCSD)/2}}$ * 100 = **< 25%**

**%RPD** $\frac{5.731}{14.4815}$ *100 = 39.57463 **< 25%**

The *RPD* shall be less than 25% or other client-applied criteria

**RER=** $\frac{\text{abs((LCS-LCSD))}}{\text{(CSU)+(CSD)}}$ = **<1** ***<--LANL Requirement***

*at 2 sigma*

**RER =** $\frac{5.731}{9.2930}$ 0.616700742 **<1**

**Blank Information**

| | Act | CSU(2s) | MDA | Act>MDA |
|---|---|---|---|---|
| **AM-241** | | | | |
| **U-234** | | | | |
| **U-235** | | | | |
| **U-238** | | | | |
| **Pu-238** | | | | |
| **Pu-239/240** | | | | |
| **Th-228** | | | | |
| **Th-230** | | | | |
| **Th-232** | | | | |
| **H3** | 1.028 | 1.292 | 2.109 | |
| **Ra-226** | | | | |
| **Ra-228** | | | | |
| **Total U** | | | | |
| **Pb-210** | | | | |
| **Po-209** | | | | |
| **Sr-90** | | | | |
| **TC-99** | | | | |
| **NI-63** | | | | |

*MDA should be below RDL
*Blank activity must be below MDA
*Blank activity must be < 1.65*CSU (DOE only)

ACT = 1.028
CSU = 1.292
Is ACT<1.65*CSU? YES

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# American Radiation Services Analytical Reports

for

# Los Alamos National Laboratory

# Low Level Tritium by Low Level Liquid Scintillation Counting

# Laboratory Records

# Analysis Batch Report



AMRAD
AMERICAN RADIATION SERVICES, LLC

**Analysis Batch ID** **ARS1-B13-01094**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | **Method** | **ARS-040** | **Analysis** | | **LSC-A-022** | **Matrix** | **AQ** |
| | | | | **Description** | **Low Level Tritium by Electrolytic Enrichment** | | | | | |
| **ABatch Sample ID** | **Type** | **Blind Iso1** | **Blind Iso2** | **Blind Iso3** | **SDG** | **FR** | **Run** | **Client ID** | **Isotope Group** | **Lab Deadline** |
| ARS1-B13-01094-01 | LCS | B-15487 | | | | | | | | |
| ARS1-B13-01094-02 | LCSD | B-15488 | | | | | | | | |
| ARS1-B13-01094-03 | MBL | | | | | | | | | |
| ARS1-B13-01094-04 | TRG | | | | **ARS1-13-01038** | 001 | 1 | CAMO-13-30615 | STD | 06/19/13 |
| ARS1-B13-01094-05 | TRG | | | | **ARS1-13-01039** | 001 | 1 | CAMO-13-30584 | STD | 06/19/13 |
| ARS1-B13-01094-06 | TRG | | | | **ARS1-13-01040** | 001 | 1 | CAMO-13-30585 | STD | 06/19/13 |

American Radiation Services
Baton Rouge Laboratory

# LCS Report
## Analytical Batch: ARS1-B13-01094



| BlindID | ABatch | ABatchSampleID | BlindGroup | StdID | Isotope | ExpectedAddition | ExpectedValue | EmptyWt | GrossWt | NetWt | UserID | ModDate | ExpectedValue_CT | MidPointCountDate | KnownValue | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B-15487 | ARS1-B13-01094 | ARS1-B13-01094-01 | B-H3 | S-0279 | H-3 | 5 | 2.476264176 | 13.3421 | 18.4318 | 5.0897 | BSTEFFENS | 5/29/2013 | 2.47016861 | 6/14/2013 | 12.572417 | 8 |
| B-15488 | ARS1-B13-01094 | ARS1-B13-01094-02 | B-H3 | S-0279 | H-3 | 5 | 2.476264176 | 13.2935 | 18.3573 | 5.0638 | BSTEFFENS | 5/29/2013 | 2.47016861 | 6/14/2013 | 12.508439 | 1 |

AMRAD
AMERICAN RADIATION SERVICES, LLC

# LSC Instrument Data Transfer Report

\\Packard3170\ResuRs\H3 Low Level\Low Level H3\2

| Batch Sample ID | Non-BKG Samples Transferred | Samples Eligible To Save | |
|---|---|---|---|
| ARS1-B13-01094 | 5 | 5 | LSC 1 |

| LIMS Batch Sample ID | LSC P# | LSC PID | LSC S# | LSC SMPL_ID | LSC Count Date | LSC CPMA | LSC tSIE | LSC EFF | LSC Count Dur | Analysis Batch | LIMS SDG | LIMS Run |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BKG | 2 | | 1 | BACKGROUND | 06/13/13 22:45 | 1.10 | 367.64 | 24.1800 | 240.00 | ARS1-B13-01094 | | |
| ARS1-B13-01094-01 | 2 | | 2 | B13-01094-01 | 06/14/13 02:56 | 3.58 | 381.41 | 24.7200 | 240.00 | ARS1-B13-01094 | | |
| ARS1-B13-01094-02 | 2 | | 3 | B13-01094-02 | 06/14/13 07:07 | 2.73 | 380.13 | 24.6700 | 240.00 | ARS1-B13-01094 | | |
| ARS1-B13-01094-03 | 2 | | 4 | B13-01094-03 | 06/14/13 11:18 | 1.26 | 397.67 | 25.4400 | 240.00 | ARS1-B13-01094 | | |
| ARS1-B13-01094-05 | 2 | | 5 | B13-01094-05 | 06/14/13 15:30 | 4.11 | 379.98 | 24.6600 | 240.00 | ARS1-B13-01094 | ARS1-13-01039 | 1 |
| ARS1-B13-01094-06 | 2 | | 6 | B13-01094-06 | 06/14/13 19:40 | 1.18 | 375.97 | 24.5100 | 240.00 | ARS1-B13-01094 | ARS1-13-01040 | 1 |

## ARS-040 Calculation Results

### ARS1-B13-01094

| | |
|---|---|
| ACF | 1 |
| UCF | 2.22 |
| Sys Error | 0.15 |

| AnalysisCode | ABatchSampleID | Total_Bkg_Count_Duration_min | DF | Sample_Activity_Conc | Standard_Counting_Uncertainty | CU_1 | CSU_1 | CU_1_96 | CSU_1_96 | MDC | DLC | ActivityReportUnits |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LSC-A-022 | ARS1-B13-01094-01 | 240.000 | 0.95779 | 17.347 | 0.978 | 0.978 | 2.780 | 1.917 | 5.448 | 2.286 | 1.103 | pCi |
| LSC-A-022 | ARS1-B13-01094-02 | 240.000 | 0.95779 | 11.616 | 0.901 | 0.901 | 1.962 | 1.766 | 3.845 | 2.328 | 1.124 | pCi |
| LSC-A-022 | ARS1-B13-01094-03 | 240.000 | 0.99985 | 1.028 | 0.641 | 0.641 | 0.659 | 1.256 | 1.292 | 2.109 | 1.018 | pCi |
| LSC-A-022 | ARS1-B13-01094-04 | 240.000 | | | | | | | | | | pCi |
| LSC-A-022 | ARS1-B13-01094-05 | 240.000 | 0.99570 | 20.895 | 1.023 | 1.023 | 3.297 | 2.006 | 6.462 | 2.267 | 1.094 | pCi |
| LSC-A-022 | ARS1-B13-01094-06 | 240.000 | 0.99646 | 0.575 | 0.684 | 0.684 | 0.690 | 1.341 | 1.351 | 2.289 | 1.105 | pCi |

## ARS-040 Calculation Results

### ARS1-B13-01094

| | |
|---|---|
| ACF | 1 |
| UCF | 2.22 |
| Sys Error | 0.15 |

| AnalysisCode | ABatchSampleID | Initial_Mass_sample_g | Mass_Na2O2_added_g | Final_mass_electrolyzed_sample_NaOH_g | Mass_equivalent_NaOH_g | Final_Mass_Electrolyzed_sample_g | VolumeFactor_X | Enrichment_Factor_Y |
|---|---|---|---|---|---|---|---|---|
| LSC-A-022 | ARS1-B13-01094-01 | 506.160 | 2.000 | 16.690 | 2.052 | 14.638 | 0.029 | 27.047 |
| LSC-A-022 | ARS1-B13-01094-02 | 500.560 | 2.020 | 16.750 | 2.073 | 14.677 | 0.029 | 26.691 |
| LSC-A-022 | ARS1-B13-01094-03 | 500.350 | 2.040 | 16.370 | 2.093 | 14.277 | 0.029 | 27.399 |
| LSC-A-022 | ARS1-B13-01094-04 | 500.000 | 2.010 | 17.020 | 2.062 | 14.958 | 0.030 | 26.182 |
| LSC-A-022 | ARS1-B13-01094-05 | 500.040 | 2.030 | 17.000 | 2.083 | 14.917 | 0.030 | 26.252 |
| LSC-A-022 | ARS1-B13-01094-06 | 500.050 | 2.000 | 17.010 | 2.052 | 14.958 | 0.030 | 26.184 |

## ARS-040 Calculation Results

## ARS1-B13-01094

| | |
|---|---|
| ACF | 1 |
| UCF | 2.22 |
| Sys Error | 0.15 |

| AnalysisCode | ABatchSampleID | Average_Sample_CPM | Bkg_CPM | tSIE | Detector_Eff_decimal | Aliquot | AliqUnits | Activity_reference_date | Start_Date_of_Count | Sample_Count_Duration_min |
|---|---|---|---|---|---|---|---|---|---|---|
| LSC-A-022 | ARS1-B13-01094-01 | 3.576 | 1.100 | 381.410 | 0.247 | 0.01004 | L | 9/7/2012 | 6/14/2013 | 240.000 |
| LSC-A-022 | ARS1-B13-01094-02 | 2.728 | 1.100 | 380.130 | 0.247 | 0.01001 | L | 9/7/2012 | 6/14/2013 | 240.000 |
| LSC-A-022 | ARS1-B13-01094-03 | 1.259 | 1.100 | 397.670 | 0.254 | 0.01000 | L | 6/13/2013 | 6/14/2013 | 240.000 |
| LSC-A-022 | ARS1-B13-01094-04 | | 1.100 | | | 0.01007 | L | 5/21/2013 | | |
| LSC-A-022 | ARS1-B13-01094-05 | 4.108 | 1.100 | 379.980 | 0.247 | 0.01006 | L | 5/17/2013 | 6/14/2013 | 240.000 |
| LSC-A-022 | ARS1-B13-01094-06 | 1.182 | 1.100 | 375.970 | 0.245 | 0.01004 | L | 5/22/2013 | 6/14/2013 | 240.000 |

## ARS-040 Calculation Results

### ARS1-B13-01094

| | |
|---|---|
| ACF | 1 |
| UCF | 2.22 |
| Sys Error | 0.15 |

| AnalysisCode | ABatchSampleID | AliquotReportUnits | UserID | ModDate |
|---|---|---|---|---|
| LSC-A-022 | ARS1-B13-01094-01 | L | AMRAD\PSIMS | 6/17/2013 |
| LSC-A-022 | ARS1-B13-01094-02 | L | AMRAD\PSIMS | 6/17/2013 |
| LSC-A-022 | ARS1-B13-01094-03 | L | AMRAD\PSIMS | 6/17/2013 |
| LSC-A-022 | ARS1-B13-01094-04 | L | AMRAD\PSIMS | 6/17/2013 |
| LSC-A-022 | ARS1-B13-01094-05 | L | AMRAD\PSIMS | 6/17/2013 |
| LSC-A-022 | ARS1-B13-01094-06 | L | AMRAD\PSIMS | 6/17/2013 |

Calibration Information
Software Version IC: 2.12
Software Version EC: 2.03
Instrument Model: Tri-Carb 3170TR/SL
Instrument Serial Number: 423814
3H Chi Square: 16.95 Date Processed: 6/15/2013 1:18:51 AM
14C Chi Square: 5.48 Date Processed: 6/15/2013 1:18:51 AM
3H E^2/B (1-18.6 keV): 1918.86 Date Processed: 6/15/2013 1:18:51 AM
14C E^2/B (4-156 keV): 7389.97 Date Processed: 6/15/2013 1:18:51 AM
3H Efficiency (0-18.6 keV): 62.91 Date Processed: 6/15/2013 1:18:51 AM
14C Efficiency (0-156 keV): 95.49 Date Processed: 6/15/2013 1:18:51 AM
IPA Background Date Processed: 6/15/2013 1:18:51 AM
3H Background CPM (0-18.6 keV): 2.06 Date Processed: 6/15/2013 1:18:51 AM
14C Background CPM (0-156 keV): 2.26 Date Processed: 6/15/2013 1:18:51 AM
3H Calibration DPM: 268700
3H Reference Date: 9/2/2011
14C Calibration DPM: 127700
===== IPA Errors and Warnings for Last Aquired Data Per Parameter ====
2/15/2009 2:09:35 AM: IPA Error - Insufficient 14C data to calculate Chi Square.
== End of IPA Errors and Warnings for Last Aquired Data Per Parameter ==

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20130613_2236
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20130613_2236\20130613_2236.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20130613_2236\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20130613_2236\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 240.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

| Regions | LL | UL | 2Sigma % Terminator |
|---|---|---|---|
| A | 2.0 | 18.6 | 0.50 |
| B | 0.0 | 2000.0 | 0.00 |
| C | 0.0 | 2000.0 | 0.00 |

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

Half Life-

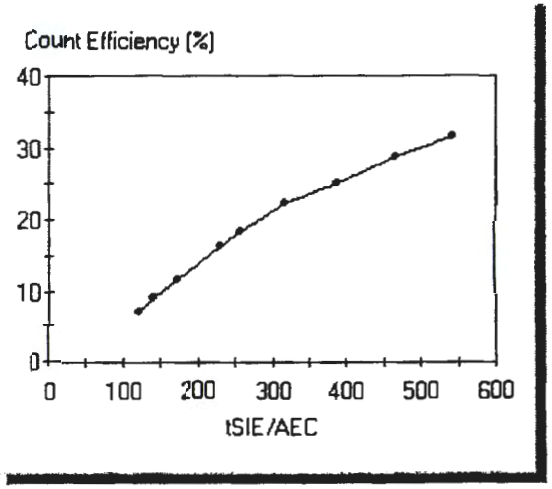
Half Life Correction: Off

| Regions | Half Life | Units | Reference Date | Reference Time |
|---|---|---|---|---|

A
B
C

Cycle 1 Results
Quench Curve Block Data

ARS LL H3 10mL in A




Date Acquired: 11/20/2012
Date Modified:
ARS LL H3 10mL in A

| tSIE/AEC | Count Efficiency (%) |
|---|---|
| 543.57 | 31.51 |
| 466.44 | 28.74 |
| 387.42 | 24.95 |
| 316.48 | 22.21 |
| 257.14 | 18.18 |
| 229.94 | 16.37 |
| 172.56 | 11.68 |
| 142.07 | 9.08 |
| 121.26 | 7.13 |

| P# | S# | SMPL_ID | CPMA | DPM1 | tSIE | Eff Nucl In A | Count Time | DATE | TIME | MESSAGES |
|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 1 | BACKGROUND | 1.100 | 4.55 | 367.64 | 24.18 | 240.00 | 6/13/2013 | 10:45:30 PM | |
| 2 | 2 | B13-01094-01 | 3.576 | 14.47 | 381.41 | 24.72 | 240.00 | 6/14/2013 | 2:56:29 AM | |
| 2 | 3 | B13-01094-02 | 2.728 | 11.06 | 380.13 | 24.67 | 240.00 | 6/14/2013 | 7:07:35 AM | |
| 2 | 4 | B13-01094-03 | 1.259 | 4.95 | 397.67 | 25.44 | 240.00 | 6/14/2013 | 11:18:32 AM | |
| 2 | 5 | B13-01094-05 | 4.108 | 16.66 | 379.98 | 24.66 | 240.00 | 6/14/2013 | 3:30:00 PM | |
| 2 | 6 | B13-01094-06 | 1.182 | 4.82 | 375.97 | 24.51 | 240.00 | 6/14/2013 | 7:40:59 PM | |

# ARS-040



| ID_31001_040 | ABatch | AnalysisCode | ABatchSampleID | ClientID | IC_ID | S01_1_EnrichCellNo |
|---|---|---|---|---|---|---|
| 656 | ARS1-B13-01094 | LSC-A-022 | ARS1-B13-01094-01 | | | 45 |
| 657 | ARS1-B13-01094 | LSC-A-022 | ARS1-B13-01094-02 | | | 38 |
| 658 | ARS1-B13-01094 | LSC-A-022 | ARS1-B13-01094-03 | | | 85 |
| 659 | ARS1-B13-01094 | LSC-A-022 | ARS1-B13-01094-04 | CAMO-13-30615 | | 55 |
| 660 | ARS1-B13-01094 | LSC-A-022 | ARS1-B13-01094-05 | CAMO-13-30584 | | 48 |
| 661 | ARS1-B13-01094 | LSC-A-022 | ARS1-B13-01094-06 | CAMO-13-30585 | | 3 |

| S01_2_TareCell | S01_3_TareResv | S02_GrossWtResv | S03_1_WtNa2O2 | C_GrossSampleAdded | S04_1_ElectrolSD |
|---|---|---|---|---|---|
| 322.47 | 205.84 | 712 | 2 | 506.16 | 05/30/2013 15:08:00 |
| 334.99 | 213.4 | 713.96 | 2.02 | 500.56 | 05/30/2013 15:08:00 |
| 333.17 | 192.6 | 692.95 | 2.04 | 500.35 | 05/30/2013 15:08:00 |
| 329.67 | 200.05 | 700.05 | 2.01 | 500 | 05/30/2013 15:08:00 |
| 336.93 | 202.4 | 702.44 | 2.03 | 500.04 | 05/30/2013 15:08:00 |
| 326.68 | 193.8 | 693.85 | 2 | 500.05 | 05/30/2013 15:08:00 |

| S04_2_StartAmp | S04_3_StartBathC | S05_1_ElectrolED | S05_2_EndBathC | S05_3_EndCellWt | C_GrossSmplRec |
|---|---|---|---|---|---|
| 5 | 2 | 06/13/2013 07:11:00 | 2 | 545 | 16.69 |
| 5 | 2 | 06/13/2013 07:11:00 | 2 | 565.14 | 16.75 |
| 5 | 2 | 06/13/2013 07:14:00 | 2 | 542.14 | 16.37 |
| 5 | 2 | 06/13/2013 07:16:00 | 2 | 546.74 | 17.02 |
| 5 | 2 | 06/13/2013 09:59:00 | 2 | 556.33 | 17 |
| 5 | 2 | 06/13/2013 10:01:00 | 2 | 537.49 | 17.01 |

| C_EnrichmentF | S06_TareWt | S07_GrossWt | C_RecoveredWa | S08_TearWtLSCVial | S09_VialPlusSmpl | C_NetSample |
|---|---|---|---|---|---|---|
| 30.327142 | 109.32 | 121.48 | 12.16 | 6.48 | 16.52 | 10.04 |
| 29.8841791 | 95.26 | 108.92 | 13.66 | 6.51 | 16.52 | 10.01 |
| 30.56505803 | 93.51 | 105.84 | 12.33 | 6.56 | 16.56 | 10 |
| 29.37720329 | 105.86 | 120.99 | 15.13 | 6.55 | 16.62 | 10.07 |
| 29.41411765 | 101.06 | 116.7 | 15.64 | 6.51 | 16.57 | 10.06 |
| 29.39741329 | 108.58 | 123.24 | 14.66 | 6.52 | 16.56 | 10.04 |

| S10_1_WtVislSmplDrWatFill | C_NetDeadWaterAdded | C_TareWtBFCocktail | S10_2_GrossWtVSC | C_NetWtCocktailAdded |
|---|---|---|---|---|
| 0 | 0 | 16.52 | 26.67 | 10.15 |
| 0 | 0 | 16.52 | 26.76 | 10.24 |
| 0 | 0 | 16.56 | 27.05 | 10.49 |
| 0 | 0 | 16.62 | 26.84 | 10.22 |
| 0 | 0 | 16.57 | 26.8 | 10.23 |
| 0 | 0 | 16.56 | 26.813 | 10.253 |

| UserID | ModDate |
|---|---|
| AMRAD\PSIMS | 06/13/2013 11:15:44 |
| AMRAD\PSIMS | 06/13/2013 11:19:14 |
| AMRAD\PSIMS | 06/13/2013 11:24:39 |
| AMRAD\PSIMS | 06/13/2013 11:28:17 |
| AMRAD\PSIMS | 06/13/2013 12:55:33 |
| AMRAD\PSIMS | 06/13/2013 13:48:34 |

# Technical Notes



| | | |
|---|---|---|
| Batch | ARS1-B13-01094 | |
| Analysis Code | LSC-A-022 | |
| Procedure No | ARS-040 | |
| Matrix | AQ | |

| # | Date | Dept | Batch Technical Notes | User ID |
|---|---|---|---|---|
| 1 | 06/17/13 07:12 | CHEMISTRY | Sample B13-01094-04 , SDG ARS1-13-01038, was removed from batch after cryodistillation, due to the sample being to basic and not reacting correctly with the cocktail. | AMRAD\PSIMS |

**ARS Batch Number:** ARS1-B13 - 01094

Enter these Values for LCS

| | | Report Name | Field Name on the Report |
|---|---|---|---|
| Current ACT | 5.4838 | Standards Report | ACT at Date Above (dpm/g) |
| NetWt | 5.0897 | LCS Report | NetWt |
| Aliquot | 0.5062 | Tritium Enrichment Data | Gross Sample Added/1000 |

Enter these Values for LCSD

| | | Report Name | Field Name on the Report |
|---|---|---|---|
| Current ACT | 5.4838 | Standards Report | ACT at Date Above (dpm/g) |
| NetWt | 5.0638 | LCS Report | NetWt |
| Aliquot | 0.5006 | Tritium Enrichment Data | Gross Sample Added/1000 |

## Expected Value Calculations

**ARS Batch Number:** ARS1-B11 - 01094

| | | | | | | |
|---|---|---|---|---|---|---|
| LCS | CALCULATED EXPECTED VALUE | = | 24.839 | | | |
| | | | Range | 19.871 | - | 29.807 |
| LCSD | CALCULATED EXPECTED VALUE | = | 24.989 | | | |
| | | | Range | 19.991 | - | 29.987 |

EXIT Exit

AMRAD AMERICAN RADIATION SERVICES, LLC

# Standards Activity as of: 06/14/13 02:56

| Active | Std ID | Isotope | PSCLT | Verification Date | Exp Date | Status | Ref Date | Ref ACT (dpm) | ACT at Date Above (dpm/g) | Halflife (days) | Parent ID | Expended Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **A** | **S-0279** | H-3 | **SL** | 09/10/12 | 09/10/13 | OK | 09/07/12 | 5.7255E+00 | **5.4838** | 4.500E+03 | **S-0237** | |

# Beta Liquid Scintillation Counter Log Book

| Date | Time | ARS Sample I.D. Number | Batch Number | Liquid Scintillation File Number | Technic Initial |
|---|---|---|---|---|---|
| 6-7-13 | 11:19 | BIJ-01030-05 | BIJ-01030 | 2103 | PDJ |
| ↓ | ↓ | BIJ-01030-06 | ↓ | ↓ | PDJ |
| ↓ | ↓ | BIJ-01030-09 | ↓ | ↓ | PDJ |
| ↓ | ↓ | BIJ-01030-10 | ↓ | ↓ | PDJ |
| 6-10-13 | 9:00 | Smoke | Out | Out | PDJ |
| ↓ | ↓ | Background | BIJ-01241 | 1042 | PDJ |
| ↓ | ↓ | BIJ-01241-05 | ↓ | ↓ | PDJ |
| 6-13-13 | 12:21 | Smoke | Out | Out | PDJ |
| ↓ | ↓ | Background | BIJ-01176 | 1356 | PDJ |
| ↓ | ↓ | BIJ-01176-01 | ↓ | ↓ | PDJ |
| ↓ | 13:50 | Background | BIJ-01094 | 2236 | PDJ |
| ↓ | ↓ | BIJ-01094-01 | ↓ | ↓ | PDJ |
| ↓ | ↓ | ↓ -02 | ↓ | ↓ | PDJ |
| ↓ | ↓ | ↓ -03 | ↓ | ↓ | PDJ |
| ↓ | ↓ | ↓ -05 | ↓ | ↓ | PDJ |
| ↓ | ↓ | ↓ - 06 | ↓ | ↓ | PDJ |
| | | | | | |
| | | PDJ | | | |
| | 6-17-13 | | | | |
| | | | | | |



Reviewed By: SDA Initials Date: 6-19-13

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

# American Radiation Services Analytical Reports

for

# Los Alamos National Laboratory

# Low Level Tritium by Low Level Liquid Scintillation Counting

# Control Charts

3H Efficiency

Total # pts : 5639
Valid # pts : 157
Mean : 62.74
SD : 0.26

| Date | Value | Valid Pt |
|---|---|---|
| Jun 21, 2012 | 63.04 | X |
| Jun 22, 2012 | 63.16 | X |
| Jun 25, 2012 | 63.09 | X |
| Jun 27, 2012 | 62.70 | X |
| Jun 27, 2012 | 62.99 | X |
| Jun 28, 2012 | 63.05 | X |
| Jun 29, 2012 | 62.93 | X |
| Jun 30, 2012 | 62.97 | X |
| Jul 05, 2012 | 62.86 | X |
| Jul 11, 2012 | 63.07 | X |
| Jul 12, 2012 | 62.85 | X |
| Jul 16, 2012 | 63.12 | X |
| Jul 20, 2012 | 63.22 | X |
| Jul 22, 2012 | 63.22 | X |
| Jul 26, 2012 | 63.19 | X |
| Jul 27, 2012 | 63.52 | X |
| Aug 09, 2012 | 62.77 | X |
| Aug 13, 2012 | 63.03 | X |
| Aug 14, 2012 | 62.90 | X |
| Aug 16, 2012 | 62.85 | X |
| Aug 17, 2012 | 63.22 | X |
| Aug 18, 2012 | 63.03 | X |
| Aug 21, 2012 | 62.94 | X |
| Aug 22, 2012 | 63.04 | X |
| Aug 26, 2012 | 63.29 | X |
| Aug 27, 2012 | 62.99 | X |
| Aug 27, 2012 | 63.17 | X |
| Sep 05, 2012 | 63.39 | X |
| Sep 09, 2012 | 62.96 | X |
| Sep 11, 2012 | 63.03 | X |
| Sep 17, 2012 | 63.15 | X |
| Sep 18, 2012 | 62.86 | X |
| Sep 20, 2012 | 62.86 | X |
| Sep 20, 2012 | 62.80 | X |
| Sep 24, 2012 | 63.14 | X |
| Sep 28, 2012 | 63.03 | X |
| Oct 01, 2012 | 62.85 | X |
| Oct 04, 2012 | 62.68 | X |
| Oct 05, 2012 | 62.88 | X |
| Oct 06, 2012 | 62.98 | X |
| Oct 11, 2012 | 62.74 | X |
| Oct 12, 2012 | 63.08 | X |

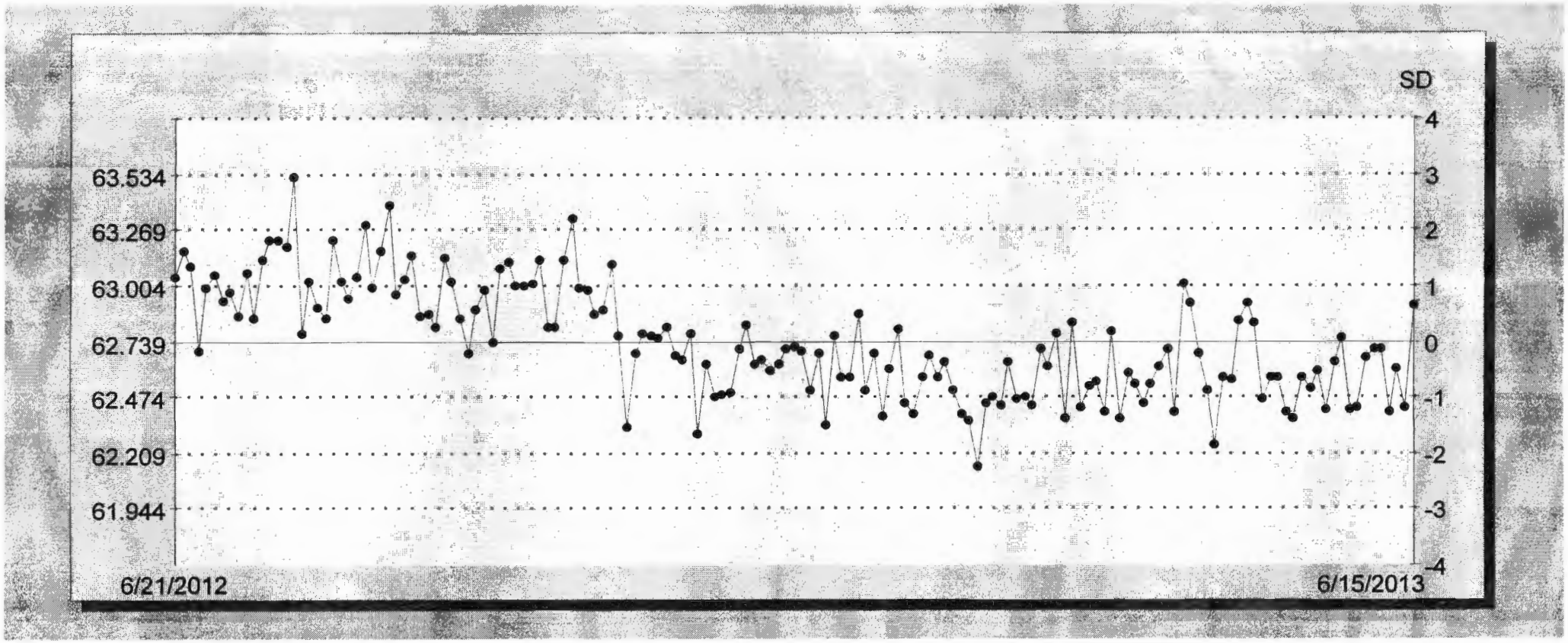
| | | |
|---|---|---|
| Oct 13, 2012 | 63.12 | X |
| Oct 17, 2012 | 63.00 | X |
| Oct 19, 2012 | 63.00 | X |
| Oct 22, 2012 | 63.02 | X |
| Oct 23, 2012 | 63.13 | X |
| Oct 23, 2012 | 62.80 | X |
| Oct 23, 2012 | 62.81 | X |
| Oct 23, 2012 | 63.13 | X |
| Oct 25, 2012 | 63.32 | X |
| Oct 27, 2012 | 62.99 | X |
| Oct 31, 2012 | 62.98 | X |
| Nov 02, 2012 | 62.87 | X |
| Nov 02, 2012 | 62.89 | X |
| Nov 04, 2012 | 63.11 | X |
| Nov 05, 2012 | 62.76 | X |
| Nov 10, 2012 | 62.33 | X |
| Nov 12, 2012 | 62.69 | X |
| Nov 12, 2012 | 62.77 | X |
| Nov 13, 2012 | 62.76 | X |
| Nov 14, 2012 | 62.75 | X |
| Nov 15, 2012 | 62.81 | X |
| Nov 18, 2012 | 62.68 | X |
| Nov 19, 2012 | 62.65 | X |
| Nov 19, 2012 | 62.78 | X |
| Nov 20, 2012 | 62.30 | X |
| Nov 21, 2012 | 62.63 | X |
| Nov 23, 2012 | 62.47 | X |
| Dec 04, 2012 | 62.48 | X |
| Dec 08, 2012 | 62.49 | X |
| Dec 12, 2012 | 62.70 | X |
| Dec 14, 2012 | 62.81 | X |
| Dec 15, 2012 | 62.63 | X |
| Dec 21, 2012 | 62.66 | X |
| Dec 21, 2012 | 62.60 | X |
| Dec 31, 2012 | 62.63 | X |
| Jan 02, 2013 | 62.70 | X |
| Jan 09, 2013 | 62.72 | X |
| Jan 10, 2013 | 62.69 | X |
| Feb 01, 2013 | 62.50 | X |
| Feb 02, 2013 | 62.68 | X |
| Feb 06, 2013 | 62.34 | X |
| Feb 08, 2013 | 62.77 | X |
| Feb 08, 2013 | 62.57 | X |
| Feb 15, 2013 | 62.57 | X |
| Feb 17, 2013 | 62.87 | X |
| Feb 18, 2013 | 62.50 | X |
| Feb 20, 2013 | 62.68 | X |
| Feb 21, 2013 | 62.38 | X |
| Feb 22, 2013 | 62.61 | X |
| Feb 28, 2013 | 62.80 | X |
| Mar 01, 2013 | 62.45 | X |
| Mar 01, 2013 | 62.39 | X |

| | | |
|---|---|---|
| Mar 04, 2013 | 62.67 | X |
| Mar 04, 2013 | 62.57 | X |
| Mar 06, 2013 | 62.64 | X |
| Mar 08, 2013 | 62.50 | X |
| Mar 08, 2013 | 62.39 | X |
| Mar 14, 2013 | 62.36 | X |
| Mar 15, 2013 | 62.14 | X |
| Mar 18, 2013 | 62.45 | X |
| Mar 22, 2013 | 62.47 | X |
| Mar 22, 2013 | 62.43 | X |
| Mar 23, 2013 | 62.64 | X |
| Mar 28, 2013 | 62.47 | X |
| Mar 29, 2013 | 62.47 | X |
| Apr 04, 2013 | 62.44 | X |
| Apr 05, 2013 | 62.70 | X |
| Apr 07, 2013 | 62.62 | X |
| Apr 11, 2013 | 62.77 | X |
| Apr 12, 2013 | 62.38 | X |
| Apr 15, 2013 | 62.83 | X |
| Apr 16, 2013 | 62.42 | X |
| Apr 16, 2013 | 62.53 | X |
| Apr 16, 2013 | 62.55 | X |
| Apr 16, 2013 | 62.41 | X |
| Apr 16, 2013 | 62.78 | X |
| Apr 16, 2013 | 62.37 | X |
| Apr 18, 2013 | 62.59 | X |
| Apr 19, 2013 | 62.54 | X |
| Apr 22, 2013 | 62.44 | X |
| Apr 24, 2013 | 62.54 | X |
| Apr 24, 2013 | 62.62 | X |
| Apr 25, 2013 | 62.71 | X |
| Apr 25, 2013 | 62.40 | X |
| Apr 27, 2013 | 63.02 | X |
| Apr 29, 2013 | 62.92 | X |
| May 01, 2013 | 62.68 | X |
| May 03, 2013 | 62.51 | X |
| May 06, 2013 | 62.24 | X |
| May 07, 2013 | 62.57 | X |
| May 09, 2013 | 62.56 | X |
| May 09, 2013 | 62.84 | X |
| May 09, 2013 | 62.92 | X |
| May 09, 2013 | 62.83 | X |
| May 09, 2013 | 62.46 | X |
| May 10, 2013 | 62.57 | X |
| May 14, 2013 | 62.57 | X |
| May 15, 2013 | 62.40 | X |
| May 16, 2013 | 62.37 | X |
| May 17, 2013 | 62.57 | X |
| May 17, 2013 | 62.52 | X |
| May 17, 2013 | 62.60 | X |
| May 17, 2013 | 62.41 | X |
| May 21, 2013 | 62.65 | X |

| | | |
|---|---|---|
| May 24, 2013 | 62.41 | X |
| May 24, 2013 | 62.42 | X |
| May 29, 2013 | 62.66 | X |
| Jun 07, 2013 | 62.70 | X |
| Jun 07, 2013 | 62.70 | X |
| Jun 09, 2013 | 62.40 | X |
| Jun 10, 2013 | 62.61 | X |
| Jun 13, 2013 | 62.43 | X |
| Jun 15, 2013 | 62.91 | X |

3H Efficiency

| | |
|---|---|
| Total # pts | : 5639 |
| Valid # pts | : 157 |
| Mean | : 62.74 |
| SD | : 0.26 |



3H Background
Total # pts : 5565
Valid # pts : 157
Mean : 2.12
SD : 0.17

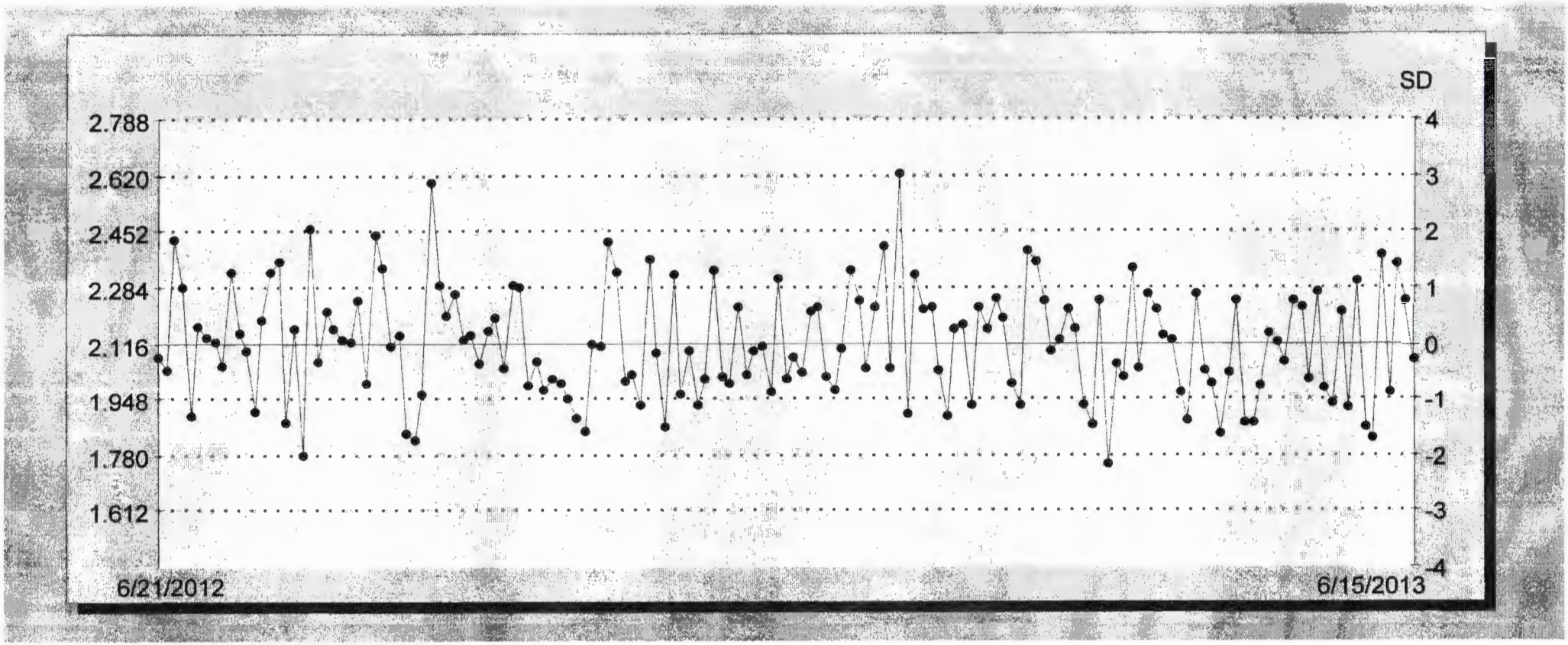
| Date | Value | Valid Pt |
|---|---|---|
| Jun 21, 2012 | 2.08 | X |
| Jun 22, 2012 | 2.04 | X |
| Jun 25, 2012 | 2.43 | X |
| Jun 27, 2012 | 2.28 | X |
| Jun 27, 2012 | 1.90 | X |
| Jun 28, 2012 | 2.16 | X |
| Jun 29, 2012 | 2.13 | X |
| Jun 30, 2012 | 2.12 | X |
| Jul 05, 2012 | 2.05 | X |
| Jul 11, 2012 | 2.33 | X |
| Jul 12, 2012 | 2.15 | X |
| Jul 16, 2012 | 2.09 | X |
| Jul 20, 2012 | 1.91 | X |
| Jul 22, 2012 | 2.19 | X |
| Jul 26, 2012 | 2.33 | X |
| Jul 27, 2012 | 2.36 | X |
| Aug 09, 2012 | 1.88 | X |
| Aug 13, 2012 | 2.16 | X |
| Aug 14, 2012 | 1.78 | X |
| Aug 16, 2012 | 2.46 | X |
| Aug 17, 2012 | 2.06 | X |
| Aug 18, 2012 | 2.21 | X |
| Aug 21, 2012 | 2.16 | X |
| Aug 22, 2012 | 2.13 | X |
| Aug 26, 2012 | 2.12 | X |
| Aug 27, 2012 | 2.25 | X |
| Aug 27, 2012 | 1.99 | X |
| Sep 05, 2012 | 2.44 | X |
| Sep 09, 2012 | 2.34 | X |
| Sep 11, 2012 | 2.11 | X |
| Sep 17, 2012 | 2.14 | X |
| Sep 18, 2012 | 1.85 | X |
| Sep 20, 2012 | 1.83 | X |
| Sep 20, 2012 | 1.96 | X |
| Sep 24, 2012 | 2.60 | X |
| Sep 28, 2012 | 2.29 | X |
| Oct 01, 2012 | 2.20 | X |
| Oct 04, 2012 | 2.26 | X |
| Oct 05, 2012 | 2.13 | X |
| Oct 06, 2012 | 2.14 | X |
| Oct 11, 2012 | 2.05 | X |
| Oct 12, 2012 | 2.15 | X |

| | | |
|---|---|---|
| Oct 13, 2012 | 2.19 | X |
| Oct 17, 2012 | 2.04 | X |
| Oct 19, 2012 | 2.29 | X |
| Oct 22, 2012 | 2.29 | X |
| Oct 23, 2012 | 1.99 | X |
| Oct 23, 2012 | 2.06 | X |
| Oct 23, 2012 | 1.98 | X |
| Oct 23, 2012 | 2.01 | X |
| Oct 25, 2012 | 2.00 | X |
| Oct 27, 2012 | 1.95 | X |
| Oct 31, 2012 | 1.89 | X |
| Nov 02, 2012 | 1.85 | X |
| Nov 02, 2012 | 2.11 | X |
| Nov 04, 2012 | 2.11 | X |
| Nov 05, 2012 | 2.42 | X |
| Nov 10, 2012 | 2.33 | X |
| Nov 12, 2012 | 2.00 | X |
| Nov 12, 2012 | 2.02 | X |
| Nov 13, 2012 | 1.93 | X |
| Nov 14, 2012 | 2.37 | X |
| Nov 15, 2012 | 2.09 | X |
| Nov 18, 2012 | 1.86 | X |
| Nov 19, 2012 | 2.32 | X |
| Nov 19, 2012 | 1.96 | X |
| Nov 20, 2012 | 2.09 | X |
| Nov 21, 2012 | 1.93 | X |
| Nov 23, 2012 | 2.01 | X |
| Dec 04, 2012 | 2.34 | X |
| Dec 08, 2012 | 2.02 | X |
| Dec 12, 2012 | 2.00 | X |
| Dec 14, 2012 | 2.22 | X |
| Dec 15, 2012 | 2.02 | X |
| Dec 21, 2012 | 2.09 | X |
| Dec 21, 2012 | 2.10 | X |
| Dec 31, 2012 | 1.97 | X |
| Jan 02, 2013 | 2.31 | X |
| Jan 09, 2013 | 2.01 | X |
| Jan 10, 2013 | 2.08 | X |
| Feb 01, 2013 | 2.03 | X |
| Feb 02, 2013 | 2.21 | X |
| Feb 06, 2013 | 2.22 | X |
| Feb 08, 2013 | 2.01 | X |
| Feb 08, 2013 | 1.98 | X |
| Feb 15, 2013 | 2.10 | X |
| Feb 17, 2013 | 2.34 | X |
| Feb 18, 2013 | 2.25 | X |
| Feb 20, 2013 | 2.04 | X |
| Feb 21, 2013 | 2.23 | X |
| Feb 22, 2013 | 2.41 | X |
| Feb 28, 2013 | 2.04 | X |
| Mar 01, 2013 | 2.62 | X |
| Mar 01, 2013 | 1.90 | X |

| | | |
|---|---|---|
| Mar 04, 2013 | 2.22 | X |
| Mar 04, 2013 | 2.22 | X |
| Mar 06, 2013 | 2.04 | X |
| Mar 08, 2013 | 1.90 | X |
| Mar 08, 2013 | 2.16 | X |
| Mar 14, 2013 | 2.17 | X |
| Mar 15, 2013 | 1.93 | X |
| Mar 18, 2013 | 2.22 | X |
| Mar 22, 2013 | 2.16 | X |
| Mar 22, 2013 | 2.25 | X |
| Mar 23, 2013 | 2.19 | X |
| Mar 28, 2013 | 1.99 | X |
| Mar 29, 2013 | 1.93 | X |
| Apr 04, 2013 | 2.40 | X |
| Apr 05, 2013 | 2.36 | X |
| Apr 07, 2013 | 2.25 | X |
| Apr 11, 2013 | 2.09 | X |
| Apr 12, 2013 | 2.13 | X |
| Apr 15, 2013 | 2.22 | X |
| Apr 16, 2013 | 2.16 | X |
| Apr 16, 2013 | 1.93 | X |
| Apr 16, 2013 | 1.87 | X |
| Apr 16, 2013 | 2.24 | X |
| Apr 16, 2013 | 1.75 | X |
| Apr 16, 2013 | 2.05 | X |
| Apr 18, 2013 | 2.02 | X |
| Apr 19, 2013 | 2.34 | X |
| Apr 22, 2013 | 2.04 | X |
| Apr 24, 2013 | 2.26 | X |
| Apr 24, 2013 | 2.22 | X |
| Apr 25, 2013 | 2.14 | X |
| Apr 25, 2013 | 2.13 | X |
| Apr 27, 2013 | 1.97 | X |
| Apr 29, 2013 | 1.89 | X |
| May 01, 2013 | 2.26 | X |
| May 03, 2013 | 2.04 | X |
| May 06, 2013 | 1.99 | X |
| May 07, 2013 | 1.84 | X |
| May 09, 2013 | 2.03 | X |
| May 09, 2013 | 2.24 | X |
| May 09, 2013 | 1.88 | X |
| May 09, 2013 | 1.88 | X |
| May 09, 2013 | 1.99 | X |
| May 10, 2013 | 2.15 | X |
| May 14, 2013 | 2.12 | X |
| May 15, 2013 | 2.06 | X |
| May 16, 2013 | 2.25 | X |
| May 17, 2013 | 2.23 | X |
| May 17, 2013 | 2.01 | X |
| May 17, 2013 | 2.27 | X |
| May 17, 2013 | 1.99 | X |
| May 21, 2013 | 1.94 | X |

| | | |
|---|---|---|
| May 24, 2013 | 1.92 | X |
| May 24, 2013 | 2.31 | X |
| May 29, 2013 | 1.86 | X |
| Jun 07, 2013 | 1.83 | X |
| Jun 07, 2013 | 2.38 | X |
| Jun 09, 2013 | 1.97 | X |
| Jun 10, 2013 | 2.35 | X |
| Jun 13, 2013 | 2.24 | X |
| Jun 15, 2013 | 2.06 | X |

3H Background
Total # pts : 5565
Valid # pts : 157
Mean : 2.12
SD : 0.17



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# American Radiation Services Analytical Reports

for

## Los Alamos National Laboratory

# Tritium- Screening by Low Level Liquid Scintillation Counting

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# American Radiation Services Analytical Reports

for

# Los Alamos National Laboratory

# Tritium-Screening by Low Level Liquid Scintillation Counting

# Samples

***Procedures:*** **ARS-060** **ARS-040** *Section 14.1 Tritium Screen in Clean Water without Distillation*

***ARS File ID Numbers:*** ARS1-13-01038; 1039; 1040
***ARS Batch ID:*** ARS1-B13-01059

| | Sample ID: | COUNT TIME | CPMA | Background CPMA | Eff Nucl In A | Aliquot (grams) | ACTIVITY | units | MDA | Sample Must be analyzed as LSC-A-001 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | B13-01059-04 | 120 | 1.354 | 1.482 | 24.59 | 10.03 | -23.377 | pCi/L | 119.963 | NO |
| 2 | B13-01059-05 | 120 | 1.390 | 1.482 | 24.59 | 10.05 | -16.769 | pCi/L | 119.7242 | NO |
| 3 | B13-01059-06 | 120 | 1.189 | 1.482 | 24.27 | 10.03 | -54.218 | pCi/L | 121.5447 | NO |
| 4 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 5 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 6 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 7 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 8 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 9 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 10 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 11 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 12 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 13 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 14 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 15 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 16 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 17 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 18 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 19 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 20 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 21 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 22 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 23 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |

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# American Radiation Services Analytical Reports

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# Tritium-Screening by Low Level Liquid Scintillation Counting

# Laboratory Records

# Analysis Batch Report



AMRAD
AMERICAN RADIATION SERVICES, LLC

**Analysis Batch ID** **ARS1-B13-01059**

**Method** **ARS-054** **Analysis** **LSC-A-021** **Matrix** **AQ**

**Description** **Low Level Tritium Screening**

| ABatch Sample ID | Type | Blind Iso1 | Blind Iso2 | Blind Iso3 | SDG | FR | Run | Client ID | Isotope Group | Lab Deadline |
|---|---|---|---|---|---|---|---|---|---|---|
| ARS1-B13-01059-01 | LCS | | | | | | | | | |
| ARS1-B13-01059-02 | LCSD | | | | | | | | | |
| ARS1-B13-01059-03 | MBL | | | | | | | | | |
| ARS1-B13-01059-04 | TRG | | | | **ARS1-13-01038** | 001 | 1 | CAMO-13-30615 | STD | 06/19/13 |
| ARS1-B13-01059-05 | TRG | | | | **ARS1-13-01039** | 001 | 1 | CAMO-13-30584 | STD | 06/19/13 |
| ARS1-B13-01059-06 | TRG | | | | **ARS1-13-01040** | 001 | 1 | CAMO-13-30585 | STD | 06/19/13 |

American Radiation Services
Baton Rouge Laboratory

# ARS-054



| ID_31001_054 | ABatch | ABatchSampleID | ClientID | Aliquot1 | AliquotUnits1 | IC_ID1 | Aliquot2 | AliquotUnits2 | IC_ID2 | UserID | ModDate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 12576 | ARS1-B13-01059 | ARS1-B13-01059-01 | | 1 | g | | | | | AMRAD\PSIMS | 05/24/2013 10:52:21 |
| 12577 | ARS1-B13-01059 | ARS1-B13-01059-02 | | 1 | g | | | | | AMRAD\PSIMS | 05/24/2013 10:52:21 |
| 12578 | ARS1-B13-01059 | ARS1-B13-01059-03 | | 1 | g | | | | | AMRAD\PSIMS | 05/24/2013 10:52:21 |
| 12579 | ARS1-B13-01059 | ARS1-B13-01059-04 | CAMO-13-30615 | 10.03 | g | 137130 | | | | AMRAD\PSIMS | 05/24/2013 10:52:21 |
| 12580 | ARS1-B13-01059 | ARS1-B13-01059-05 | CAMO-13-30584 | 10.05 | g | 137131 | | | | AMRAD\PSIMS | 05/24/2013 10:52:21 |
| 12581 | ARS1-B13-01059 | ARS1-B13-01059-06 | CAMO-13-30585 | 10.03 | g | 137132 | | | | AMRAD\PSIMS | 05/24/2013 10:52:21 |

Assay Definition-

Assay Description:
Low Low Level Tritium

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\ARS\Low Low Level Tritium\20130524_1242
Raw Results Path: C:\Packard\Tricarb\Results\ARS\Low Low Level Tritium\20130524_1242\20130524_1242.results
RTF File Name: C:\Packard\Tricarb\Results\ARS\Low Low Level Tritium\20130524_1242\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\ARS\Low Low Level Tritium\20130524_1242\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Low Level Tritium.lsa

Count Conditions-

Nuclide: H-3 LL
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10
Count Time (min): 120.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 2
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

| Regions | LL | UL | 2Sigma % Terminator |
|---|---|---|---|
| A | 2.0 | 18.6 | 0.50 |
| B | 0.0 | 2000.0 | 0.00 |
| C | 0.0 | 2000.0 | 0.00 |

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

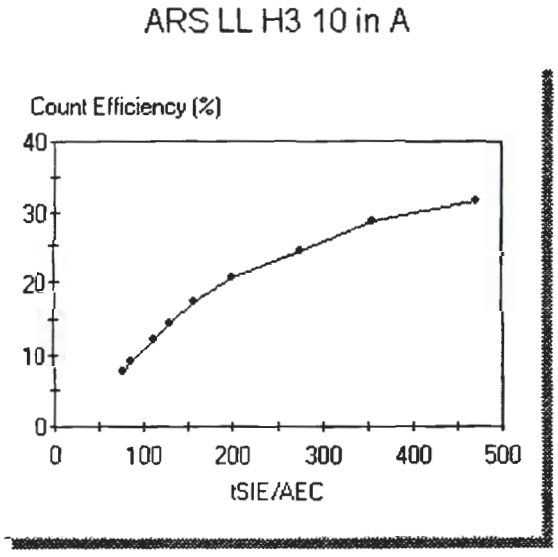
Half Life-

Half Life Correction: Off

| Regions | Half Life | Units | Reference Date | Reference Time |
|---|---|---|---|---|

A
B
C

Cycle 1 Results
Quench Curve Block Data




Date Acquired: 07/12/2012
Date Modified:
ARS LL H3 10 in A

| tSIE/AEC | Count Efficiency (%) |
|---|---|
| 469.86 | 31.67 |
| 355.16 | 28.64 |
| 276.20 | 24.37 |
| 198.58 | 20.90 |
| 156.80 | 17.54 |
| 129.38 | 14.41 |
| 110.19 | 12.01 |
| 86.31 | 8.98 |
| 76.97 | 7.55 |

| P# | S# | SMPL_ID | CPMA | DPM1 | tSIE | Eff Nucl In A | Count Time | DATE | TIME | MESSAGES |
|---|---|---|---|---|---|---|---|---|---|---|
| 41 | 1 | BACKGROUND | 1.461 | 5.992 | 276.38 | 24.38 | 120.00 | 5/24/2013 | 12:51:59 PM | |
| 41 | 1 | BACKGROUND | 1.504 | 6.165 | 276.77 | 24.40 | 120.00 | 5/24/2013 | 3:03:43 PM | |
| | | | 1.482 | 6.078 | 276.58 | 24.39 | | | | A |
| 41 | 2 | B13-01059-04 | 1.451 | 5.907 | 280.01 | 24.57 | 120.00 | 5/24/2013 | 5:15:40 PM | |
| 41 | 2 | B13-01059-04 | 1.257 | 5.105 | 280.75 | 24.61 | 120.00 | 5/24/2013 | 7:27:24 PM | |
| | | | 1.354 | 5.506 | 280.38 | 24.59 | | | | A |
| 41 | 3 | B13-01059-05 | 1.504 | 6.123 | 279.84 | 24.56 | 120.00 | 5/24/2013 | 9:39:22 PM | |
| 41 | 3 | B13-01059-05 | 1.277 | 5.189 | 280.64 | 24.61 | 120.00 | 5/24/2013 | 11:51:08 PM | |
| | | | 1.390 | 5.656 | 280.24 | 24.59 | | | | A |
| 41 | 4 | B13-01059-06 | 1.187 | 4.885 | 274.45 | 24.29 | 120.00 | 5/25/2013 | 2:03:06 AM | |
| 41 | 4 | B13-01059-06 | 1.191 | 4.913 | 273.50 | 24.25 | 120.00 | 5/25/2013 | 4:14:50 AM | |
| | | | 1.189 | 4.899 | 273.97 | 24.27 | | | | A |

# Beta Liquid Scintillation Counter Log Book

| Date | Time | ARS Sample I.D. Number | Batch Number | Liquid Scintillation File Number | Technician Initials |
|---|---|---|---|---|---|
| 4-19-13 | 1418 | B13-00784-13 | B13-00784 | 1618 | [illegible] |
| ↓ | ↓ | B13-00784-14 | ↓ | ↓ | [illegible] |
| ↓ | ↓ | B13-00784-15 | ↓ | ↓ | [illegible] |
| 5-9-13 | 15:42 | SNC 18 | QA | QA | PDJ |
| ↓ | ↓ | Background | B13-00955 | 1727 | PDJ |
| ↓ | ↓ | B13-00955-04 | ↓ | ↓ | PDJ |
| ↓ | ↓ | B13-00955-05 | ↓ | ↓ | PDJ |
| ↓ | ↓ | B13-00955-06 | ↓ | ↓ | PDJ |
| ↓ | ↓ | B13-00955-07 | ↓ | ↓ | PDJ |
| 5-10-13 | 7:00 | Background | B13-00955 | 0707 | PDJ |
| ↓ | ↓ | B13-00955-05 | ↓ | ↓ | PDJ |
| 5-21-13 | 15:24 | SNC18 | QA | QA | DDJ |
| ↓ | ↓ | Background | D13-01027 | | PDJ |
| ↓ | ↓ | D13-01027-04 | ↓ | ↓ | PDJ |
| ↓ | ↓ | D13-01027-05 | ↓ | ↓ | PDJ |
| 5-24-13 | 10:59 | SNC18 | QA | QA | PDJ |
| ↓ | ↓ | Background | B13-01059 | | PDJ |
| ↓ | ↓ | B13-01059-04 | ↓ | ↓ | PDJ |
| ↓ | ↓ | D13-01059-05 | ↓ | ↓ | PDJ |
| ↓ | ↓ | B13-01059-06 | ↓ | ↓ | PDJ |



Reviewed By: SDR Date: 6-19-13
Initials

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# Los Alamos National Laboratory

# Tritium-Screening by Low Level Liquid Scintillation Counting

# Control Charts

H Efficiency
'otal # pts : 5639
'alid # pts : 157
:ean : 62.74
D : 0.26

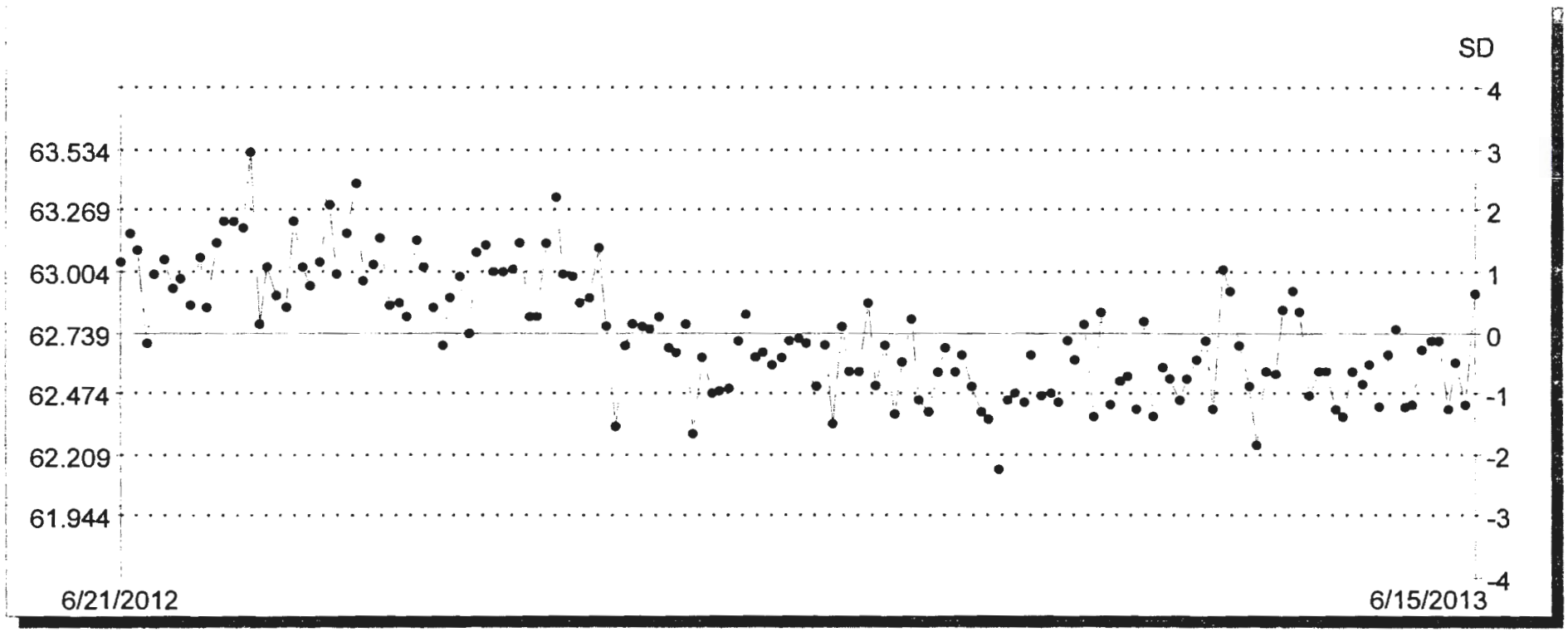
| 'ate | Value | Valid Pt |
|---|---|---|
| 'un 21, 2012 | 63.04 | X |
| 'un 22, 2012 | 63.16 | X |
| un 25, 2012 | 63.09 | X |
| un 27, 2012 | 62.70 | X |
| un 27, 2012 | 62.99 | X |
| un 28, 2012 | 63.05 | X |
| un 29, 2012 | 62.93 | X |
| un 30, 2012 | 62.97 | X |
| ul 05, 2012 | 62.86 | X |
| ul 11, 2012 | 63.07 | X |
| ul 12, 2012 | 62.85 | X |
| ul 16, 2012 | 63.12 | X |
| ul 20, 2012 | 63.22 | X |
| ul 22, 2012 | 63.22 | X |
| ul 26, 2012 | 63.19 | X |
| ul 27, 2012 | 63.52 | X |
| ug 09, 2012 | 62.77 | X |
| ug 13, 2012 | 63.03 | X |
| ug 14, 2012 | 62.90 | X |
| ug 16, 2012 | 62.85 | X |
| ug 17, 2012 | 63.22 | X |
| ug 18, 2012 | 63.03 | X |
| ug 21, 2012 | 62.94 | X |
| ug 22, 2012 | 63.04 | X |
| ug 26, 2012 | 63.29 | X |
| ug 27, 2012 | 62.99 | X |
| ug 27, 2012 | 63.17 | X |
| ep 05, 2012 | 63.39 | X |
| ep 09, 2012 | 62.96 | X |
| ep 11, 2012 | 63.03 | X |
| ep 17, 2012 | 63.15 | X |
| ep 18, 2012 | 62.86 | X |
| ep 20, 2012 | 62.86 | X |
| ep 20, 2012 | 62.80 | X |
| ep 24, 2012 | 63.14 | X |
| ep 28, 2012 | 63.03 | X |
| ct 01, 2012 | 62.85 | X |
| ct 04, 2012 | 62.68 | X |
| ct 05, 2012 | 62.88 | X |
| ct 06, 2012 | 62.98 | X |
| ct 11, 2012 | 62.74 | X |
| ct 12, 2012 | 63.08 | X |

| | | | |
|---|---|---|---|
| )ct | 13, 2012 | 63.12 | X |
| )ct | 17, 2012 | 63.00 | X |
| )ct | 19, 2012 | 63.00 | X |
| )ct | 22, 2012 | 63.02 | X |
| )ct | 23, 2012 | 63.13 | X |
| )ct | 23, 2012 | 62.80 | X |
| )ct | 23, 2012 | 62.81 | X |
| )ct | 23, 2012 | 63.13 | X |
| )ct | 25, 2012 | 63.32 | X |
| )ct | 27, 2012 | 62.99 | X |
| )ct | 31, 2012 | 62.98 | X |
| lov | 02, 2012 | 62.87 | X |
| lov | 02, 2012 | 62.89 | X |
| lov | 04, 2012 | 63.11 | X |
| lov | 05, 2012 | 62.76 | X |
| lov | 10, 2012 | 62.33 | X |
| lov | 12, 2012 | 62.69 | X |
| lov | 12, 2012 | 62.77 | X |
| lov | 13, 2012 | 62.76 | X |
| lov | 14, 2012 | 62.75 | X |
| lov | 15, 2012 | 62.81 | X |
| lov | 18, 2012 | 62.68 | X |
| lov | 19, 2012 | 62.65 | X |
| lov | 19, 2012 | 62.78 | X |
| lov | 20, 2012 | 62.30 | X |
| lov | 21, 2012 | 62.63 | X |
| lov | 23, 2012 | 62.47 | X |
| )ec | 04, 2012 | 62.48 | X |
| )ec | 08, 2012 | 62.49 | X |
| )ec | 12, 2012 | 62.70 | X |
| )ec | 14, 2012 | 62.81 | X |
| )ec | 15, 2012 | 62.63 | X |
| )ec | 21, 2012 | 62.66 | X |
| )ec | 21, 2012 | 62.60 | X |
| )ec | 31, 2012 | 62.63 | X |
| 'an | 02, 2013 | 62.70 | X |
| 'an | 09, 2013 | 62.72 | X |
| 'an | 10, 2013 | 62.69 | X |
| 'eb | 01, 2013 | 62.50 | X |
| 'eb | 02, 2013 | 62.68 | X |
| 'eb | 06, 2013 | 62.34 | X |
| 'eb | 08, 2013 | 62.77 | X |
| 'eb | 08, 2013 | 62.57 | X |
| 'eb | 15, 2013 | 62.57 | X |
| 'eb | 17, 2013 | 62.87 | X |
| 'eb | 18, 2013 | 62.50 | X |
| 'eb | 20, 2013 | 62.68 | X |
| 'eb | 21, 2013 | 62.38 | X |
| 'eb | 22, 2013 | 62.61 | X |
| 'eb | 28, 2013 | 62.80 | X |
| lar | 01, 2013 | 62.45 | X |
| lar | 01, 2013 | 62.39 | X |

| | | | |
|---|---|---|---|
| ar 04, | 2013 | 62.67 | X |
| ar 04, | 2013 | 62.57 | X |
| ar 06, | 2013 | 62.64 | X |
| ar 08, | 2013 | 62.50 | X |
| ar 08, | 2013 | 62.39 | X |
| ar 14, | 2013 | 62.36 | X |
| ar 15, | 2013 | 62.14 | X |
| ar 18, | 2013 | 62.45 | X |
| ar 22, | 2013 | 62.47 | X |
| ar 22, | 2013 | 62.43 | X |
| ar 23, | 2013 | 62.64 | X |
| ar 28, | 2013 | 62.47 | X |
| ar 29, | 2013 | 62.47 | X |
| pr 04, | 2013 | 62.44 | X |
| pr 05, | 2013 | 62.70 | X |
| pr 07, | 2013 | 62.62 | X |
| pr 11, | 2013 | 62.77 | X |
| pr 12, | 2013 | 62.38 | X |
| pr 15, | 2013 | 62.83 | X |
| pr 16, | 2013 | 62.42 | X |
| pr 16, | 2013 | 62.53 | X |
| pr 16, | 2013 | 62.55 | X |
| pr 16, | 2013 | 62.41 | X |
| pr 16, | 2013 | 62.78 | X |
| pr 16, | 2013 | 62.37 | X |
| pr 18, | 2013 | 62.59 | X |
| pr 19, | 2013 | 62.54 | X |
| pr 22, | 2013 | 62.44 | X |
| pr 24, | 2013 | 62.54 | X |
| pr 24, | 2013 | 62.62 | X |
| pr 25, | 2013 | 62.71 | X |
| pr 25, | 2013 | 62.40 | X |
| pr 27, | 2013 | 63.02 | X |
| pr 29, | 2013 | 62.92 | X |
| ay 01, | 2013 | 62.68 | X |
| ay 03, | 2013 | 62.51 | X |
| ay 06, | 2013 | 62.24 | X |
| ay 07, | 2013 | 62.57 | X |
| ay 09, | 2013 | 62.56 | X |
| ay 09, | 2013 | 62.84 | X |
| ay 09, | 2013 | 62.92 | X |
| ay 09, | 2013 | 62.83 | X |
| ay 09, | 2013 | 62.46 | X |
| ay 10, | 2013 | 62.57 | X |
| ay 14, | 2013 | 62.57 | X |
| ay 15, | 2013 | 62.40 | X |
| ay 16, | 2013 | 62.37 | X |
| ay 17, | 2013 | 62.57 | X |
| ay 17, | 2013 | 62.52 | X |
| ay 17, | 2013 | 62.60 | X |
| ay 17, | 2013 | 62.41 | X |
| ay 21, | 2013 | 62.65 | X |

| | | |
|---|---|---|
| ay 24, 2013 | 62.41 | x |
| ay 24, 2013 | 62.42 | x |
| ay 29, 2013 | 62.66 | x |
| un 07, 2013 | 62.70 | x |
| un 07, 2013 | 62.70 | x |
| un 09, 2013 | 62.40 | x |
| un 10, 2013 | 62.61 | x |
| un 13, 2013 | 62.43 | x |
| un 15, 2013 | 62.91 | x |

I Efficiency
otal # pts : 5639
alid # pts : 157
ean : 62.74
) : 0.26



H Background
otal # pts : 5565
alid # pts : 157
ean : 2.12
D : 0.17

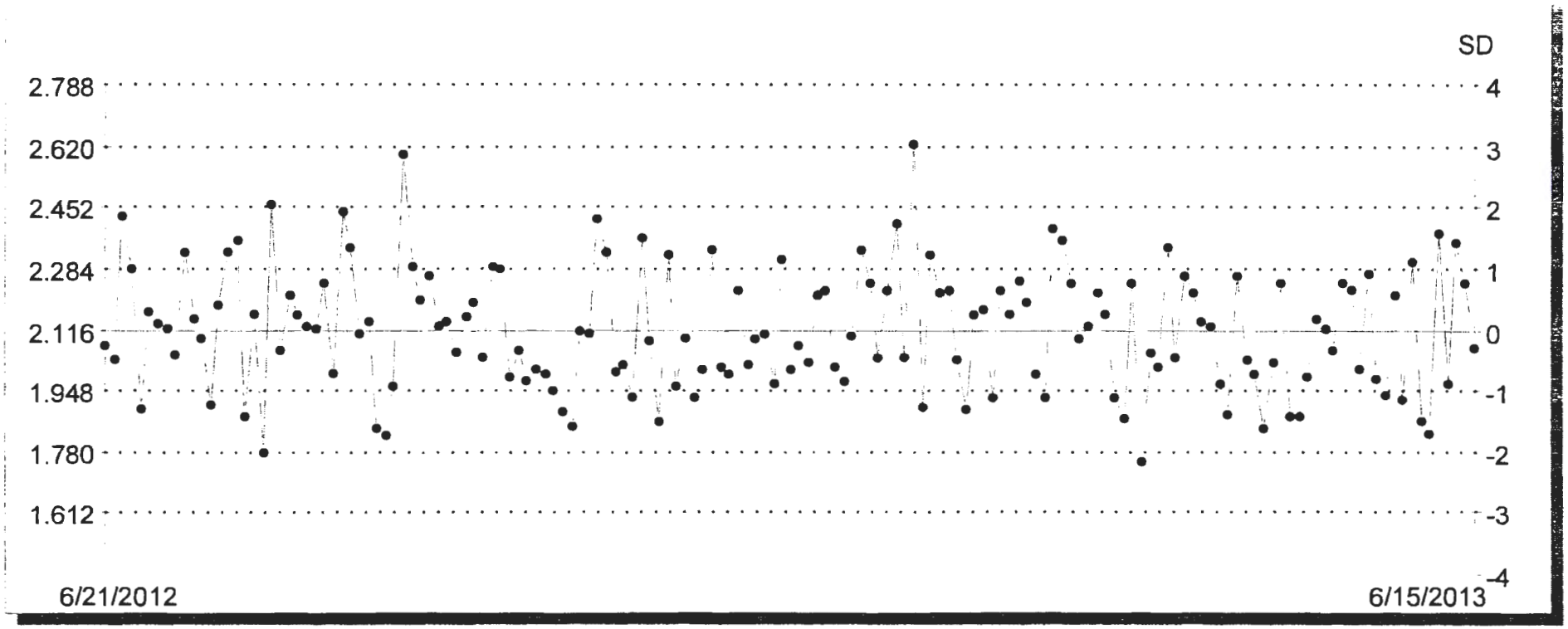
| ate | Value | Valid Pt |
|---|---|---|
| un 21, 2012 | 2.08 | X |
| un 22, 2012 | 2.04 | X |
| un 25, 2012 | 2.43 | X |
| un 27, 2012 | 2.28 | X |
| un 27, 2012 | 1.90 | X |
| un 28, 2012 | 2.16 | X |
| un 29, 2012 | 2.13 | X |
| un 30, 2012 | 2.12 | X |
| ul 05, 2012 | 2.05 | X |
| ul 11, 2012 | 2.33 | X |
| ul 12, 2012 | 2.15 | X |
| ul 16, 2012 | 2.09 | X |
| ul 20, 2012 | 1.91 | X |
| ul 22, 2012 | 2.19 | X |
| ul 26, 2012 | 2.33 | X |
| ul 27, 2012 | 2.36 | X |
| ug 09, 2012 | 1.88 | X |
| ug 13, 2012 | 2.16 | X |
| ug 14, 2012 | 1.78 | X |
| ug 16, 2012 | 2.46 | X |
| ug 17, 2012 | 2.06 | X |
| ug 18, 2012 | 2.21 | X |
| ug 21, 2012 | 2.16 | X |
| ug 22, 2012 | 2.13 | X |
| ug 26, 2012 | 2.12 | X |
| ug 27, 2012 | 2.25 | X |
| ug 27, 2012 | 1.99 | X |
| ep 05, 2012 | 2.44 | X |
| ep 09, 2012 | 2.34 | X |
| ep 11, 2012 | 2.11 | X |
| ep 17, 2012 | 2.14 | X |
| ep 18, 2012 | 1.85 | X |
| ep 20, 2012 | 1.83 | X |
| ep 20, 2012 | 1.96 | X |
| ep 24, 2012 | 2.60 | X |
| ep 28, 2012 | 2.29 | X |
| ct 01, 2012 | 2.20 | X |
| ct 04, 2012 | 2.26 | X |
| ct 05, 2012 | 2.13 | X |
| ct 06, 2012 | 2.14 | X |
| ct 11, 2012 | 2.05 | X |
| ct 12, 2012 | 2.15 | X |

| | | | |
|---|---|---|---|
| ct | 13, 2012 | 2.19 | X |
| ct | 17, 2012 | 2.04 | X |
| ct | 19, 2012 | 2.29 | X |
| ct | 22, 2012 | 2.29 | X |
| ct | 23, 2012 | 1.99 | X |
| ct | 23, 2012 | 2.06 | X |
| ct | 23, 2012 | 1.98 | X |
| ct | 23, 2012 | 2.01 | X |
| ct | 25, 2012 | 2.00 | X |
| ct | 27, 2012 | 1.95 | X |
| ct | 31, 2012 | 1.89 | X |
| ov | 02, 2012 | 1.85 | X |
| ov | 02, 2012 | 2.11 | X |
| ov | 04, 2012 | 2.11 | X |
| ov | 05, 2012 | 2.42 | X |
| ov | 10, 2012 | 2.33 | X |
| ov | 12, 2012 | 2.00 | X |
| ov | 12, 2012 | 2.02 | X |
| ov | 13, 2012 | 1.93 | X |
| ov | 14, 2012 | 2.37 | X |
| ov | 15, 2012 | 2.09 | X |
| ov | 18, 2012 | 1.86 | X |
| ov | 19, 2012 | 2.32 | X |
| ov | 19, 2012 | 1.96 | X |
| ov | 20, 2012 | 2.09 | X |
| ov | 21, 2012 | 1.93 | X |
| ov | 23, 2012 | 2.01 | X |
| ec | 04, 2012 | 2.34 | X |
| ec | 08, 2012 | 2.02 | X |
| ec | 12, 2012 | 2.00 | X |
| ec | 14, 2012 | 2.22 | X |
| ec | 15, 2012 | 2.02 | X |
| ec | 21, 2012 | 2.09 | X |
| ec | 21, 2012 | 2.10 | X |
| ec | 31, 2012 | 1.97 | X |
| an | 02, 2013 | 2.31 | X |
| an | 09, 2013 | 2.01 | X |
| an | 10, 2013 | 2.08 | X |
| eb | 01, 2013 | 2.03 | X |
| eb | 02, 2013 | 2.21 | X |
| eb | 06, 2013 | 2.22 | X |
| eb | 08, 2013 | 2.01 | X |
| eb | 08, 2013 | 1.98 | X |
| eb | 15, 2013 | 2.10 | X |
| eb | 17, 2013 | 2.34 | X |
| eb | 18, 2013 | 2.25 | X |
| eb | 20, 2013 | 2.04 | X |
| eb | 21, 2013 | 2.23 | X |
| eb | 22, 2013 | 2.41 | X |
| eb | 28, 2013 | 2.04 | X |
| ar | 01, 2013 | 2.62 | X |
| ar | 01, 2013 | 1.90 | X |

| | | | |
|---|---|---|---|
| lar | 04, 2013 | 2.22 | X |
| lar | 04, 2013 | 2.22 | X |
| lar | 06, 2013 | 2.04 | X |
| lar | 08, 2013 | 1.90 | X |
| lar | 08, 2013 | 2.16 | X |
| lar | 14, 2013 | 2.17 | X |
| lar | 15, 2013 | 1.93 | X |
| lar | 18, 2013 | 2.22 | X |
| lar | 22, 2013 | 2.16 | X |
| lar | 22, 2013 | 2.25 | X |
| lar | 23, 2013 | 2.19 | X |
| lar | 28, 2013 | 1.99 | X |
| lar | 29, 2013 | 1.93 | X |
| pr | 04, 2013 | 2.40 | X |
| pr | 05, 2013 | 2.36 | X |
| pr | 07, 2013 | 2.25 | X |
| pr | 11, 2013 | 2.09 | X |
| pr | 12, 2013 | 2.13 | X |
| pr | 15, 2013 | 2.22 | X |
| pr | 16, 2013 | 2.16 | X |
| pr | 16, 2013 | 1.93 | X |
| pr | 16, 2013 | 1.87 | X |
| pr | 16, 2013 | 2.24 | X |
| pr | 16, 2013 | 1.75 | X |
| pr | 16, 2013 | 2.05 | X |
| pr | 18, 2013 | 2.02 | X |
| pr | 19, 2013 | 2.34 | X |
| pr | 22, 2013 | 2.04 | X |
| pr | 24, 2013 | 2.26 | X |
| pr | 24, 2013 | 2.22 | X |
| pr | 25, 2013 | 2.14 | X |
| pr | 25, 2013 | 2.13 | X |
| pr | 27, 2013 | 1.97 | X |
| pr | 29, 2013 | 1.89 | X |
| ay | 01, 2013 | 2.26 | X |
| ay | 03, 2013 | 2.04 | X |
| ay | 06, 2013 | 1.99 | X |
| ay | 07, 2013 | 1.84 | X |
| ay | 09, 2013 | 2.03 | X |
| ay | 09, 2013 | 2.24 | X |
| ay | 09, 2013 | 1.88 | X |
| ay | 09, 2013 | 1.88 | X |
| ay | 09, 2013 | 1.99 | X |
| ay | 10, 2013 | 2.15 | X |
| ay | 14, 2013 | 2.12 | X |
| ay | 15, 2013 | 2.06 | X |
| ay | 16, 2013 | 2.25 | X |
| ay | 17, 2013 | 2.23 | X |
| ay | 17, 2013 | 2.01 | X |
| ay | 17, 2013 | 2.27 | X |
| ay | 17, 2013 | 1.99 | X |
| ay | 21, 2013 | 1.94 | X |

| | | |
|---|---|---|
| ay 24, 2013 | 1.92 | X |
| ay 24, 2013 | 2.31 | X |
| ay 29, 2013 | 1.86 | X |
| un 07, 2013 | 1.83 | X |
| un 07, 2013 | 2.38 | X |
| un 09, 2013 | 1.97 | X |
| un 10, 2013 | 2.35 | X |
| un 13, 2013 | 2.24 | X |
| un 15, 2013 | 2.06 | X |

( Background
)tal # pts : 5565
.lid # pts : 157
:an : 2.12
) : 0.17



ARS INTERNATIONAL

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# American Radiation Services Analytical Reports

for

# Los Alamos National Laboratory

# Low Level Liquid Scintillation Counting

# Calibration Information

ARS INTERNATIONAL

## QUALITY CONTROL PROGRAM

AMERICAN RADIATION SERVICES
RADIOACTIVE REFERENCE SOLUTIONS

# ANNUAL ACTIVITY VERIFICATION

VERIFICATION DATE: 9/10/2012 20:16 *date counted*
STANDARD REFERENCE #: S-0279

| Principal Radionuclide | | Half Life, Years | | Half Life, Days |
|---|---|---|---|---|
| H-3 | *ENTER -->* | | *OR -->* | 4.4998E+03 |
| | | 1.232E+01 | | 4.4998E+03 |

Radionuclide: H-3 Dilution Reference Date: 9/7/2012 10:40

| | | | |
|---|---|---|---|
| Dilution Activity | 2.58 | pCi per gram ===> dpm/g | 5.73 |
| Verif. Date Decay Corrected | 2.58 | pCi per gram ===> dpm/g | 5.72 |

*Minimum of 3 Required*

| Trial ID | Sample Counts | Count Time (min) | Detector | Efficiency | Bkg. (cpm) | Net Weight | Decay Corrected Activity Result (dpm/g) | Decay Corrected Activity Result (pCi/g) |
|---|---|---|---|---|---|---|---|---|
| S-0279-V1 | 15.91 | 1 | LSC | 0.3302 | 6.49 | 5.019 | 5.68 | 2.56 |
| S-0279-V2 | 16.21 | 1 | LSC | 0.3291 | 6.49 | 5.018 | 5.89 | 2.65 |
| S-0279-V3 | 15.76 | 1 | LSC | 0.3290 | 6.49 | 5.018 | 5.62 | 2.53 |
| S-0279-V4 | 15.62 | 1 | LSC | 0.3293 | 6.49 | 5.008 | 5.54 | 2.49 |
| S-0279-V5 | 15.76 | 1 | LSC | 0.3280 | 6.49 | 5.018 | 5.63 | 2.54 |

| | | |
|---|---|---|
| Average | 5.67 | 2.55 |
| Two Sigma Uncertainty | 0.26 | 0.12 |
| Standard Deviation percent of known concentration | 2.30% | 2.30% |
| Target Activity | 5.72 | 2.58 |
| % Diff | -0.91% | -0.91% |

*10% Max* *PASS*

*5% Max* *PASS*

Verification Expiration Date: ##############

Prepared & Counted By: [signature] Date: 9/10/2012 20:16

Verified & Approved By: [signature] Date: 9-11-12 0817

QC Approval: [signature] Date: 9-11-12 0817

| | | |
|---|---|---|
| **S-0279** | | |
| **H-3** | Verified | *9/10/12* |
| SL | **Expires** | **9/10/13** |
| **Manufactuer** | **NIST SRM 4927F** | |
| **Sol Matrix** | H2O | |
| **Ref No** | NIST SRM 4927F | |
| **Tech** | Unknown | |
| **Parent ID** | S-0237 | |

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RADIOACTIVE STANDARDS -- BATON ROUGE LABORATORY

**H-3 Standard Verification**

**Verifier's Name:** Brian Steffens **Date:** 9/7/2012

**Pipettor ID:** FJ40469

**Pipettor ID:** Auto-pipettor

**Pipettor ID:** na

**Standard ID:** S-0279

**Standard ID:** N/A

Standards brought up to ~5g with distilled dead water.
Standards made in glass vials.

15mL of Ultima Gold added to standard

| | Weight of Standard |
|---|---|
| S-0279-V1 | 5.019 g |
| S-0279-V2 | 5.018 g |
| S-0279-V3 | 5.018 g |
| S-0279-V4 | 5.008 g |
| S-0279-V5 | 5.018 g |
| | |
| | |
| | |
| | |
| | |

**Balance ID:** H1331122173560P

Assay Definition-

Assay Description:
H3 Normal Lvl

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931
Raw Results Path: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\20120910_0931.results
RTF File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\H3 Results.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\H3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\H-3 Normal 3.lsa

Count Conditions-

Nuclide: H-3 Normal
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: UG STD H-3
Count Time (min): 120.00
Count Mode: Normal
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

| Regions | LL | UL | 2Sigma % Terminator |
|---|---|---|---|
| A | 2.0 | 18.6 | 0.50 |
| B | 0.0 | 2000.0 | 0.00 |
| C | 0.0 | 2000.0 | 0.00 |

Count Corrections-

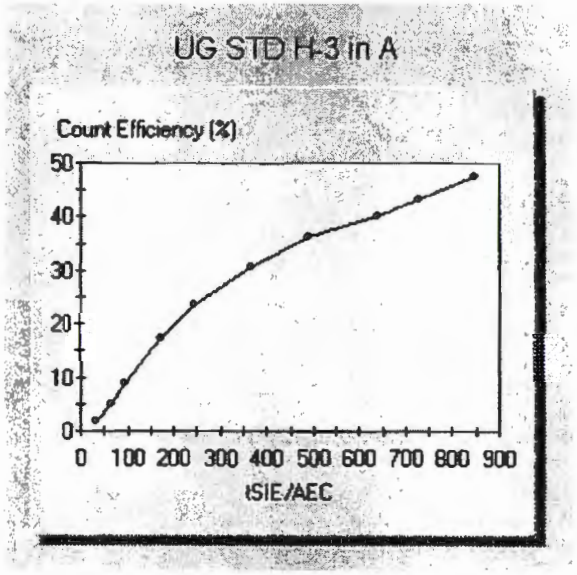
Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

Half Life

Half Life Correction: Off
Regions Half Life Units Reference Date Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data




Date Acquired: 06/27/2012
Date Modified:
UG STD H-3 in A

| tSIE/AEC | Count Efficiency (%) |
|---|---|
| 846.90 | 47.58 |
| 730.85 | 43.21 |
| 639.47 | 40.08 |
| 487.78 | 36.36 |
| 365.41 | 30.73 |
| 244.81 | 23.69 |
| 169.28 | 17.31 |
| 95.01 | 8.79 |
| 64.60 | 4.97 |
| 34.32 | 1.64 |

| P# | S# | SMPL_ID | CPMA | DPM1 | tSIE | Eff Nucl In A | Count Time | DATE | TIME | MESSAGES |
|---|---|---|---|---|---|---|---|---|---|---|
| 54 | 1 | BACKGROUND | 6.49 | 19.81 | 409.74 | 32.77 | 120.00 | 9/10/2012 | 9:36:46 AM | |
| 54 | 2 | S-0279-V1 | 15.91 | 48.18 | 415.20 | 33.02 | 120.00 | 9/10/2012 | 11:44:40 AM | |
| 54 | 3 | S-0279-V2 | 16.21 | 49.25 | 412.72 | 32.91 | 120.00 | 9/10/2012 | 1:52:36 PM | |
| 54 | 4 | S-0279-V3 | 15.76 | 47.89 | 412.56 | 32.90 | 120.00 | 9/10/2012 | 4:00:32 PM | |
| 54 | 5 | S-0279-V4 | 15.62 | 47.44 | 413.22 | 32.93 | 120.00 | 9/10/2012 | 6:08:27 PM | |
| 54 | 6 | S-0279-V5 | 15.76 | 48.04 | 410.40 | 32.80 | 120.00 | 9/10/2012 | 8:16:20 PM | |

# STD ID: S-0279

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## Add/Edit *Secondary Stds*

| Planning | |
|---|---|
| Planning Comments | Create a H3 LCS standard. |
| Target dpm/g (on dil. date) | 5.5 |
| Target Final volume mL | 2000 |
| Appx mass g of Parent Sol'n | 3.606433954 |
| Appx vol ml of Parent Sol'n | 3.612937241 |
| Expected Addition for Analysis g | 5 |

| Standards Preparation / Dilution | |
|---|---|
| Secondary Solution # | S-0279 |
| Dilution Date (New Ref Date) | 09/07/2012 10:40 |
| Ampoule, Empty (g) | |
| Ampoule /Solution Gross (g) | |
| Net Wt Removed (g) | |
| Transfer Container, empty (g) | 13.144 |
| Container Plus Solution (g) | 16.89 |
| Net Wt Transferred (g) | 3.746 |
| DPM Xferred on 09/07/2012 10:40 | 11425.69101 |
| Diluent/matrix | DI H2O |
| Diluent Density Cont, empty (g) | |
| Test Mass of 5 ml of Diluent (g) | |
| Diluent Density Test - (g/mL) | |
| Dilution Empty Container Mass (g) | 473.93 |
| Dilution Full Cont g (if measured) | 2469.52 |
| Dilution Final Volume ml (if measured) | 2000 |
| Final Dilution Density (g/mL) | 0.997795 |
| Final Dilution Measured Mass g | 1995.59 |
| Comments | H3 LCS standard. Dilution performed as stated above by B Steffens. -BJS 9/7/12 |
| Final Dilution dpm/g | 5.725470166 |
| Final Dil New Ref Date/Time | 09/07/2012 10:40 |

## Parent Standard Data

| | | | | |
|---|---|---|---|---|
| Parent Solution Reference # | NIST SRM 4927F | | | |
| Parent Solution # | S-0237 | | | |
| Parent Principal Radionuclide | H-3 | Half Life (Days) | 4499.8000000 | |
| Parent Reference Date | 03/22/2010 10:10 | | | |
| Parent Certified Act | 3503.682716 | Certi Act/Vol Units | dpm | g |
| Parent Cert Act Uncert 1 Sigma | 0.0036 | | | |
| Parent Sp Gravity G/Ml | 0.9982 | | | |
| Parent Supplier | NIST SRM 4927F | | | |
| Parent Date Recvd | 01/02/00 | | | |
| Parent Received By | Unknown | | | |
| Parent Cert Exp Date | | | | |
| Parent Matrix | H2O | | | |
| Certified dpm/g At Ref Date | 3503.682716 | | | |
| Certified dpm/g on 09/07/2012 10:40 | 3050.10438 | | | |
| Parent Comments | Intermediate level H-3 standard for creating LCS solutions and matrix spikes. Dilution performed as stated above by B Steffens. -BJS 3/22/10 | | | |
| Parent Tech | Unknown | | | |
| Is_Primary | FALSE | | | |
| Is_LCS | TRUE | | | |
| Is_Tracer | FALSE | | | |
| Is_Calib | FALSE | | | |

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# American Radiation Services Analytical Reports

for

# Los Alamos National Laboratory

# Folder Duplicate

ARS INTERNATIONAL

# Report Compilation Checklist

**ARS SDG:** 13-01040 **Client Name:** LANL **Sample Matrix:** AQ

| LEVEL 1 COMPONENTS | 1st Reviewer | |
|---|---|---|
| 1) Cover Page Complete and Accurate (see ARS-059)? | ~~Yes~~ No N/A | |
| 2) Technical Review Checklist(s) Complete and Accurate? | ~~Yes~~ No N/A | |
| 3) Case Narrative Complete and Accurate (see ARS-059)? | ~~Yes~~ No N/A | |
| 4) Form 1s Present for all Samples and Tests? | ~~Yes~~ No N/A | |
| 5) Client Specific Components are Present and Complete? | Yes No ~~N/A~~ | |

| LEVEL 2 COMPONENTS | 1st Reviewer | |
|---|---|---|
| 6) Batch Quality Control Report is Present and Accurate? | ~~Yes~~ No N/A | |
| 7) DQO Report is Present and Accurate? | ~~Yes~~ No N/A | |
| 8) Client Specific Batch QC Components are Present and Complete? | Yes No ~~N/A~~ | |

| LEVEL 3 COMPONENTS | 1st Reviewer | |
|---|---|---|
| 9) Efficiencies are Present? | ~~Yes~~ No N/A | |
| 10) Calibrations are Present? | ~~Yes~~ No N/A | |
| 11) Backgrounds are Present? | ~~Yes~~ No N/A | |
| 12) Spectrum Analysis is Present? | ~~Yes~~ No N/A | |
| 13) Spectral Plots are Present? | ~~Yes~~ No N/A | |
| 14) Plateaus are Present? | ~~Yes~~ No N/A | |
| 15) Control Charts are Present? | ~~Yes~~ No N/A | |
| 16) Other: | Yes No ~~N/A~~ | |

| LEVEL 4 COMPONENTS | 1st Reviewer | |
|---|---|---|
| 17) Preparation Raw Data Present, Signed and Complete? | ~~Yes~~ No N/A | |
| 18) Instrument Raw Data Present and Complete? | ~~Yes~~ No N/A | |
| 19) Calibration Certificates Present? | ~~Yes~~ No N/A | |
| 20) Copies of Log Book Pages Present? | ~~Yes~~ No N/A | |
| 21) Sample Receiving Documentation Present? | ~~Yes~~ No N/A | |
| 22) LIMS Reports Present? | ~~Yes~~ No N/A | |
| 23) Applicable Correspondence Present? | ~~Yes~~ No N/A | |
| 24) Other: | Yes No ~~N/A~~ | |

Report Generator Signature: [signature] Date: 6-19-13

Management Review Signature: James D. [signature] Date: 6-19-13

ARS-059
07/03/2009

# LSC
# Technical Review Checklist

**ARS SDG** ARS1-13-01040

**Sample Matrix:** AQ **Aliquot** (Circle One) : Dry As Received Filtered Other: _____

**Required QC Samples** (Mark all that apply): Blank LCS LCSD Sample Dup MS MSD

**ARS A. Batch ID(s):** **Batch A:** B13-01094 **Batch B:** NA **Batch C:** NA

**Test Method(s):** LSC-A-022 NA NA

## A. RADIOCHEMICAL PREPARATION REVIEW

| | Chemist Review | Verifier Review |
|---|---|---|
| 1) 100% of Manual Transcriptions Verified? | Yes No N/A | Yes No N/A |
| 2) 100% of Manual Calculations Verified? | Yes No N/A | Yes No N/A |
| 3) Blank Composition/Configuration Matches Calibration? | Yes No N/A | Yes No N/A |
| 4) Deviations from procedure are documented and verified? | Yes No N/A | Yes No N/A |
| 5) Appropriate Cocktail Selected? | Yes No N/A | Yes No N/A |

6) Sample Prep Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

Chemist Signature: [signature] Date: 6-17-13

Verifier Review Signature: [signature] Date: 6-17-13

## B. ANALYSIS REVIEW

| | Analyst Review | QA Officer Review |
|---|---|---|
| 1) Calibrations Valid and Current? | Yes No N/A | Yes No N/A |
| 2) Backgrounds Valid and Current? | Yes No N/A | Yes No N/A |
| 3) Source Checks Completed and Acceptable? | Yes No N/A | Yes No N/A |

QA Officer Signature: [signature] Date: 6-19-13

| | Analyst Review | Technicial Review |
|---|---|---|
| 4) Background Checks Complete and Acceptable? | Yes No N/A | Yes No N/A |
| 5) 100% of Manually Entered Parameters Verified Accurate? | Yes No N/A | Yes No N/A |
| 6) Appropriate QC samples initiated at required frequency? | Yes No N/A | Yes No N/A |
| 6) Test/Sample Specific Parameters (See ARS-059 for details) | | |
| a) Analysis Parameters Checked and Correct and Peak Shapes are Acceptable? | Yes No N/A | Yes No N/A |
| b) Spectra show no Evidence of Interferences? | Yes No N/A | Yes No N/A |
| c) Sample Quench for All Samples within Range of Quench Curve? | Yes No N/A | Yes No N/A |

7) Analysis Anomaly? ☑ No ☐ Yes (See Comments) NCR # (If initiated): _____

Analyst Signature: [signature] Date: 6-17-13

Technicial Reviewer Signature: [signature] Date: 6-17-13

Batch A: B13-01094

# LSC
# Technical Review Checklist

## C. BATCH QC VALIDATION

| | Proj. Mgr. Review | QA Officer Review |
|---|---|---|
| 1) Activity + 3xCSU a Negative Number? | Yes ~~No~~ N/A | Yes (No) N/A |
| 2) RDL Criteria are Met? | ~~Yes~~ No N/A | (Yes) No N/A |
| 3) Method Blank Criterion Met? | ~~Yes~~ No N/A | (Yes) No N/A |
| 4) LCS/LCD Criteria Met? | Yes ~~No~~ N/A | Yes (No) N/A |
| 5) Duplicate (Sample Duplicate, LCSD, MSD) Criteria Met? | Yes ~~No~~ N/A | Yes (No) N/A |
| 6) MS/MSD Criteria Met? | Yes No ~~N/A~~ | Yes No (N/A) |

7) Batch QC Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

| Project Manager Signature | Date | QA Officer Signature | Date |
|---|---|---|---|
| SDL | 6-19-13 | James D. [illegible] | 6-19-13 |

## GENERAL COMMENTS

ARS INTERNATIONAL

# LSC
# Technical Review Checklist

**ARS SDG** ARS1-13-01040

**Sample Matrix:** AQ **Aliquot** (Circle One) : Dry As Received Filtered Other: _____

**Required QC Samples** (Mark all that apply): Blank LCS LCSD Sample Dup MS MSD

| | | | |
|---|---|---|---|
| **ARS A. Batch ID(s):** | **Batch A:** B13-01059 | **Batch B:** N/A | **Batch C:** N/A |
| **Test Method(s):** | LSC-A-021 | N/A | N/A |

## A. RADIOCHEMICAL PREPARATION REVIEW

| | Chemist Review | Verifier Review |
|---|---|---|
| **1) 100% of Manual Transcriptions Verified?** | Yes No N/A | Yes No N/A |
| **2) 100% of Manual Calculations Verified?** | Yes No N/A | Yes No N/A |
| **3) Blank Composition/Configuration Matches Calibration?** | Yes No N/A | Yes No N/A |
| **4) Deviations from procedure are documented and verified?** | Yes No N/A | Yes No N/A |
| **5) Appropriate Cocktail Selected?** | Yes No N/A | Yes No N/A |

**6) Sample Prep Anomaly?** ☑ **No** ☐ **Yes** (See Tech Notes) **NCR #** (If initiated): _____

| | | | |
|---|---|---|---|
| [signature] | 5-28-13 | [signature] | 5-28-13 |
| **Chemist Signature** | **Date** | **Verifier Review Signature** | **Date** |

## B. ANALYSIS REVIEW

| | Analyst Review | QA Officer Review |
|---|---|---|
| **1) Calibrations Valid and Current?** | Yes No N/A | Yes No N/A |
| **2) Backgrounds Valid and Current?** | Yes No N/A | Yes No N/A |
| **3) Source Checks Completed and Acceptable?** | Yes No N/A | Yes No N/A |

| | |
|---|---|
| James D. Lu | 6-19-13 |
| **QA Officer Signature** | **Date** |

| | Analyst Review | Technicial Review |
|---|---|---|
| **4) Background Checks Complete and Acceptable?** | Yes No N/A | Yes No N/A |
| **5) 100% of Manually Entered Parameters Verified Accurate?** | Yes No N/A | Yes No N/A |
| **6) Appropriate QC samples initiated at required frequency?** | Yes No N/A | Yes No N/A |
| **6) Test/Sample Specific Parameters** (See ARS-059 for details) | | |
| a) Analysis Parameters Checked and Correct and Peak Shapes are Acceptable? | Yes No N/A | Yes No N/A |
| b) Spectra show no Evidence of Interferences? | Yes No N/A | Yes No N/A |
| c) Sample Quench for All Samples within Range of Quench Curve? | Yes No N/A | Yes No N/A |

N/A

**7) Analysis Anomaly?** ☑ **No** ☐ **Yes** (See Comments) **NCR #** (If initiated): _____

| | | | |
|---|---|---|---|
| [signature] | 5-28-13 | N/A | |
| **Analyst Signature** | **Date** | **Technicial Reviewer Signature** | **Date** |

Batch A: B13-01059

# LSC
# Technical Review Checklist

## C. BATCH QC VALIDATION

| | Proj. Mgr. Review | QA Officer Review |
|---|---|---|
| 1) Activity + 3xCSU a Negative Number? | Yes No ~~N/A~~ | Yes No (N/A) |
| 2) RDL Criteria are Met? | Yes No ~~N/A~~ | Yes No (N/A) |
| 3) Method Blank Criterion Met? | Yes No ~~N/A~~ | Yes No (N/A) |
| 4) LCS/LCD Criteria Met? | Yes No ~~N/A~~ | Yes No (N/A) |
| 5) Duplicate (Sample Duplicate, LCSD, MSD) Criteria Met? | Yes No ~~N/A~~ | Yes No (N/A) |
| 6) MS/MSD Criteria Met? | Yes No ~~N/A~~ | Yes No (N/A) |

7) Batch QC Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

| Project Manager Signature | Date | QA Officer Signature | Date |
|---|---|---|---|
| SDR | 6-19-13 | James D. [illegible] | 6-19-13 |

## GENERAL COMMENTS

# DQO Report for SDG
ARS1-13-01040



| Analysis Code | Group | Isotope | Activity Units | Aliquot Units | ProcedureNo | RDL | LCS_LL | LCS_UL | MS_LL | MS_UL | RadY_LL | RadY_UL | GravY_LL | GravY_UL | RER | RPD | DiltionReq | RoughPrepReq | BlankCorrectionMDA | BlankCorrectionAll | CountTimeReq | AliquotRequired |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LSC-A-021 | STD | H-3 | pCi | L | ARS-054 | 0.00E+00 | 75 | 125 | 60 | 140 | 30 | 110 | 40 | 110 | 1.00 | 25 | FALSE | FALSE | FALSE | FALSE | | |
| LSC-A-022 | STD | Enriched H-3 | pCi | L | ARS-040 | 0.00E+00 | 75 | 125 | 60 | 140 | 30 | 110 | 40 | 110 | 1.00 | 25 | FALSE | FALSE | FALSE | FALSE | | |

# SDG Report - Samples and Containers

**SDG Specific Data**

| | | | | | |
|---|---|---|---|---|---|
| SDG | ARS1-13-01040 | TAT Days | 30 | Project Type | Environmental |
| Sample Count | Rpt Level 4 | Date Received | 5/23/2013 | COC Number | 2013-877 |
| Client | Los Alamos National Laboratory | Client Deadline | 6/24/2013 | PO Number | 63641-001-10 |
| Client Code | 114 | Internal Deadline | 6/21/2013 | Job Number | |
| Profile Number | PN-00094 | Lab Deadline | 6/19/2013 | Job Location | |
| Comments | | | | | |

**Samples and Containers (→) Checked In Thus Far**

| FR | ClientID | Matrix | SampleStartDate | SampleEndDate | Disp | Hold | Arch | Storage | X | Units | Y | Units | Z | Units | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 001 | CAMO-13-30585 | AQ | 05/22/13 01:01 PM | 05/22/13 01:01 PM | H | 90 | 5 | K2 | | | | | | | |
| → | TO_ID | Cnt | Volume_mL | Wt_g | pH_Orig | pH_Final | CPM | uR_Hr | Storage | VOA | Head Sp | AF Units | AF Rate | AF Mins | AF Total Vol |
| | 137020 | 1 | 1000.00 | | | | 80 | 30 | | N | N/A | | | | |

# SDG Report - Analysis Assignments

| | | | |
|---|---|---|---|
| Temp SDG | ARS1-13-01040 | Sample Count | |
| Client | Los Alamos National Laboratory | Analysis Count | 2-2 |

**Samples Count Totals per Analysis**

| Analysis Code | Analysis Description | Samples Count |
|---|---|---|
| LSC-A-021 | Low Level Tritium Screen in (Aqueous) | 1 |
| LSC-A-022 | Low Level Tritium by Enrichment Process in (Aqueous [AQ]) | 1 |

**Analyses Assigned Per Fraction**

| Fraction | Analysis Code | X = Assigned |
|---|---|---|
| 001 | LSC-A-021 | X |
| 001 | LSC-A-022 | X |

# ARS FILE TRACKING SHEET

**SDG:** ARS1-13-01040

| Task | Date / Time | Initials |
|---|---|---|
| Date & Time Samples Received | 5-23-13/10:00 | cad |
| ICOC Initiated/Storage Location: K2 | 5-23-13/10:33 | cad |
| Technical Checks Performed | See Batch | |
| Report Written / EDD Generated 6-19-13/1416 \| SDR<br>Date/Time Initials | 6-19-13/1414 | SDR |
| Quality Assurance Checks Performed on Report | 6-19-13 1430 | JDT |
| Management Checks Performed on Report | | |
| *Preliminary Report Scan* | | |
| Report E-mailed | | |
| Report Faxed | | |
| Report Reviewed | | |
| Report Mailed | | |
| Invoice Completed Invoice #:_____ | | |
| Report Imaged | | |

**SPECIAL REQUIREMENTS**

| Requirement | Yes | No |
|---|---|---|
| 3 Hour Rush | | ✓ |
| 24 Hour Rush | | ✓ |
| 48 Hour Rush | | ✓ |
| 3 Day Rush | | ✓ |
| 5 Day Rush | | ✓ |
| Standard Oil/Gas Client (5 Day) | | ✓ |
| Standard Turnaround | ✓ | |

**NOTES**

ARS-062-005 r5

**COMPANY NAME:** LANL **SDG:** ARS1-13-01040

**SHIPPING CONTAINER**

| | | |
|---|---|---|
| Good Condition | ☑ Yes | ☐ No |
| Radioactive | ☐ Yes | ☑ No |
| UN2910 | ☐ Yes | ☑ No |
| Sec. Seals | ☑ Yes | ☐ No |
| Seals Intact | ☑ Yes ☐ No | ☐ N/A |
| Air Bill | ☐ Yes | ☑ No |

**COC PRESENT WITH SAMPLES**

| | | |
|---|---|---|
| COC | ☑ Yes | ☐ No |

**SAMPLE CONTAINER(S)**

| | | |
|---|---|---|
| Good Condition | ☑ Yes | ☐ No |
| Sec. Seals | ☑ Yes | ☐ No |
| Seal Intact | ☑ Yes ☐ No | ☑ N/A |
| Marked Radioactive | ☐ Yes | ☑ No |

# Samples Rcv 3

Matrix [ AF , AQ , BI , FE , LT , SI , SO , UR , VG ]

**External and Internal Surveys**

| | | | | | |
|---|---|---|---|---|---|
| Exposure Rate Meter: | M3242861 | Serial No.: | PR264266 | Calibration Due Date: | 4-16-14 |
| Count Rate Meter: | M2154859 | Serial No.: | PR184559 | Calibration Due Date: | 4-16-14 |

| | | | | |
|---|---|---|---|---|
| Background Exposure Rate (µR/hr) | 30 | Max. Exposure Rate on Shipping Containers Externals (Plus Bkgd) | 38 | µR/hr |
| Background Count Rate (cpm) | 80 | Max. Removable Count Rate on Shipping Containers Externals (Plus Bkgd) | 90 | cpm |
| | | Max. Removable Count Rate on Shipping Containers Internals (Plus Bkgd) | 90 | cpm |

| Sample Label/Comments/Notes | pH Orig | pH Final (pH ≤ 2 is Acceptable) | Mark if Preserve | Acid Lot # | Weight(g) / Volume(mL) | µR/hr (Acceptance Limits <500 µR/hr) | cpm (Acceptance Limits <100 cpm/cm²) |
|---|---|---|---|---|---|---|---|
| CAMO-13-30615 | | | ☐ | | 1000 mL | 30 | 80 |
| | | | ☐ | | | | |
| CAMO-13-30584 | | | ☐ | | 1000 mL | 30 | 80 |
| | | | ☐ | | | | |
| * CAMO-13-30585 | | | ☐ | | 1000 mL | 30 | 80 |
| | | | ☐ | | | | |
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| | | | ☐ | | | | |
| | | | ☐ | | | | |

Surveyors' Name: [signature] Date/Time Surveyed: 5-23-13 / 1002

American Radiation Services - Primary

1726 Wooddale Court
Baton Rouge LA 70806

# Chain of Custody/Analysis Request

COC/Lab Request #: 2013-876



**Client Contact:**

**Lab Agreement # :** 63641-001-10

**Project Number :**

**Analysis Turnaround Time:**

- 24 Hour - ☐ Other - ☐
- 7 Day - ☐
- 14 Day - ☐
- 21 Day - ☐
- 28 Day - ☒

**Site Name:** Los Alamos National Laboratory

**Rad Screening Info:** Yes, Below Background

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | WSP-LL-H-3 | Special Instructions: |
|---|---|---|---|---|---|
| CAMO-13-30584 | May 17 2013 | 12:52 | W | 1 | |

Special Instructions:

| Relinquished by: | | Date/Time: 5/22/13 3:00 | Received by: | |
|---|---|---|---|---|
| Relinquished by: | | Date/Time: | Received by: | |
| Relinquished by: | | Date/Time: | Received by: | |

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30584

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| **DATE COLLECTED (MM/DD/YYYY):** | | 05/16/2013 | **FIELD MATRIX:** | WG | OK |
| **TIME COLLECTED (HH:MM):** | | 1252 | **MEDIA:** | UA | ↓ |
| **PRS ID:** | | OK | **SAMPLE TECH CODE:** | UA | GSP |
| **LOCATION ID:** | R-61 S1 | ↓ | **FIELD PREP:** | UF | OK |
| **LOCATION TYPE:** | MON | ↓ | **FIELD QC TYPE:** | REG | ↓ |
| **PORT:** | P1A | | **SAMPLE USAGE:** | INV | ↓ |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-8260B-VOA | 40 ML SEPTUM AMBER GLASS | 2 | HCL | Y | NA |
| ↓ | WSP-8270C-SVOA | 1 LITER AMBER GLASS | 3 | ICE | ↓ | ↓ |
| | WSP-GrossA/B | 1 LITER POLY | 1 | NONE | | |
| | WSP-LL-H-3 | 1 LITER POLY | 1 | NONE | | |
| | WSP-RAD | 1 GAL POLY | 1 | HNO3 | | |
| | WSP-TKN+TOC | 500 ML AMBER GLASS | 1 | H2SO4 | | |

**SAMPLE COMMENTS:** Sampled within 50' of running diesel generator

**LOCATION COMMENTS:** NA

**FIELD PARAMETERS:**

Dissolved Oxygen 5.97 mg/L  Oxidation-Reduction Potential 251.4 MV  pH 6.71 SU

Specific Conductance 155 uS/cm  Temperature 20.89 deg C  Turbidity 3.0 NTU

**COLLECTED BY (PRINT)** A. Stocker

| | | | |
|---|---|---|---|
| **RELINQUISHED BY** (Printed Name) David Fellenz (Signature) | Date/Time 5/16/13 1355 | **RECEIVED BY** (Printed Name) A. Montoya (Signature) | Date/Time 5/16/13 1355 |
| **RELINQUISHED BY** (Printed Name) (Signature) | Date/Time | **RECEIVED BY** (Printed Name) (Signature) | Date/Time |

Report Date 04/30/2013

Data Validation Report

Chain Of Custody No. 2013-876

**1. Distribution Of Samples In EDD.**

| SDG | Analytical Method | Regular Samples | Field Duplicates | Trip Blanks | Field Blanks | Equipment Blanks |
|---|---|---|---|---|---|---|
| ARS1-13-01039 | Generic:Low_Level_Tritium | 1 | | | | |

| SDG | Analytical Method | Analysis Lot ID | Prep Lot ID | Regular Samples | Field Duplicates | Trip Blanks | Field Blanks | Equipment Blanks | Method Blanks | Matrix Spikes | Matrix Spike Dups |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ARS1-13-01039 | Generic:Low_Level_Tritium | ARS1-B13-01094 | ARS1-B13-01094 | 1 | | | | | 1 | | |

**2. Distribution Of Analytes In EDD.**

| Analytical Method | Method Category | Field Sample ID | Lab Sample ID | Sample Purpose | Target Analytes | Surrogates | Spikes | TICS |
|---|---|---|---|---|---|---|---|---|
| Generic:Low_Level_Tritium | RAD | CAMO-13-30584 | ARS1-B13-01094-05 | REG | 1 | 0 | 0 | 0 |
| Generic:Low_Level_Tritium | RAD | LCS | ARS1-B13-01094-01 | LCS | 0 | 0 | 1 | 0 |
| Generic:Low_Level_Tritium | RAD | LCSD | ARS1-B13-01094-02 | LCSD | 0 | 0 | 1 | 0 |
| Generic:Low_Level_Tritium | RAD | MB | ARS1-B13-01094-03 | MB | 1 | 0 | 0 | 0 |

**3. Are any analytes missing?**

No.

**4. Were any holding times exceeded?**

No.

**5. Any contaminants in blanks?**

No.

**Any samples affected by the presence of contaminants in blanks?**

No.

**6. Any surrogate recoveries outside the control limits?**

No.

**7. Any MS/MSD recoveries or RPDs outside the control limits?**

No.

**8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?**

| LCS | LCSD | Analytical | Parameter | Lab | Analysis | Sample | LCS | LCSD | Upper | Lower | Lower Reject |
|---|---|---|---|---|---|---|---|---|---|---|---|

Data Validation Report for:

Chain Of Custody No. 2013-876

| Analytical Spikes | Post-Digestion Spikes | Lab Control Samples | Lab Control Sample Dups | Blank Spikes | Blank Spike Dups | Lab Duplicates | Storage Blanks | Preparation Blanks | Reagent Blanks |
|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 1 | | | | | | |

| | | |
|---|---|---|
| Upper Reject | | RPD |

| Sample ID | Sample ID | Method | Name | Lot ID | Date | Matrix | Recovery | Recovery | Limit | Limit | Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ARS1-B13-01094-01 | ARS1-B13-01094-02 | Generic:Low_Level_Tritium | Tritium | ARS1-B13-01094 | 6/14/2013 | W | 70 | 47 | 120 | 80 | 10 |

**9. Any Field Duplicate RPDs outside the desired limits?**

No.

**10. Any Lab Duplicate RPDs outside the desired limits?**

No.

**11. Any required reporting limits exceeded?**

No.

**12. Additional Validator's Coments.**

None.

**13. Display Flagged Data.**

| Location ID | Chain Of Custody No | Field Sample ID | Sample Purpose | Analysis Type Code | Analytical Suite | Analytical Method | Parameter Name | Lab Qualifier | Validation Qualifier | Validation Reason Codes | Detected |
|---|---|---|---|---|---|---|---|---|---|---|---|
| R-61 S1 | 2013-876 | CAMO-13-30584 | REG | INIT | RAD | Generic:Low_Level_Tritium | Tritium | | J- | R12a | Y |

| Reason Code | Description |
|---|---|
| R12a | The LCS percent recovery was <the LAL but >10%. Follow the external laboratory limits located within the associated data package. |

**14. Useable Result Count.**

| Field Sample ID | Location ID | Sample Purpose | Analytical Method | No. Unuseable Records | Total No. Of Records |
|---|---|---|---|---|---|
| CAMO-13-30584 | R-61 S1 | REG | Generic:Low_Level_Tritium | 0 | 1 |

| Limit | RPD | Limit |
|---|---|---|
| | 39.5746 | |

| Lab Result | Lab Units | Report Result | Report Units | Report MDA | Report Uncertainty | Lab Matrix | Sample Date | Percent Moisture | Analysis Lot ID | Validation Status Code | Use Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 20.895 | pCi/L | 20.895 | pCi/L | 2.267 | 3.297 | W | 5/17/2013 | | ARS1-B13-01094 | VAL | Y |

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

# American Radiation Services Analytical Reports

for

# Los Alamos National Laboratory

# Request Number: 2013-875/876

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

# American Radiation Services Analytical Reports

for

# Los Alamos National Laboratory Request: 2013-875/876

# Original COC

American Radiation Services - Primary

1726 Wooddale Court
Baton Rouge LA 70806

# Chain of Custody/Analysis Request

**COC/Lab Request #:** 2013-875



**Client Contact:**

**Lab Agreement # :** 63641-001-10

**Project Number :**

**Analysis Turnaround Time:**

- 24 Hour - ☐ Other - ☐
- 7 Day - ☐
- 14 Day - ☐
- 21 Day - ☐
- 28 Day - ☒

**Site Name:** Los Alamos National Laboratory

**Rad Screening Info:** Yes, Below Background

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | WSP-LL-H-3 | Special Instructions: |
|---|---|---|---|---|---|
| CAMO-13-30615 | May 21 2013 | 11:08 | W | 1 | |

Special Instructions:

| | | | | |
|---|---|---|---|---|
| Relinquished by: | | Date/Time: 5/22/13 3:00 | Received by: | 5-23-13 / 1000 |
| Relinquished by: | | Date/Time: | Received by: | |
| Relinquished by: | | Date/Time: | Received by: | |

American Radiation Services - Primary

1726 Wooddale Court
Baton Rouge LA 70806

# Chain of Custody/Analysis Request

**COC/Lab Request #:** 2013-876



**Client Contact:**

**Lab Agreement # :** 63641-001-10

**Project Number :**

**Analysis Turnaround Time:**

- 24 Hour - ☐ Other - ☐
- 7 Day - ☐
- 14 Day - ☐
- 21 Day - ☐
- 28 Day - ☒

**Site Name:** Los Alamos National Laboratory

**Rad Screening Info:** Yes, Below Background

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | WSP-LL-H-3 |
|---|---|---|---|---|
| CAMO-13-30584 | May 17 2013 | 12:52 | W | 1 |

**Special Instructions:**

Special Instructions:

| | | | | |
|---|---|---|---|---|
| Relinquished by: Melissa Montoya | | Date/Time: 5/22/13 3:00 | Received by: | 5-23-13 / 1000 |
| Relinquished by: | | Date/Time: | Received by: | |
| Relinquished by: | | Date/Time: | Received by: | |

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# American Radiation Services Analytical Reports

for

# Los Alamos National Laboratory Request: 2013-875/876

# Case Narrative

ARS INTERNATIONAL

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

June 19, 2013

LANL
Keith Greene
PO Box 1663 MS M992
Los Alamos, NM 87545

Request Number: **2013-875**
LANL Sample ID: **CAMO-13-30615**
Request Number: **2013-876**
LANL Sample ID: **CAMO-13-30584**

Dear Mr. Greene;

On May 23, 2013, ARS International received one (1) water sample associated with RN 2013-875 and one (1) sample associated with RN 2013-876, to be analyzed for Low Level Tritium.

The samples underwent enrichment, but only CAMO-13-30584 (SDG ARS1-13-01039) was counted, along with the QA/QC samples (please see "Analytical Results" on following page). The appropriate counting equipment and QA/QC for this type of analysis was used, and results of the analysis and QA/QC are attached in the data package. Samples were counted with a count time sufficient to meet quality control parameters for counting equipment and were within acceptance criteria and statistical sound detection limits.

If you have any questions please do not hesitate to call at 225.381.2991 or email LANL@amrad.com.

Sincerely,

Laboratory Management
**ARS International**

ARS INTERNATIONAL

2609 North River Road • Port Allen, Louisiana 70767

1 (800) 401-4277 • Fax (225) 381-2996

# COVER PAGE

## PROJECT SAMPLE IDENTIFICATION CROSS-REFERENCE TO ARS SAMPLE LABORATORY IDs

Subcontract (LANL Agreement Number) 63641-001-10

| Request Number | LANL PROJECT SAMPLE ID NUMBER | American Radiation Services SAMPLE ID NUMBER(S) |
|---|---|---|
| 2013-875 | CAMO-13-30615 | ARS1-13-01038-001 |
| 2013-876 | CAMO-13-30584 | ARS1-13-01039-001 |

**ANALYTICAL METHODS**

Tritium analyses were performed using **ARS-040 Tritium Assay in Water Samples Using Electrolytic Enrichment.**

**ANALYTICAL RESULTS**

Sample B13-01094-04 (CAMO-13-30615) had a milky appearance after addition of the cocktail (see technical note). The pH of post-enrichment sample was 14, while parent sample had a pH of approximately 11. Since it seemed to have been preserved before shipping, client cancelled analysis for this sample.
LCS/LCSD recovery was biased low, and duplicate criteria was elevated; all other QC requirements were met.
The result data that are flagged with "U" indicate that the activity is below the MDC.

**American Radiation Services Project Manager/Laboratory Director's Comments:**

*"I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this sample data package and the computer-readable EDD, as applicable, submitted on diskette or by modem, has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature."*

*"I certify that this electronic image and all hardcopies produced from this image accurately represent the data and is in compliance with the LANL specific requirements, both technically and for completeness, other than the conditions detailed above or in the sample data package narrative. Release, by submission through email, the data contained in this electronic image and the computer-readable EDD (as applicable), has been authorized by the laboratory Manager/Technical Director or the Manager's designee."*

| Signature | Title | Date |
|---|---|---|
| James D. [illegible] | Laboratory Management, ARS International | 6-19-13 |

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1 (800) 401-4277 • Fax (225) 381-2996

# American Radiation Services Analytical Reports

for

# Los Alamos National Laboratory

# Low Level Tritium by Low Level Liquid Scintillation Counting

AMRAD
AMERICAN RADIATION SERVICES, LLC

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

| | | | |
|---|---|---|---|
| **ARS Sample Delivery Group:** | ARS1-13-01039 | **Request or PO Number:** | 2013-876 |
| **Client Sample ID:** | CAMO-13-30584 | **ARS Sample ID:** | ARS1-13-01039-001 |
| **Sample Collection Date:** | 05/17/13 | **Date Received:** | 05/23/13 |
| **Sample Matrix:** | Aqueous | **Report Date:** | 06/19/13 |

| Analysis Description | Analysis Results | Analysis Error +/- 1 s | MDC | DLC | Qual | Analysis Units | Analysis Test Method | Analysis Date/Time | Analysis Technician | Tracer/Chem Recovery |
|---|---|---|---|---|---|---|---|---|---|---|
| Enriched H-3 | 20.895 | 3.297 | 2.267 | 1.094 | | pCi/L | ARS-040 | 06/14/13 17:30 | PDS | NA |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

**NOTES: Lab Agreement 63641-001-10**

Project Manager Review

***Notes:*** *American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the American Radiation Services, Inc.*

LELAP Certificate# 01949

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

# QC Results Report

**Sample Delivery Group:** ARS1-13-01039
**Date Received:** 5/23/2013

## Laboratory Control Sample Evaluation

| Analysis Batch | QC Type | Analyte | Analysis Results | CSU 1 (1s) | MDC | Expected Value | Qual | Report Units | Analysis Test Method | Analysis Date/Time | Analysis Technician | Percent Recovery (%) | LCS Acceptance Range |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ARS1-B13-01094 | LCS | H3 | 17.347 | 2.780 | 2.286 | 24.839 | | pCi/L | ARS-040 | 6/14/13 2:56 | PDS | 70 | 80%-120% |

## Blank Evaluation

| Analysis Batch | QC Type | Analyte | Analysis Results | CSU 1 (1s) | MDC | Expected Value | Qual | Report Units | Analysis Test Method | Analysis Date/Time | Analysis Technician |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ARS1-B13-01094 | MBL | H3 | 1.028 | 0.659 | 2.109 | NA | U | pCi/L | ARS-040 | 6/14/13 2:56 | PDS |

## Sample RER Duplicate Evaluation

| Analysis Batch | QC Type | Analysis Description | Result 1 | CSU 1 (1s) | Result 2 | CSU 2 (1s) | Qual | Analysis Units | Analysis Test Method | Analysis Date/Time | Analysis Technician | RER | RER AcceptanceRange |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ARS1-B13-01094 | LCSD | H3 | 17.347 | 2.780 | 11.616 | 1.962 | | pCi/L | ARS-040 | 6/14/13 2:56 | PDS | 1.21 | < 1 |

## Sample DER Duplicate Evaluation

| Analysis Batch | QC Type | Analysis Description | Result 1 | CSU 1 (1s) | Result 2 | CSU 2 (1s) | Qual | Analysis Units | Analysis Test Method | Analysis Date/Time | Analysis Technician | DER | DER AcceptanceRange |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ARS1-B13-01094 | LCSD | H3 | 17.347 | 2.780 | 11.616 | 1.962 | | pCi/L | ARS-040 | 6/14/13 2:56 | PDS | 3.37 | < 3 |

Project Manager Review

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of ARS International.

LELAP Certificate# 01949 NELAP Certificate # E87558

# QC Evaluation

**EPA Method: ARS-040**
**Batch ID: ARS1-B13-01094**
**SDG's: ARS1-13-01039; 1040**

| | | | |
|---|---|---|---|
| **LCS** | 17.3470 | **CSU (2s)** | 5.4480 |
| **LCSD** | 11.6160 | **CSU-D (2s)** | 3.8450 |

**DER =** $\frac{\text{abs(LSC-LSCD)}}{\text{sqr((2s CSU/2)^2)+(( 2s CSU-D/2)^2)}}$ = **< 3**

*at 1 sigma*

**DER** $\frac{5.731}{3.334094}$ = 1.718908 **< 3**

**% RPD=** $\frac{\text{ABS( LCS - LSCD)}}{\text{(LCS+LCSD)/2}}$ * 100 = **< 25%**

**%RPD** $\frac{5.731}{14.4815}$ *100 = 39.57463 **< 25%**

The *RPD* shall be less than 25% or other client-applied criteria

**RER=** $\frac{\text{abs((LCS-LCSD))}}{\text{(CSU)+(CSD)}}$ = **<1** ***<--LANL Requirement***

*at 2 sigma*

**RER =** $\frac{5.731}{9.2930}$ 0.616700742 **<1**

**Blank Information**

| | Act | CSU(2s) | MDA | Act>MDA |
|---|---|---|---|---|
| **AM-241** | | | | |
| **U-234** | | | | |
| **U-235** | | | | |
| **U-238** | | | | |
| **Pu-238** | | | | |
| **Pu-239/240** | | | | |
| **Th-228** | | | | |
| **Th-230** | | | | |
| **Th-232** | | | | |
| **H3** | 1.028 | 1.292 | 2.109 | |
| **Ra-226** | | | | |
| **Ra-228** | | | | |
| **Total U** | | | | |
| **Pb-210** | | | | |
| **Po-209** | | | | |
| **Sr-90** | | | | |
| **TC-99** | | | | |
| **NI-63** | | | | |

*MDA should be below RDL
*Blank activity must be below MDA
*Blank activity must be < 1.65*CSU (DOE only)

ACT = 1.028
CSU = 1.292
Is ACT<1.65*CSU? YES

2609 North River Road • Port Allen, Louisiana 70767
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# American Radiation Services Analytical Reports

for

# Los Alamos National Laboratory

# Low Level Tritium by Low Level Liquid Scintillation Counting

# Laboratory Records

# Analysis Batch Report



AMRAD
AMERICAN RADIATION SERVICES, LLC

**Analysis Batch ID** **ARS1-B13-01094**

| Method | ARS-040 | Analysis | LSC-A-022 | Matrix | AQ |
|---|---|---|---|---|---|

**Description** **Low Level Tritium by Electrolytic Enrichment**

| ABatch Sample ID | Type | Blind Iso1 | Blind Iso2 | Blind Iso3 | SDG | FR | Run | Client ID | Isotope Group | Lab Deadline |
|---|---|---|---|---|---|---|---|---|---|---|
| ARS1-B13-01094-01 | LCS | B-15487 | | | | | | | | |
| ARS1-B13-01094-02 | LCSD | B-15488 | | | | | | | | |
| ARS1-B13-01094-03 | MBL | | | | | | | | | |
| ARS1-B13-01094-04 | TRG | | | | **ARS1-13-01038** | 001 | 1 | CAMO-13-30615 | STD | 06/19/13 |
| ARS1-B13-01094-05 | TRG | | | | **ARS1-13-01039** | 001 | 1 | CAMO-13-30584 | STD | 06/19/13 |
| ARS1-B13-01094-06 | TRG | | | | **ARS1-13-01040** | 001 | 1 | CAMO-13-30585 | STD | 06/19/13 |

# LCS Report
## Analytical Batch: ARS1-B13-01094



| BlindID | ABatch | ABatchSampleID | BlindGroup | StdID | Isotope | ExpectedAddition | ExpectedValue | EmptyWt | GrossWt | NetWt | UserID | ModDate | ExpectedValue_CT | MidPointCountDate | KnownValue |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B-15487 | ARS1-B13-01094 | ARS1-B13-01094-01 | B-H3 | S-0279 | H-3 | 5 | 2.476264176 | 13.3421 | 18.4318 | 5.0897 | BSTEFFENS | 5/29/2013 | 2.47016861 | 6/14/2013 | 12.57241718 |
| B-15488 | ARS1-B13-01094 | ARS1-B13-01094-02 | B-H3 | S-0279 | H-3 | 5 | 2.476264176 | 13.2935 | 18.3573 | 5.0638 | BSTEFFENS | 5/29/2013 | 2.47016861 | 6/14/2013 | 12.50843981 |

AMRAD
AMERICAN RADIATION SERVICES, LLC

# LSC Instrument Data Transfer Report

\\Packard3170\Results\H3 Low Level\Low Level H3\2

| Batch Sample ID | Non-BKG Samples Transferred | Samples Eligible To Save | |
|---|---|---|---|
| ARS1-B13-01094 | 5 | 5 | LSC 1 |

| LIMS Batch Sample ID | LSC P# | LSC PID | LSC S# | LSC SMPL_ID | LSC Count Date | LSC CPMA | LSC ESTE | LSC EFF | LSC Count Dur | Analysis Batch | LIMS SDG | LIMS Run |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BKG | 2 | | 1 | BACKGROUND | 06/13/13 22:45 | 1.10 | 367.64 | 24.1800 | 240.00 | ARS1-B13-01094 | | |
| ARS1-B13-01094-01 | 2 | | 2 | B13-01094-01 | 06/14/13 02:56 | 3.58 | 381.41 | 24.7200 | 240.00 | ARS1-B13-01094 | | |
| ARS1-B13-01094-02 | 2 | | 3 | B13-01094-02 | 06/14/13 07:07 | 2.73 | 380.13 | 24.6700 | 240.00 | ARS1-B13-01094 | | |
| ARS1-B13-01094-03 | 2 | | 4 | B13-01094-03 | 06/14/13 11:18 | 1.26 | 397.67 | 25.4400 | 240.00 | ARS1-B13-01094 | | |
| ARS1-B13-01094-05 | 2 | | 5 | B13-01094-05 | 06/14/13 15:30 | 4.11 | 379.98 | 24.6600 | 240.00 | ARS1-B13-01094 | ARS1-13-01039 | 1 |
| ARS1-B13-01094-06 | 2 | | 6 | B13-01094-06 | 06/14/13 19:40 | 1.18 | 375.97 | 24.5100 | 240.00 | ARS1-B13-01094 | ARS1-13-01040 | 1 |

| ARS-040 Calculation Results | |
|---|---|
| ARS1-B13-01094 | |
| ACF | 1 |
| UCF | 2.22 |
| Sys Error | 0.15 |

| AnalysisCode | ABatchSampleID | Total_Bkg_Count_Duration_min | DF | Sample_Activity_Conc | Standard_Counting_Uncertainty | CU_1 | CSU_1 | CU_1_96 | CSU_1_96 | MDC | DLC | ActivityReportUnits |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LSC-A-022 | ARS1-B13-01094-01 | 240.000 | 0.95779 | 17.347 | 0.978 | 0.978 | 2.780 | 1.917 | 5.448 | 2.286 | 1.103 | pCi |
| LSC-A-022 | ARS1-B13-01094-02 | 240.000 | 0.95779 | 11.616 | 0.901 | 0.901 | 1.962 | 1.766 | 3.845 | 2.328 | 1.124 | pCi |
| LSC-A-022 | ARS1-B13-01094-03 | 240.000 | 0.99985 | 1.028 | 0.641 | 0.641 | 0.659 | 1.256 | 1.292 | 2.109 | 1.018 | pCi |
| LSC-A-022 | ARS1-B13-01094-04 | 240.000 | | | | | | | | | | pCi |
| LSC-A-022 | ARS1-B13-01094-05 | 240.000 | 0.99570 | 20.895 | 1.023 | 1.023 | 3.297 | 2.006 | 6.462 | 2.267 | 1.094 | pCi |
| LSC-A-022 | ARS1-B13-01094-06 | 240.000 | 0.99646 | 0.575 | 0.684 | 0.684 | 0.690 | 1.341 | 1.351 | 2.289 | 1.105 | pCi |

| ARS-040 Calculation Results | |
|---|---|
| ARS1-B13-01094 | |
| ACF | 1 |
| UCF | 2.22 |
| Sys Error | 0.15 |

| AnalysisCode | ABatchSampleID | Initial_Mass_sample_g | Mass_Na2O2_added_g | Final_mass_electrolyzed_sample_NaOH_g | Mass_equivalent_NaOH_g | Final_Mass_Electrolyzed_sample_g | VolumeFactor_X | Enrichment_Factor_Y |
|---|---|---|---|---|---|---|---|---|
| LSC-A-022 | ARS1-B13-01094-01 | 506.160 | 2.000 | 16.690 | 2.052 | 14.638 | 0.029 | 27.047 |
| LSC-A-022 | ARS1-B13-01094-02 | 500.560 | 2.020 | 16.750 | 2.073 | 14.677 | 0.029 | 26.691 |
| LSC-A-022 | ARS1-B13-01094-03 | 500.350 | 2.040 | 16.370 | 2.093 | 14.277 | 0.029 | 27.399 |
| LSC-A-022 | ARS1-B13-01094-04 | 500.000 | 2.010 | 17.020 | 2.062 | 14.958 | 0.030 | 26.182 |
| LSC-A-022 | ARS1-B13-01094-05 | 500.040 | 2.030 | 17.000 | 2.083 | 14.917 | 0.030 | 26.252 |
| LSC-A-022 | ARS1-B13-01094-06 | 500.050 | 2.000 | 17.010 | 2.052 | 14.958 | 0.030 | 26.184 |
| | | | | | | | | |

| ARS-040 Calculation Results | |
|---|---|
| ARS1-B13-01094 | |
| ACF | 1 |
| UCF | 2.22 |
| Sys Error | 0.15 |

| AnalysisCode | ABatchSampleID | Average_Sample_CPM | Bkg_CPM | tSIE | Detector_Eff_decimal | Aliquot | AliqUnits | Activity_reference_date | Start_Date_of_Count | Sample_Count_Duration_min |
|---|---|---|---|---|---|---|---|---|---|---|
| LSC-A-022 | ARS1-B13-01094-01 | 3.576 | 1.100 | 381.410 | 0.247 | 0.01004 | L | 9/7/2012 | 6/14/2013 | 240.000 |
| LSC-A-022 | ARS1-B13-01094-02 | 2.728 | 1.100 | 380.130 | 0.247 | 0.01001 | L | 9/7/2012 | 6/14/2013 | 240.000 |
| LSC-A-022 | ARS1-B13-01094-03 | 1.259 | 1.100 | 397.670 | 0.254 | 0.01000 | L | 6/13/2013 | 6/14/2013 | 240.000 |
| LSC-A-022 | ARS1-B13-01094-04 | | 1.100 | | | 0.01007 | L | 5/21/2013 | | |
| LSC-A-022 | ARS1-B13-01094-05 | 4.108 | 1.100 | 379.980 | 0.247 | 0.01006 | L | 5/17/2013 | 6/14/2013 | 240.000 |
| LSC-A-022 | ARS1-B13-01094-06 | 1.182 | 1.100 | 375.970 | 0.245 | 0.01004 | L | 5/22/2013 | 6/14/2013 | 240.000 |

| ARS-040 Calculation Results | |
|---|---|
| ARS1-B13-01094 | |
| ACF | 1 |
| UCF | 2.22 |
| Sys Error | 0.15 |

| AnalysisCode | ABatchSampleID | AliquotReportUnits | UserID | ModDate |
|---|---|---|---|---|
| LSC-A-022 | ARS1-B13-01094-01 | L | AMRAD\PSIMS | 6/17/2013 |
| LSC-A-022 | ARS1-B13-01094-02 | L | AMRAD\PSIMS | 6/17/2013 |
| LSC-A-022 | ARS1-B13-01094-03 | L | AMRAD\PSIMS | 6/17/2013 |
| LSC-A-022 | ARS1-B13-01094-04 | L | AMRAD\PSIMS | 6/17/2013 |
| LSC-A-022 | ARS1-B13-01094-05 | L | AMRAD\PSIMS | 6/17/2013 |
| LSC-A-022 | ARS1-B13-01094-06 | L | AMRAD\PSIMS | 6/17/2013 |
| | | | | |

SNC Protocol

Calibration Information
Software Version IC: 2.12
Software Version EC: 2.03
Instrument Model: Tri-Carb 3170TR/SL
Instrument Serial Number: 423814
3H Chi Square: 16.95 Date Processed: 6/15/2013 1:18:51 AM
14C Chi Square: 5.48 Date Processed: 6/15/2013 1:18:51 AM
3H E^2/B (1-18.6 keV): 1918.86 Date Processed: 6/15/2013 1:18:51 AM
14C E^2/B (4-156 keV): 7389.97 Date Processed: 6/15/2013 1:18:51 AM
3H Efficiency (0-18.6 keV): 62.91 Date Processed: 6/15/2013 1:18:51 AM
14C Efficiency (0-156 keV): 95.49 Date Processed: 6/15/2013 1:18:51 AM
IPA Background Date Processed: 6/15/2013 1:18:51 AM
3H Background CPM (0-18.6 keV): 2.06 Date Processed: 6/15/2013 1:18:51 AM
14C Background CPM (0-156 keV): 2.26 Date Processed: 6/15/2013 1:18:51 AM
3H Calibration DPM: 268700
3H Reference Date: 9/2/2011
14C Calibration DPM: 127700
===== IPA Errors and Warnings for Last Aquired Data Per Parameter ====
2/15/2009 2:09:35 AM: IPA Error - Insufficient 14C data to calculate Chi Square.
== End of IPA Errors and Warnings for Last Aquired Data Per Parameter ==

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20130613_2236
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20130613_2236\20130613_2236.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20130613_2236\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20130613_2236\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 240.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

| Regions | LL | UL | 2Sigma % Terminator |
|---|---|---|---|
| A | 2.0 | 18.6 | 0.50 |
| B | 0.0 | 2000.0 | 0.00 |
| C | 0.0 | 2000.0 | 0.00 |

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

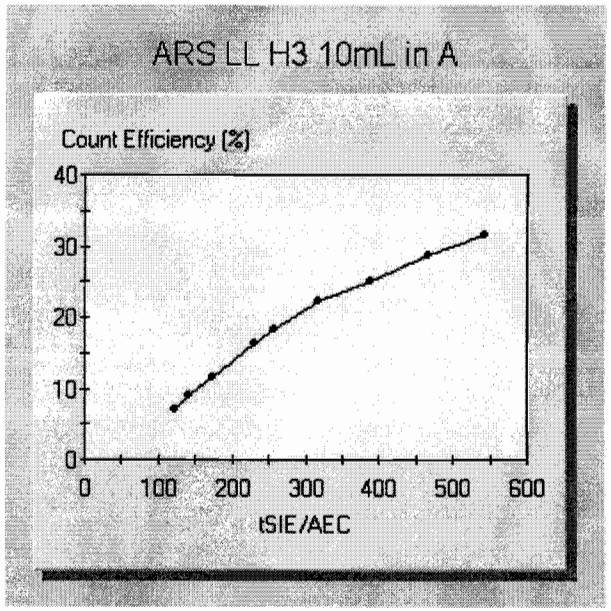
Half Life-

Half Life Correction: Off

| Regions | Half Life | Units | Reference Date | Reference Time |
|---|---|---|---|---|

A
B
C

Cycle 1 Results
Quench Curve Block Data




Date Acquired: 11/20/2012
Date Modified:
ARS LL H3 10mL in A

| tSIE/AEC | Count Efficiency (%) |
|---|---|
| 543.57 | 31.51 |
| 466.44 | 28.74 |
| 387.42 | 24.95 |
| 316.48 | 22.21 |
| 257.14 | 18.18 |
| 229.94 | 16.37 |
| 172.56 | 11.68 |
| 142.07 | 9.08 |
| 121.26 | 7.13 |

| P# | S# | SMPL_ID | CPMA | DPM1 | tSIE | Eff Nucl In A | Count Time | DATE | TIME | MESSAGES |
|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 1 | BACKGROUND | 1.100 | 4.55 | 367.64 | 24.18 | 240.00 | 6/13/2013 | 10:45:30 PM | |
| 2 | 2 | B13-01094-01 | 3.576 | 14.47 | 381.41 | 24.72 | 240.00 | 6/14/2013 | 2:56:29 AM | |
| 2 | 3 | B13-01094-02 | 2.728 | 11.06 | 380.13 | 24.67 | 240.00 | 6/14/2013 | 7:07:35 AM | |
| 2 | 4 | B13-01094-03 | 1.259 | 4.95 | 397.67 | 25.44 | 240.00 | 6/14/2013 | 11:18:32 AM | |
| 2 | 5 | B13-01094-05 | 4.108 | 16.66 | 379.98 | 24.66 | 240.00 | 6/14/2013 | 3:30:00 PM | |
| 2 | 6 | B13-01094-06 | 1.182 | 4.82 | 375.97 | 24.51 | 240.00 | 6/14/2013 | 7:40:59 PM | |

# ARS-040



| ID_31001_040 | ABatch | AnalysisCode | ABatchSampleID | ClientID | IC_ID | S01_1_EnrichCellNo |
|---|---|---|---|---|---|---|
| 656 | ARS1-B13-01094 | LSC-A-022 | ARS1-B13-01094-01 | | | 45 |
| 657 | ARS1-B13-01094 | LSC-A-022 | ARS1-B13-01094-02 | | | 38 |
| 658 | ARS1-B13-01094 | LSC-A-022 | ARS1-B13-01094-03 | | | 85 |
| 659 | ARS1-B13-01094 | LSC-A-022 | ARS1-B13-01094-04 | CAMO-13-30615 | | 55 |
| 660 | ARS1-B13-01094 | LSC-A-022 | ARS1-B13-01094-05 | CAMO-13-30584 | | 48 |
| 661 | ARS1-B13-01094 | LSC-A-022 | ARS1-B13-01094-06 | CAMO-13-30585 | | 3 |

| S01_2_TareCell | S01_3_TareResv | S02_GrossWtResv | S03_1_WtNa2O2 | C_GrossSampleAdded | S04_1_ElectrolSD |
|---|---|---|---|---|---|
| 322.47 | 205.84 | 712 | 2 | 506.16 | 05/30/2013 15:08:00 |
| 334.99 | 213.4 | 713.96 | 2.02 | 500.56 | 05/30/2013 15:08:00 |
| 333.17 | 192.6 | 692.95 | 2.04 | 500.35 | 05/30/2013 15:08:00 |
| 329.67 | 200.05 | 700.05 | 2.01 | 500 | 05/30/2013 15:08:00 |
| 336.93 | 202.4 | 702.44 | 2.03 | 500.04 | 05/30/2013 15:08:00 |
| 326.68 | 193.8 | 693.85 | 2 | 500.05 | 05/30/2013 15:08:00 |

| S04_2_StartAmp | S04_3_StartBathC | S05_1_ElectrolED | S05_2_EndBathC | S05_3_EndCellWt | C_GrossSmplRec |
|---|---|---|---|---|---|
| 5 | 2 | 06/13/2013 07:11:00 | 2 | 545 | 16.69 |
| 5 | 2 | 06/13/2013 07:11:00 | 2 | 565.14 | 16.75 |
| 5 | 2 | 06/13/2013 07:14:00 | 2 | 542.14 | 16.37 |
| 5 | 2 | 06/13/2013 07:16:00 | 2 | 546.74 | 17.02 |
| 5 | 2 | 06/13/2013 09:59:00 | 2 | 556.33 | 17 |
| 5 | 2 | 06/13/2013 10:01:00 | 2 | 537.49 | 17.01 |

| C_EnrichmentF | S06_TareWt | S07_GrossWt | C_RecoveredWa | S08_TearWtLSCVial | S09_VialPlusSmpl | C_NetSample |
|---|---|---|---|---|---|---|
| 30.327142 | 109.32 | 121.48 | 12.16 | 6.48 | 16.52 | 10.04 |
| 29.8841791 | 95.26 | 108.92 | 13.66 | 6.51 | 16.52 | 10.01 |
| 30.56505803 | 93.51 | 105.84 | 12.33 | 6.56 | 16.56 | 10 |
| 29.37720329 | 105.86 | 120.99 | 15.13 | 6.55 | 16.62 | 10.07 |
| 29.41411765 | 101.06 | 116.7 | 15.64 | 6.51 | 16.57 | 10.06 |
| 29.39741329 | 108.58 | 123.24 | 14.66 | 6.52 | 16.56 | 10.04 |

| S10_1_WtVislSmplDrWatFill | C_NetDeadWaterAdded | C_TareWtBFCocktail | S10_2_GrossWtVSC | C_NetWtCocktailAdded |
|---|---|---|---|---|
| 0 | 0 | 16.52 | 26.67 | 10.15 |
| 0 | 0 | 16.52 | 26.76 | 10.24 |
| 0 | 0 | 16.56 | 27.05 | 10.49 |
| 0 | 0 | 16.62 | 26.84 | 10.22 |
| 0 | 0 | 16.57 | 26.8 | 10.23 |
| 0 | 0 | 16.56 | 26.813 | 10.253 |

| UserID | ModDate |
|---|---|
| AMRAD\PSIMS | 06/13/2013 11:15:44 |
| AMRAD\PSIMS | 06/13/2013 11:19:14 |
| AMRAD\PSIMS | 06/13/2013 11:24:39 |
| AMRAD\PSIMS | 06/13/2013 11:28:17 |
| AMRAD\PSIMS | 06/13/2013 12:55:33 |
| AMRAD\PSIMS | 06/13/2013 13:48:34 |

# Technical Notes



| | | |
|---|---|---|
| AMRAD AMERICAN RADIATION SERVICES, LLC | Batch | ARS1-B13-01094 |
| | Analysis Code | LSC-A-022 |
| | Procedure No | ARS-040 |
| | Matrix | AQ |

| # | Date | Dept | Batch Technical Notes | User ID |
|---|---|---|---|---|
| 1 | 06/17/13 07:12 | CHEMISTRY | Sample B13-01094-04 , SDG ARS1-13-01038, was removed from batch after cryodistillation, due to the sample being to basic and not reacting correctly with the cocktail. | AMRAD\PSIMS |

ANL

**ARS Batch Number:** ARS1-B13 - 01094

Enter these Values for LCS

| | | Report Name | Field Name on the Report |
|---|---|---|---|
| Current ACT | 5.4838 | Standards Report | ACT at Date Above (dpm/g) |
| NetWt | 5.0897 | LCS Report | NetWt |
| Aliquot | 0.5062 | Tritium Enrichment Data | Gross Sample Added/1000 |

Enter these Values for LCSD

| | | Report Name | Field Name on the Report |
|---|---|---|---|
| Current ACT | 5.4838 | Standards Report | ACT at Date Above (dpm/g) |
| NetWt | 5.0638 | LCS Report | NetWt |
| Aliquot | 0.5006 | Tritium Enrichment Data | Gross Sample Added/1000 |

## Expected Value Calculations

**ARS Batch Number:** ARS1-B11 - 01094

| | | | | | | |
|---|---|---|---|---|---|---|
| **LCS** | **CALCULATED EXPECTED VALUE** | = | 24.839 | | | |
| | | | **Range** | 19.871 | – | 29.807 |
| **LCSD** | **CALCULATED EXPECTED VALUE** | = | 24.989 | | | |
| | | | **Range** | 19.991 | – | 29.987 |

EXIT Exit

AMRAD AMERICAN RADIATION SERVICES, LLC

# Standards Activity as of: 06/14/13 02:56

| Active | Std ID | Isotope | PSCLT | Verification Date | Exp Date | Status | Ref Date | Ref ACT (dpm) | ACT at Date Above (dpm/g) | Halflife (days) | Parent ID | Expended Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **A** | **S-0279** | H-3 | **SL** | 09/10/12 | 09/10/13 | OK | 09/07/12 | 5.7255E+00 | **5.4838** | 4.500E+03 | **S-0237** | |

# Beta Liquid Scintillation Counter Log Book

| Date | Time | ARS Sample I.D. Number | Batch Number | Liquid Scintillation File Number | Technicia Initials |
|---|---|---|---|---|---|
| 6-7-13 | 11:19 | BIJ-01030-05 | BIJ-01030 | 2103 | PDJ |
| ↓ | ↓ | BIJ-01030-06 | ↓ | ↓ | PDJ |
| ↓ | ↓ | BIJ-01030-09 | ↓ | ↓ | PDJ |
| ↓ | ↓ | BIJ-01030-10 | ↓ | ↓ | PDJ |
| 6-10-13 | 9:00 | JNC16 | 0 ul | 0 ul | PDJ |
| ↓ | ↓ | Background | BIJ-01024 | 1042 | PDJ |
| ↓ | ↓ | BIJ-01124-05 | ↓ | ↓ | PDJ |
| 6-13-13 | 12:21 | JNC16 | 0 ul | 0 ul | PDJ |
| ↓ | ↓ | Background | BIJ-01176 | 1356 | PDJ |
| ↓ | ↓ | BIJ-01176-01 | ↓ | ↓ | PDJ |
| ↓ | 13:50 | Background | BIJ-01094 | 2236 | PDJ |
| ↓ | ↓ | BIJ-01094-01 | ↓ | ↓ | PDJ |
| ↓ | ↓ | ↓ -02 | ↓ | ↓ | PDJ |
| ↓ | ↓ | ↓ -03 | ↓ | ↓ | PDJ |
| ↓ | ↓ | ↓ -05 | ↓ | ↓ | PDJ |
| ↓ | ↓ | ↓ - 06 | ↓ | ↓ | PDJ |
| | | | | | |
| | | | | | |
| | 6-17-13 | PDJ | | | |
| | | | | | |



Reviewed By: SOA Initials Date: 6-19-13

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# American Radiation Services Analytical Reports

for

# Los Alamos National Laboratory

# Low Level Tritium by Low Level Liquid Scintillation Counting

# Control Charts

3H Efficiency
Total # pts : 5639
Valid # pts : 157
Mean : 62.74
SD : 0.26

| Date | Value | Valid Pt |
|---|---|---|
| Jun 21, 2012 | 63.04 | X |
| Jun 22, 2012 | 63.16 | X |
| Jun 25, 2012 | 63.09 | X |
| Jun 27, 2012 | 62.70 | X |
| Jun 27, 2012 | 62.99 | X |
| Jun 28, 2012 | 63.05 | X |
| Jun 29, 2012 | 62.93 | X |
| Jun 30, 2012 | 62.97 | X |
| Jul 05, 2012 | 62.86 | X |
| Jul 11, 2012 | 63.07 | X |
| Jul 12, 2012 | 62.85 | X |
| Jul 16, 2012 | 63.12 | X |
| Jul 20, 2012 | 63.22 | X |
| Jul 22, 2012 | 63.22 | X |
| Jul 26, 2012 | 63.19 | X |
| Jul 27, 2012 | 63.52 | X |
| Aug 09, 2012 | 62.77 | X |
| Aug 13, 2012 | 63.03 | X |
| Aug 14, 2012 | 62.90 | X |
| Aug 16, 2012 | 62.85 | X |
| Aug 17, 2012 | 63.22 | X |
| Aug 18, 2012 | 63.03 | X |
| Aug 21, 2012 | 62.94 | X |
| Aug 22, 2012 | 63.04 | X |
| Aug 26, 2012 | 63.29 | X |
| Aug 27, 2012 | 62.99 | X |
| Aug 27, 2012 | 63.17 | X |
| Sep 05, 2012 | 63.39 | X |
| Sep 09, 2012 | 62.96 | X |
| Sep 11, 2012 | 63.03 | X |
| Sep 17, 2012 | 63.15 | X |
| Sep 18, 2012 | 62.86 | X |
| Sep 20, 2012 | 62.86 | X |
| Sep 20, 2012 | 62.80 | X |
| Sep 24, 2012 | 63.14 | X |
| Sep 28, 2012 | 63.03 | X |
| Oct 01, 2012 | 62.85 | X |
| Oct 04, 2012 | 62.68 | X |
| Oct 05, 2012 | 62.88 | X |
| Oct 06, 2012 | 62.98 | X |
| Oct 11, 2012 | 62.74 | X |
| Oct 12, 2012 | 63.08 | X |

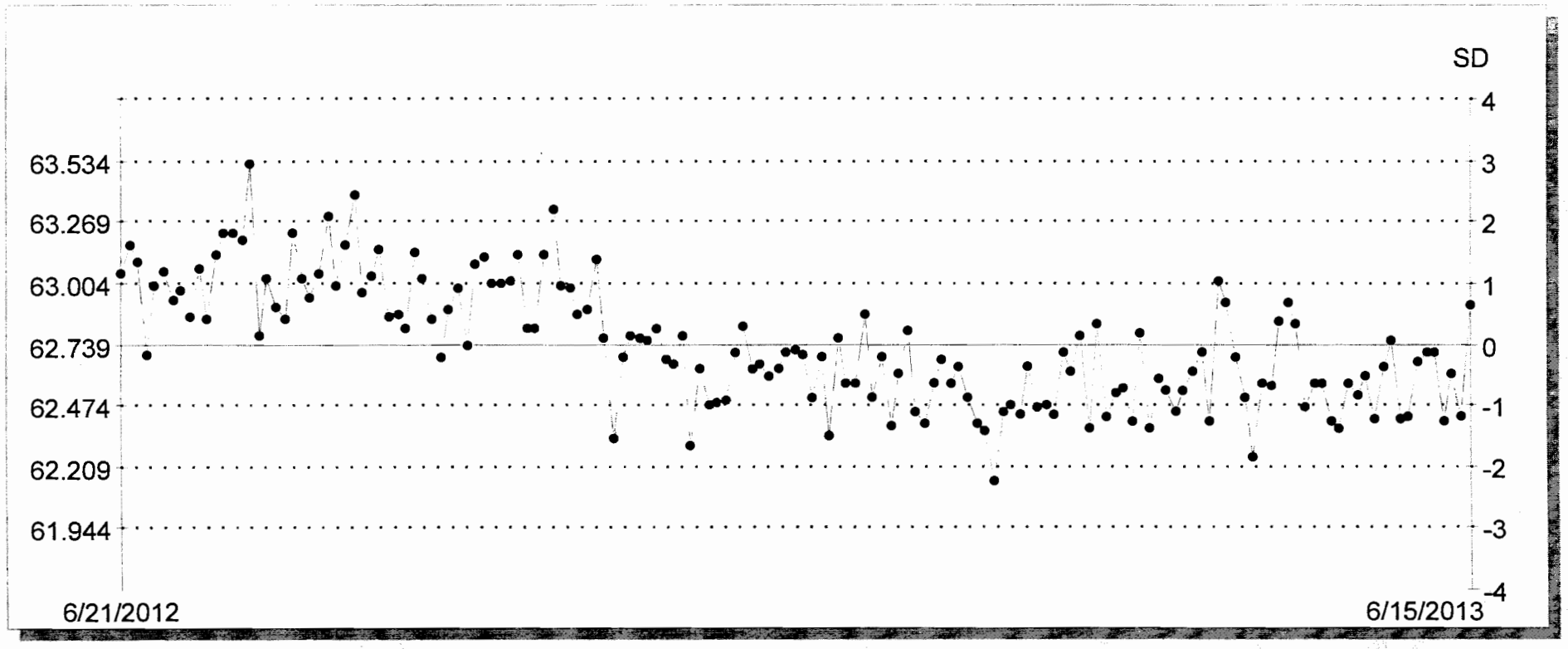
| | | |
|---|---|---|
| Oct 13, 2012 | 63.12 | x |
| Oct 17, 2012 | 63.00 | x |
| Oct 19, 2012 | 63.00 | x |
| Oct 22, 2012 | 63.02 | x |
| Oct 23, 2012 | 63.13 | x |
| Oct 23, 2012 | 62.80 | x |
| Oct 23, 2012 | 62.81 | x |
| Oct 23, 2012 | 63.13 | x |
| Oct 25, 2012 | 63.32 | x |
| Oct 27, 2012 | 62.99 | x |
| Oct 31, 2012 | 62.98 | x |
| Nov 02, 2012 | 62.87 | x |
| Nov 02, 2012 | 62.89 | x |
| Nov 04, 2012 | 63.11 | x |
| Nov 05, 2012 | 62.76 | x |
| Nov 10, 2012 | 62.33 | x |
| Nov 12, 2012 | 62.69 | x |
| Nov 12, 2012 | 62.77 | x |
| Nov 13, 2012 | 62.76 | x |
| Nov 14, 2012 | 62.75 | x |
| Nov 15, 2012 | 62.81 | x |
| Nov 18, 2012 | 62.68 | x |
| Nov 19, 2012 | 62.65 | x |
| Nov 19, 2012 | 62.78 | x |
| Nov 20, 2012 | 62.30 | x |
| Nov 21, 2012 | 62.63 | x |
| Nov 23, 2012 | 62.47 | x |
| Dec 04, 2012 | 62.48 | x |
| Dec 08, 2012 | 62.49 | x |
| Dec 12, 2012 | 62.70 | x |
| Dec 14, 2012 | 62.81 | x |
| Dec 15, 2012 | 62.63 | x |
| Dec 21, 2012 | 62.66 | x |
| Dec 21, 2012 | 62.60 | x |
| Dec 31, 2012 | 62.63 | x |
| Jan 02, 2013 | 62.70 | x |
| Jan 09, 2013 | 62.72 | x |
| Jan 10, 2013 | 62.69 | x |
| Feb 01, 2013 | 62.50 | x |
| Feb 02, 2013 | 62.68 | x |
| Feb 06, 2013 | 62.34 | x |
| Feb 08, 2013 | 62.77 | x |
| Feb 08, 2013 | 62.57 | x |
| Feb 15, 2013 | 62.57 | x |
| Feb 17, 2013 | 62.87 | x |
| Feb 18, 2013 | 62.50 | x |
| Feb 20, 2013 | 62.68 | x |
| Feb 21, 2013 | 62.38 | x |
| Feb 22, 2013 | 62.61 | x |
| Feb 28, 2013 | 62.80 | x |
| Mar 01, 2013 | 62.45 | x |
| Mar 01, 2013 | 62.39 | x |

| | | |
|---|---|---|
| Mar 04, 2013 | 62.67 | x |
| Mar 04, 2013 | 62.57 | x |
| Mar 06, 2013 | 62.64 | x |
| Mar 08, 2013 | 62.50 | x |
| Mar 08, 2013 | 62.39 | x |
| Mar 14, 2013 | 62.36 | x |
| Mar 15, 2013 | 62.14 | x |
| Mar 18, 2013 | 62.45 | x |
| Mar 22, 2013 | 62.47 | x |
| Mar 22, 2013 | 62.43 | x |
| Mar 23, 2013 | 62.64 | x |
| Mar 28, 2013 | 62.47 | x |
| Mar 29, 2013 | 62.47 | x |
| Apr 04, 2013 | 62.44 | x |
| Apr 05, 2013 | 62.70 | x |
| Apr 07, 2013 | 62.62 | x |
| Apr 11, 2013 | 62.77 | x |
| Apr 12, 2013 | 62.38 | x |
| Apr 15, 2013 | 62.83 | x |
| Apr 16, 2013 | 62.42 | x |
| Apr 16, 2013 | 62.53 | x |
| Apr 16, 2013 | 62.55 | x |
| Apr 16, 2013 | 62.41 | x |
| Apr 16, 2013 | 62.78 | x |
| Apr 16, 2013 | 62.37 | x |
| Apr 18, 2013 | 62.59 | x |
| Apr 19, 2013 | 62.54 | x |
| Apr 22, 2013 | 62.44 | x |
| Apr 24, 2013 | 62.54 | x |
| Apr 24, 2013 | 62.62 | x |
| Apr 25, 2013 | 62.71 | x |
| Apr 25, 2013 | 62.40 | x |
| Apr 27, 2013 | 63.02 | x |
| Apr 29, 2013 | 62.92 | x |
| May 01, 2013 | 62.68 | x |
| May 03, 2013 | 62.51 | x |
| May 06, 2013 | 62.24 | x |
| May 07, 2013 | 62.57 | x |
| May 09, 2013 | 62.56 | x |
| May 09, 2013 | 62.84 | x |
| May 09, 2013 | 62.92 | x |
| May 09, 2013 | 62.83 | x |
| May 09, 2013 | 62.46 | x |
| May 10, 2013 | 62.57 | x |
| May 14, 2013 | 62.57 | x |
| May 15, 2013 | 62.40 | x |
| May 16, 2013 | 62.37 | x |
| May 17, 2013 | 62.57 | x |
| May 17, 2013 | 62.52 | x |
| May 17, 2013 | 62.60 | x |
| May 17, 2013 | 62.41 | x |
| May 21, 2013 | 62.65 | x |

| | | |
|---|---|---|
| May 24, 2013 | 62.41 | X |
| May 24, 2013 | 62.42 | X |
| May 29, 2013 | 62.66 | X |
| Jun 07, 2013 | 62.70 | X |
| Jun 07, 2013 | 62.70 | X |
| Jun 09, 2013 | 62.40 | X |
| Jun 10, 2013 | 62.61 | X |
| Jun 13, 2013 | 62.43 | X |
| Jun 15, 2013 | 62.91 | X |

3H Efficiency

| | |
|---|---|
| Total # pts | : 5639 |
| Valid # pts | : 157 |
| Mean | : 62.74 |
| SD | : 0.26 |



3H Background
Total # pts : 5565
Valid # pts : 157
Mean : 2.12
SD : 0.17

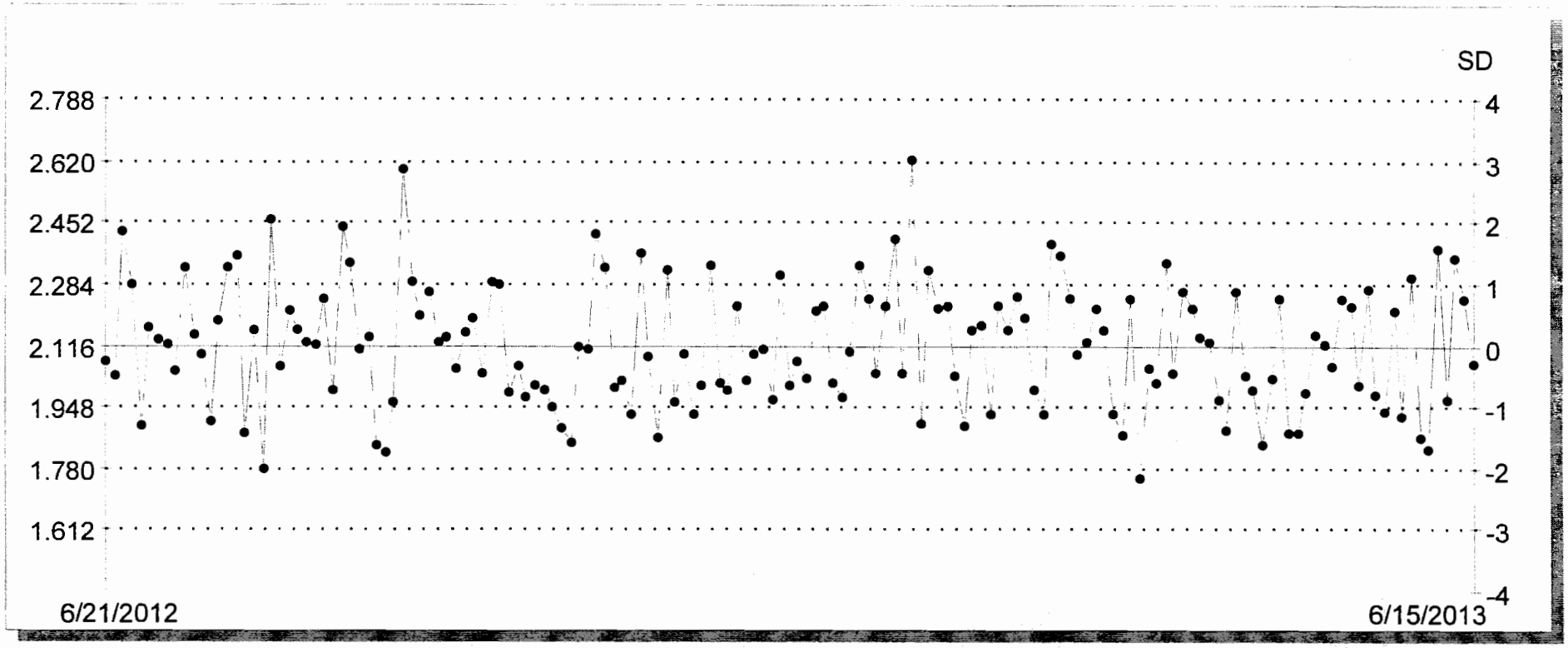
| Date | Value | Valid Pt |
|---|---|---|
| Jun 21, 2012 | 2.08 | X |
| Jun 22, 2012 | 2.04 | X |
| Jun 25, 2012 | 2.43 | X |
| Jun 27, 2012 | 2.28 | X |
| Jun 27, 2012 | 1.90 | X |
| Jun 28, 2012 | 2.16 | X |
| Jun 29, 2012 | 2.13 | X |
| Jun 30, 2012 | 2.12 | X |
| Jul 05, 2012 | 2.05 | X |
| Jul 11, 2012 | 2.33 | X |
| Jul 12, 2012 | 2.15 | X |
| Jul 16, 2012 | 2.09 | X |
| Jul 20, 2012 | 1.91 | X |
| Jul 22, 2012 | 2.19 | X |
| Jul 26, 2012 | 2.33 | X |
| Jul 27, 2012 | 2.36 | X |
| Aug 09, 2012 | 1.88 | X |
| Aug 13, 2012 | 2.16 | X |
| Aug 14, 2012 | 1.78 | X |
| Aug 16, 2012 | 2.46 | X |
| Aug 17, 2012 | 2.06 | X |
| Aug 18, 2012 | 2.21 | X |
| Aug 21, 2012 | 2.16 | X |
| Aug 22, 2012 | 2.13 | X |
| Aug 26, 2012 | 2.12 | X |
| Aug 27, 2012 | 2.25 | X |
| Aug 27, 2012 | 1.99 | X |
| Sep 05, 2012 | 2.44 | X |
| Sep 09, 2012 | 2.34 | X |
| Sep 11, 2012 | 2.11 | X |
| Sep 17, 2012 | 2.14 | X |
| Sep 18, 2012 | 1.85 | X |
| Sep 20, 2012 | 1.83 | X |
| Sep 20, 2012 | 1.96 | X |
| Sep 24, 2012 | 2.60 | X |
| Sep 28, 2012 | 2.29 | X |
| Oct 01, 2012 | 2.20 | X |
| Oct 04, 2012 | 2.26 | X |
| Oct 05, 2012 | 2.13 | X |
| Oct 06, 2012 | 2.14 | X |
| Oct 11, 2012 | 2.05 | X |
| Oct 12, 2012 | 2.15 | X |

| | | |
|---|---|---|
| Oct 13, 2012 | 2.19 | X |
| Oct 17, 2012 | 2.04 | X |
| Oct 19, 2012 | 2.29 | X |
| Oct 22, 2012 | 2.29 | X |
| Oct 23, 2012 | 1.99 | X |
| Oct 23, 2012 | 2.06 | X |
| Oct 23, 2012 | 1.98 | X |
| Oct 23, 2012 | 2.01 | X |
| Oct 25, 2012 | 2.00 | X |
| Oct 27, 2012 | 1.95 | X |
| Oct 31, 2012 | 1.89 | X |
| Nov 02, 2012 | 1.85 | X |
| Nov 02, 2012 | 2.11 | X |
| Nov 04, 2012 | 2.11 | X |
| Nov 05, 2012 | 2.42 | X |
| Nov 10, 2012 | 2.33 | X |
| Nov 12, 2012 | 2.00 | X |
| Nov 12, 2012 | 2.02 | X |
| Nov 13, 2012 | 1.93 | X |
| Nov 14, 2012 | 2.37 | X |
| Nov 15, 2012 | 2.09 | X |
| Nov 18, 2012 | 1.86 | X |
| Nov 19, 2012 | 2.32 | X |
| Nov 19, 2012 | 1.96 | X |
| Nov 20, 2012 | 2.09 | X |
| Nov 21, 2012 | 1.93 | X |
| Nov 23, 2012 | 2.01 | X |
| Dec 04, 2012 | 2.34 | X |
| Dec 08, 2012 | 2.02 | X |
| Dec 12, 2012 | 2.00 | X |
| Dec 14, 2012 | 2.22 | X |
| Dec 15, 2012 | 2.02 | X |
| Dec 21, 2012 | 2.09 | X |
| Dec 21, 2012 | 2.10 | X |
| Dec 31, 2012 | 1.97 | X |
| Jan 02, 2013 | 2.31 | X |
| Jan 09, 2013 | 2.01 | X |
| Jan 10, 2013 | 2.08 | X |
| Feb 01, 2013 | 2.03 | X |
| Feb 02, 2013 | 2.21 | X |
| Feb 06, 2013 | 2.22 | X |
| Feb 08, 2013 | 2.01 | X |
| Feb 08, 2013 | 1.98 | X |
| Feb 15, 2013 | 2.10 | X |
| Feb 17, 2013 | 2.34 | X |
| Feb 18, 2013 | 2.25 | X |
| Feb 20, 2013 | 2.04 | X |
| Feb 21, 2013 | 2.23 | X |
| Feb 22, 2013 | 2.41 | X |
| Feb 28, 2013 | 2.04 | X |
| Mar 01, 2013 | 2.62 | X |
| Mar 01, 2013 | 1.90 | X |

| | | |
|---|---|---|
| Mar 04, 2013 | 2.22 | x |
| Mar 04, 2013 | 2.22 | x |
| Mar 06, 2013 | 2.04 | x |
| Mar 08, 2013 | 1.90 | x |
| Mar 08, 2013 | 2.16 | x |
| Mar 14, 2013 | 2.17 | x |
| Mar 15, 2013 | 1.93 | x |
| Mar 18, 2013 | 2.22 | x |
| Mar 22, 2013 | 2.16 | x |
| Mar 22, 2013 | 2.25 | x |
| Mar 23, 2013 | 2.19 | x |
| Mar 28, 2013 | 1.99 | x |
| Mar 29, 2013 | 1.93 | x |
| Apr 04, 2013 | 2.40 | x |
| Apr 05, 2013 | 2.36 | x |
| Apr 07, 2013 | 2.25 | x |
| Apr 11, 2013 | 2.09 | x |
| Apr 12, 2013 | 2.13 | x |
| Apr 15, 2013 | 2.22 | x |
| Apr 16, 2013 | 2.16 | x |
| Apr 16, 2013 | 1.93 | x |
| Apr 16, 2013 | 1.87 | x |
| Apr 16, 2013 | 2.24 | x |
| Apr 16, 2013 | 1.75 | x |
| Apr 16, 2013 | 2.05 | x |
| Apr 18, 2013 | 2.02 | x |
| Apr 19, 2013 | 2.34 | x |
| Apr 22, 2013 | 2.04 | x |
| Apr 24, 2013 | 2.26 | x |
| Apr 24, 2013 | 2.22 | x |
| Apr 25, 2013 | 2.14 | x |
| Apr 25, 2013 | 2.13 | x |
| Apr 27, 2013 | 1.97 | x |
| Apr 29, 2013 | 1.89 | x |
| May 01, 2013 | 2.26 | x |
| May 03, 2013 | 2.04 | x |
| May 06, 2013 | 1.99 | x |
| May 07, 2013 | 1.84 | x |
| May 09, 2013 | 2.03 | x |
| May 09, 2013 | 2.24 | x |
| May 09, 2013 | 1.88 | x |
| May 09, 2013 | 1.88 | x |
| May 09, 2013 | 1.99 | x |
| May 10, 2013 | 2.15 | x |
| May 14, 2013 | 2.12 | x |
| May 15, 2013 | 2.06 | x |
| May 16, 2013 | 2.25 | x |
| May 17, 2013 | 2.23 | x |
| May 17, 2013 | 2.01 | x |
| May 17, 2013 | 2.27 | x |
| May 17, 2013 | 1.99 | x |
| May 21, 2013 | 1.94 | x |

| | | |
|---|---|---|
| May 24, 2013 | 1.92 | x |
| May 24, 2013 | 2.31 | x |
| May 29, 2013 | 1.86 | x |
| Jun 07, 2013 | 1.83 | x |
| Jun 07, 2013 | 2.38 | x |
| Jun 09, 2013 | 1.97 | x |
| Jun 10, 2013 | 2.35 | x |
| Jun 13, 2013 | 2.24 | x |
| Jun 15, 2013 | 2.06 | x |

3H Background
Total # pts : 5565
Valid # pts : 157
Mean : 2.12
SD : 0.17



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# American Radiation Services Analytical Reports

for

## Los Alamos National Laboratory

# Tritium- Screening by Low Level Liquid Scintillation Counting

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# American Radiation Services Analytical Reports

for

# Los Alamos National Laboratory

# Tritium-Screening by Low Level Liquid Scintillation Counting Samples

***Procedures:*** **ARS-060** **ARS-040** *Section 14.1 Tritium Screen in Clean Water without Distillation*

***ARS File ID Numbers:*** ARS1-13-01038; 1039; 1040
***ARS Batch ID:*** ARS1-B13-01059

| | Sample ID: | COUNT TIME | CPMA | Background CPMA | Eff Nucl In A | Aliquot (grams) | ACTIVITY | units | MDA | Sample Must be analyzed as LSC-A-001 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | B13-01059-04 | 120 | 1.354 | 1.482 | 24.59 | 10.03 | -23.377 | pCi/L | 119.963 | NO |
| 2 | B13-01059-05 | 120 | 1.390 | 1.482 | 24.59 | 10.05 | -16.769 | pCi/L | 119.7242 | NO |
| 3 | B13-01059-06 | 120 | 1.189 | 1.482 | 24.27 | 10.03 | -54.218 | pCi/L | 121.5447 | NO |
| 4 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 5 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 6 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 7 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 8 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 9 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 10 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 11 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 12 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 13 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 14 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 15 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 16 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 17 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 18 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 19 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 20 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 21 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 22 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 23 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |

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# American Radiation Services Analytical Reports

for

# Los Alamos National Laboratory

# Tritium-Screening by Low Level Liquid Scintillation Counting

# Laboratory Records

# Analysis Batch Report



AMRAD
AMERICAN RADIATION SERVICES, LLC

**Analysis Batch ID** **ARS1-B13-01059**

| **Method** | **ARS-054** | **Analysis** | **LSC-A-021** | **Matrix** | **AQ** |
|---|---|---|---|---|---|
| **Description** | **Low Level Tritium Screening** | | | | |

| ABatch Sample ID | Type | Blind Iso1 | Blind Iso2 | Blind Iso3 | SDG | FR | Run | Client ID | Isotope Group | Lab Deadline |
|---|---|---|---|---|---|---|---|---|---|---|
| ARS1-B13-01059-01 | LCS | | | | | | | | | |
| ARS1-B13-01059-02 | LCSD | | | | | | | | | |
| ARS1-B13-01059-03 | MBL | | | | | | | | | |
| ARS1-B13-01059-04 | TRG | | | | **ARS1-13-01038** | 001 | 1 | CAMO-13-30615 | STD | 06/19/13 |
| ARS1-B13-01059-05 | TRG | | | | **ARS1-13-01039** | 001 | 1 | CAMO-13-30584 | STD | 06/19/13 |
| ARS1-B13-01059-06 | TRG | | | | **ARS1-13-01040** | 001 | 1 | CAMO-13-30585 | STD | 06/19/13 |

# ARS-054



| ID_31001_054 | ABatch | ABatchSampleID | ClientID | Aliquot1 | AliquotUnits1 | IC_ID1 | Aliquot2 | AliquotUnits2 | IC_ID2 | UserID | ModDate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 12576 | ARS1-B13-01059 | ARS1-B13-01059-01 | | 1 | g | | | | | AMRAD\PSIMS | 05/24/2013 10:52:21 |
| 12577 | ARS1-B13-01059 | ARS1-B13-01059-02 | | 1 | g | | | | | AMRAD\PSIMS | 05/24/2013 10:52:21 |
| 12578 | ARS1-B13-01059 | ARS1-B13-01059-03 | | 1 | g | | | | | AMRAD\PSIMS | 05/24/2013 10:52:21 |
| 12579 | ARS1-B13-01059 | ARS1-B13-01059-04 | CAMO-13-30615 | 10.03 | g | 137130 | | | | AMRAD\PSIMS | 05/24/2013 10:52:21 |
| 12580 | ARS1-B13-01059 | ARS1-B13-01059-05 | CAMO-13-30584 | 10.05 | g | 137131 | | | | AMRAD\PSIMS | 05/24/2013 10:52:21 |
| 12581 | ARS1-B13-01059 | ARS1-B13-01059-06 | CAMO-13-30585 | 10.03 | g | 137132 | | | | AMRAD\PSIMS | 05/24/2013 10:52:21 |

Assay Definition-

Assay Description:
Low Low Level Tritium

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\ARS\Low Low Level Tritium\20130524_1242
Raw Results Path: C:\Packard\Tricarb\Results\ARS\Low Low Level Tritium\20130524_1242\20130524_1242.results
RTF File Name: C:\Packard\Tricarb\Results\ARS\Low Low Level Tritium\20130524_1242\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\ARS\Low Low Level Tritium\20130524_1242\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Low Level Tritium.lsa

Count Conditions-

Nuclide: H-3 LL
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10
Count Time (min): 120.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 2
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

| Regions | LL | UL | 2Sigma % Terminator |
|---|---|---|---|
| A | 2.0 | 18.6 | 0.50 |
| B | 0.0 | 2000.0 | 0.00 |
| C | 0.0 | 2000.0 | 0.00 |

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

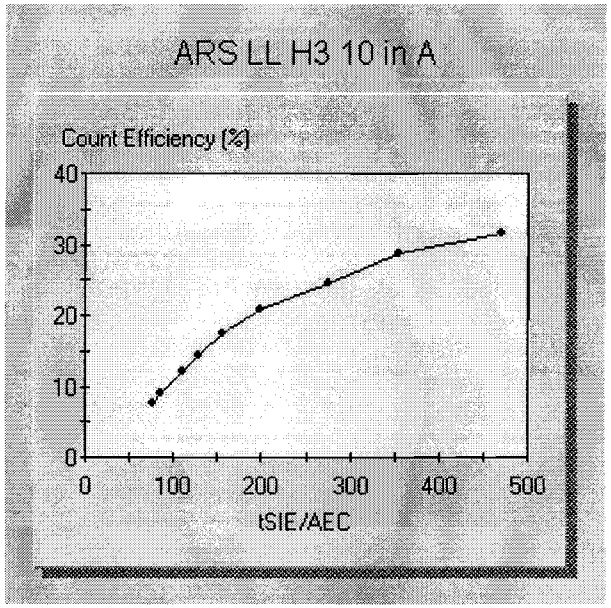
Half Life-

Half Life Correction: Off

| Regions | Half Life | Units | Reference Date | Reference Time |
|---|---|---|---|---|

A
B
C

Cycle 1 Results
Quench Curve Block Data




Date Acquired: 07/12/2012
Date Modified:
ARS LL H3 10 in A

| tSIE/AEC | Count Efficiency (%) |
|---|---|
| 469.86 | 31.67 |
| 355.16 | 28.64 |
| 276.20 | 24.37 |
| 198.58 | 20.90 |
| 156.80 | 17.54 |
| 129.38 | 14.41 |
| 110.19 | 12.01 |
| 86.31 | 8.98 |
| 76.97 | 7.55 |

| P# | S# | SMPL_ID | CPMA | DPM1 | tSIE | Eff Nucl In A | Count Time | DATE | TIME | MESSAGES |
|---|---|---|---|---|---|---|---|---|---|---|
| 41 | 1 | BACKGROUND | 1.461 | 5.992 | 276.38 | 24.38 | 120.00 | 5/24/2013 | 12:51:59 PM | |
| 41 | 1 | BACKGROUND | 1.504 | 6.165 | 276.77 | 24.40 | 120.00 | 5/24/2013 | 3:03:43 PM | |
| | | | 1.482 | 6.078 | 276.58 | 24.39 | | | | A |
| 41 | 2 | B13-01059-04 | 1.451 | 5.907 | 280.01 | 24.57 | 120.00 | 5/24/2013 | 5:15:40 PM | |
| 41 | 2 | B13-01059-04 | 1.257 | 5.105 | 280.75 | 24.61 | 120.00 | 5/24/2013 | 7:27:24 PM | |
| | | | 1.354 | 5.506 | 280.38 | 24.59 | | | | A |
| 41 | 3 | B13-01059-05 | 1.504 | 6.123 | 279.84 | 24.56 | 120.00 | 5/24/2013 | 9:39:22 PM | |
| 41 | 3 | B13-01059-05 | 1.277 | 5.189 | 280.64 | 24.61 | 120.00 | 5/24/2013 | 11:51:08 PM | |
| | | | 1.390 | 5.656 | 280.24 | 24.59 | | | | A |
| 41 | 4 | B13-01059-06 | 1.187 | 4.885 | 274.45 | 24.29 | 120.00 | 5/25/2013 | 2:03:06 AM | |
| 41 | 4 | B13-01059-06 | 1.191 | 4.913 | 273.50 | 24.25 | 120.00 | 5/25/2013 | 4:14:50 AM | |
| | | | 1.189 | 4.899 | 273.97 | 24.27 | | | | A |

# Beta Liquid Scintillation Counter Log Book

| Date | Time | ARS Sample I.D. Number | Batch Number | Liquid Scintillation File Number | Technician Initials |
|---|---|---|---|---|---|
| 4-19-13 | 1418 | B13-00784-13 | B13-00784 | 1618 | [illegible] |
| ↓ | ↓ | B13-00784-14 | ↓ | ↓ | [illegible] |
| ↓ | ↓ | B13-00784-15 | ↓ | ↓ | [illegible] |
| 5-9-13 | 15:42 | SNC 18 | QA | QA | PDS |
| ↓ | ↓ | Background | B13-00955 | 1727 | PDS |
| ↓ | ↓ | B13-00955-04 | ↓ | ↓ | PDS |
| ↓ | ↓ | B13-00955-05 | ↓ | ↓ | PDS |
| ↓ | ↓ | B13-00955-06 | ↓ | ↓ | PDS |
| ↓ | ↓ | B13-00955-07 | ↓ | ↓ | PDS |
| 5-10-13 | 7:00 | Background | B13-00955 | 0707 | PDS |
| ↓ | ↓ | B13-00955-05 | ↓ | ↓ | PDS |
| 5-21-13 | 15:24 | SNC18 | QA | QA | PDS |
| ↓ | ↓ | Background | B13-01027 | | PDS |
| ↓ | ↓ | B13-01027-04 | ↓ | ↓ | PDS |
| ↓ | ↓ | B13-01027-05 | ↓ | ↓ | PDS |
| 5-24-13 | 10:59 | SNC18 | QA | QA | PDS |
| ↓ | ↓ | Background | B13-01059 | | PDS |
| ↓ | ↓ | B13-01059-04 | ↓ | ↓ | PDS |
| ↓ | ↓ | B13-01059-05 | ↓ | ↓ | PDS |
| ↓ | ↓ | B13-01059-06 | ↓ | ↓ | PDS |



Reviewed By: SDR Date: 6-19-13
Initials

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

# American Radiation Services Analytical Reports

for

# Los Alamos National Laboratory

# Tritium-Screening by Low Level Liquid Scintillation Counting

# Control Charts

3H Efficiency
Total # pts : 5639
Valid # pts : 157
Mean : 62.74
SD : 0.26

| Date | Value | Valid Pt |
|---|---|---|
| Jun 21, 2012 | 63.04 | X |
| Jun 22, 2012 | 63.16 | X |
| Jun 25, 2012 | 63.09 | X |
| Jun 27, 2012 | 62.70 | X |
| Jun 27, 2012 | 62.99 | X |
| Jun 28, 2012 | 63.05 | X |
| Jun 29, 2012 | 62.93 | X |
| Jun 30, 2012 | 62.97 | X |
| Jul 05, 2012 | 62.86 | X |
| Jul 11, 2012 | 63.07 | X |
| Jul 12, 2012 | 62.85 | X |
| Jul 16, 2012 | 63.12 | X |
| Jul 20, 2012 | 63.22 | X |
| Jul 22, 2012 | 63.22 | X |
| Jul 26, 2012 | 63.19 | X |
| Jul 27, 2012 | 63.52 | X |
| Aug 09, 2012 | 62.77 | X |
| Aug 13, 2012 | 63.03 | X |
| Aug 14, 2012 | 62.90 | X |
| Aug 16, 2012 | 62.85 | X |
| Aug 17, 2012 | 63.22 | X |
| Aug 18, 2012 | 63.03 | X |
| Aug 21, 2012 | 62.94 | X |
| Aug 22, 2012 | 63.04 | X |
| Aug 26, 2012 | 63.29 | X |
| Aug 27, 2012 | 62.99 | X |
| Aug 27, 2012 | 63.17 | X |
| Sep 05, 2012 | 63.39 | X |
| Sep 09, 2012 | 62.96 | X |
| Sep 11, 2012 | 63.03 | X |
| Sep 17, 2012 | 63.15 | X |
| Sep 18, 2012 | 62.86 | X |
| Sep 20, 2012 | 62.86 | X |
| Sep 20, 2012 | 62.80 | X |
| Sep 24, 2012 | 63.14 | X |
| Sep 28, 2012 | 63.03 | X |
| Oct 01, 2012 | 62.85 | X |
| Oct 04, 2012 | 62.68 | X |
| Oct 05, 2012 | 62.88 | X |
| Oct 06, 2012 | 62.98 | X |
| Oct 11, 2012 | 62.74 | X |
| Oct 12, 2012 | 63.08 | X |

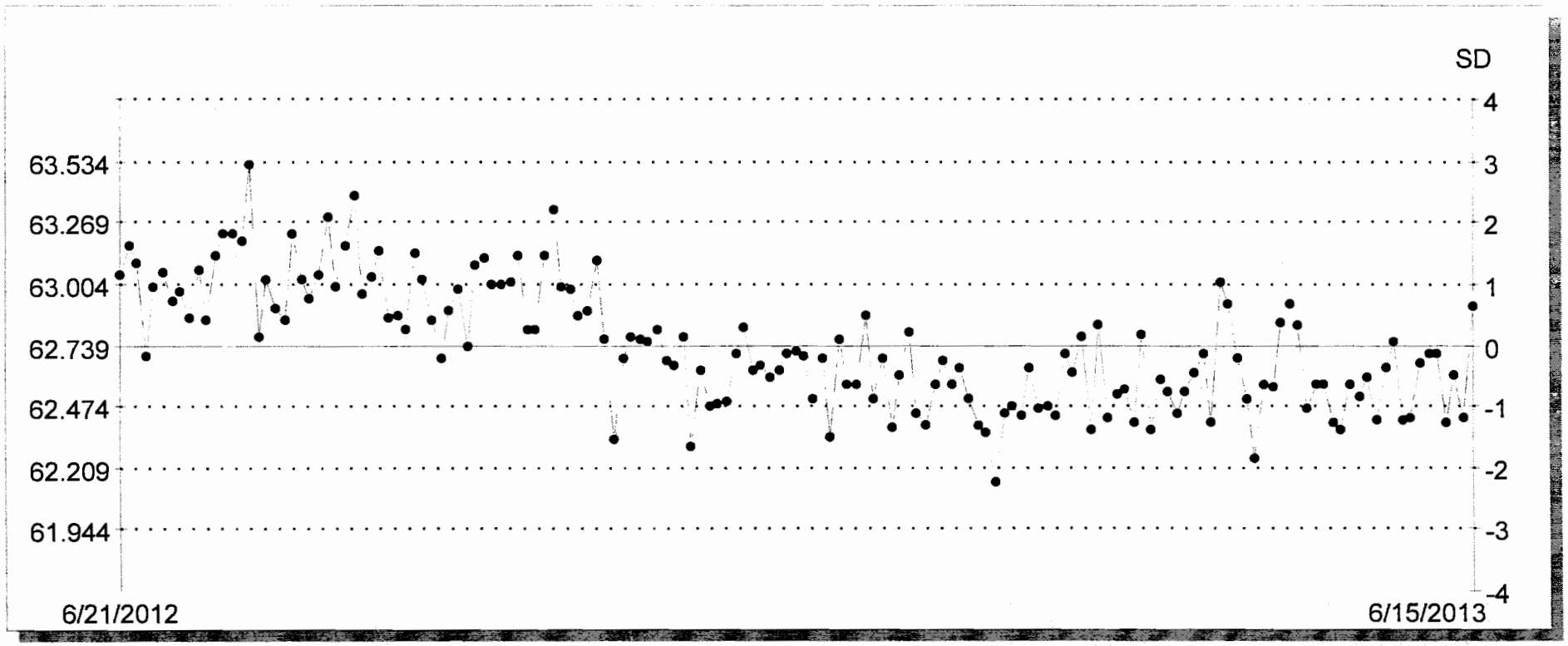
| | | |
|---|---|---|
| Oct 13, 2012 | 63.12 | x |
| Oct 17, 2012 | 63.00 | x |
| Oct 19, 2012 | 63.00 | x |
| Oct 22, 2012 | 63.02 | x |
| Oct 23, 2012 | 63.13 | x |
| Oct 23, 2012 | 62.80 | x |
| Oct 23, 2012 | 62.81 | x |
| Oct 23, 2012 | 63.13 | x |
| Oct 25, 2012 | 63.32 | x |
| Oct 27, 2012 | 62.99 | x |
| Oct 31, 2012 | 62.98 | x |
| Nov 02, 2012 | 62.87 | x |
| Nov 02, 2012 | 62.89 | x |
| Nov 04, 2012 | 63.11 | x |
| Nov 05, 2012 | 62.76 | x |
| Nov 10, 2012 | 62.33 | x |
| Nov 12, 2012 | 62.69 | x |
| Nov 12, 2012 | 62.77 | x |
| Nov 13, 2012 | 62.76 | x |
| Nov 14, 2012 | 62.75 | x |
| Nov 15, 2012 | 62.81 | x |
| Nov 18, 2012 | 62.68 | x |
| Nov 19, 2012 | 62.65 | x |
| Nov 19, 2012 | 62.78 | x |
| Nov 20, 2012 | 62.30 | x |
| Nov 21, 2012 | 62.63 | x |
| Nov 23, 2012 | 62.47 | x |
| Dec 04, 2012 | 62.48 | x |
| Dec 08, 2012 | 62.49 | x |
| Dec 12, 2012 | 62.70 | x |
| Dec 14, 2012 | 62.81 | x |
| Dec 15, 2012 | 62.63 | x |
| Dec 21, 2012 | 62.66 | x |
| Dec 21, 2012 | 62.60 | x |
| Dec 31, 2012 | 62.63 | x |
| Jan 02, 2013 | 62.70 | x |
| Jan 09, 2013 | 62.72 | x |
| Jan 10, 2013 | 62.69 | x |
| Feb 01, 2013 | 62.50 | x |
| Feb 02, 2013 | 62.68 | x |
| Feb 06, 2013 | 62.34 | x |
| Feb 08, 2013 | 62.77 | x |
| Feb 08, 2013 | 62.57 | x |
| Feb 15, 2013 | 62.57 | x |
| Feb 17, 2013 | 62.87 | x |
| Feb 18, 2013 | 62.50 | x |
| Feb 20, 2013 | 62.68 | x |
| Feb 21, 2013 | 62.38 | x |
| Feb 22, 2013 | 62.61 | x |
| Feb 28, 2013 | 62.80 | x |
| Mar 01, 2013 | 62.45 | x |
| Mar 01, 2013 | 62.39 | x |

| | | |
|---|---|---|
| Mar 04, 2013 | 62.67 | X |
| Mar 04, 2013 | 62.57 | X |
| Mar 06, 2013 | 62.64 | X |
| Mar 08, 2013 | 62.50 | X |
| Mar 08, 2013 | 62.39 | X |
| Mar 14, 2013 | 62.36 | X |
| Mar 15, 2013 | 62.14 | X |
| Mar 18, 2013 | 62.45 | X |
| Mar 22, 2013 | 62.47 | X |
| Mar 22, 2013 | 62.43 | X |
| Mar 23, 2013 | 62.64 | X |
| Mar 28, 2013 | 62.47 | X |
| Mar 29, 2013 | 62.47 | X |
| Apr 04, 2013 | 62.44 | X |
| Apr 05, 2013 | 62.70 | X |
| Apr 07, 2013 | 62.62 | X |
| Apr 11, 2013 | 62.77 | X |
| Apr 12, 2013 | 62.38 | X |
| Apr 15, 2013 | 62.83 | X |
| Apr 16, 2013 | 62.42 | X |
| Apr 16, 2013 | 62.53 | X |
| Apr 16, 2013 | 62.55 | X |
| Apr 16, 2013 | 62.41 | X |
| Apr 16, 2013 | 62.78 | X |
| Apr 16, 2013 | 62.37 | X |
| Apr 18, 2013 | 62.59 | X |
| Apr 19, 2013 | 62.54 | X |
| Apr 22, 2013 | 62.44 | X |
| Apr 24, 2013 | 62.54 | X |
| Apr 24, 2013 | 62.62 | X |
| Apr 25, 2013 | 62.71 | X |
| Apr 25, 2013 | 62.40 | X |
| Apr 27, 2013 | 63.02 | X |
| Apr 29, 2013 | 62.92 | X |
| May 01, 2013 | 62.68 | X |
| May 03, 2013 | 62.51 | X |
| May 06, 2013 | 62.24 | X |
| May 07, 2013 | 62.57 | X |
| May 09, 2013 | 62.56 | X |
| May 09, 2013 | 62.84 | X |
| May 09, 2013 | 62.92 | X |
| May 09, 2013 | 62.83 | X |
| May 09, 2013 | 62.46 | X |
| May 10, 2013 | 62.57 | X |
| May 14, 2013 | 62.57 | X |
| May 15, 2013 | 62.40 | X |
| May 16, 2013 | 62.37 | X |
| May 17, 2013 | 62.57 | X |
| May 17, 2013 | 62.52 | X |
| May 17, 2013 | 62.60 | X |
| May 17, 2013 | 62.41 | X |
| May 21, 2013 | 62.65 | X |

| | | |
|---|---|---|
| May 24, 2013 | 62.41 | x |
| May 24, 2013 | 62.42 | x |
| May 29, 2013 | 62.66 | x |
| Jun 07, 2013 | 62.70 | x |
| Jun 07, 2013 | 62.70 | x |
| Jun 09, 2013 | 62.40 | x |
| Jun 10, 2013 | 62.61 | x |
| Jun 13, 2013 | 62.43 | x |
| Jun 15, 2013 | 62.91 | x |

3H Efficiency

| | |
|---|---|
| Total # pts | : 5639 |
| Valid # pts | : 157 |
| Mean | : 62.74 |
| SD | : 0.26 |



3H Background
Total # pts : 5565
Valid # pts : 157
Mean : 2.12
SD : 0.17

| Date | Value | Valid Pt |
|---|---|---|
| Jun 21, 2012 | 2.08 | X |
| Jun 22, 2012 | 2.04 | X |
| Jun 25, 2012 | 2.43 | X |
| Jun 27, 2012 | 2.28 | X |
| Jun 27, 2012 | 1.90 | X |
| Jun 28, 2012 | 2.16 | X |
| Jun 29, 2012 | 2.13 | X |
| Jun 30, 2012 | 2.12 | X |
| Jul 05, 2012 | 2.05 | X |
| Jul 11, 2012 | 2.33 | X |
| Jul 12, 2012 | 2.15 | X |
| Jul 16, 2012 | 2.09 | X |
| Jul 20, 2012 | 1.91 | X |
| Jul 22, 2012 | 2.19 | X |
| Jul 26, 2012 | 2.33 | X |
| Jul 27, 2012 | 2.36 | X |
| Aug 09, 2012 | 1.88 | X |
| Aug 13, 2012 | 2.16 | X |
| Aug 14, 2012 | 1.78 | X |
| Aug 16, 2012 | 2.46 | X |
| Aug 17, 2012 | 2.06 | X |
| Aug 18, 2012 | 2.21 | X |
| Aug 21, 2012 | 2.16 | X |
| Aug 22, 2012 | 2.13 | X |
| Aug 26, 2012 | 2.12 | X |
| Aug 27, 2012 | 2.25 | X |
| Aug 27, 2012 | 1.99 | X |
| Sep 05, 2012 | 2.44 | X |
| Sep 09, 2012 | 2.34 | X |
| Sep 11, 2012 | 2.11 | X |
| Sep 17, 2012 | 2.14 | X |
| Sep 18, 2012 | 1.85 | X |
| Sep 20, 2012 | 1.83 | X |
| Sep 20, 2012 | 1.96 | X |
| Sep 24, 2012 | 2.60 | X |
| Sep 28, 2012 | 2.29 | X |
| Oct 01, 2012 | 2.20 | X |
| Oct 04, 2012 | 2.26 | X |
| Oct 05, 2012 | 2.13 | X |
| Oct 06, 2012 | 2.14 | X |
| Oct 11, 2012 | 2.05 | X |
| Oct 12, 2012 | 2.15 | X |

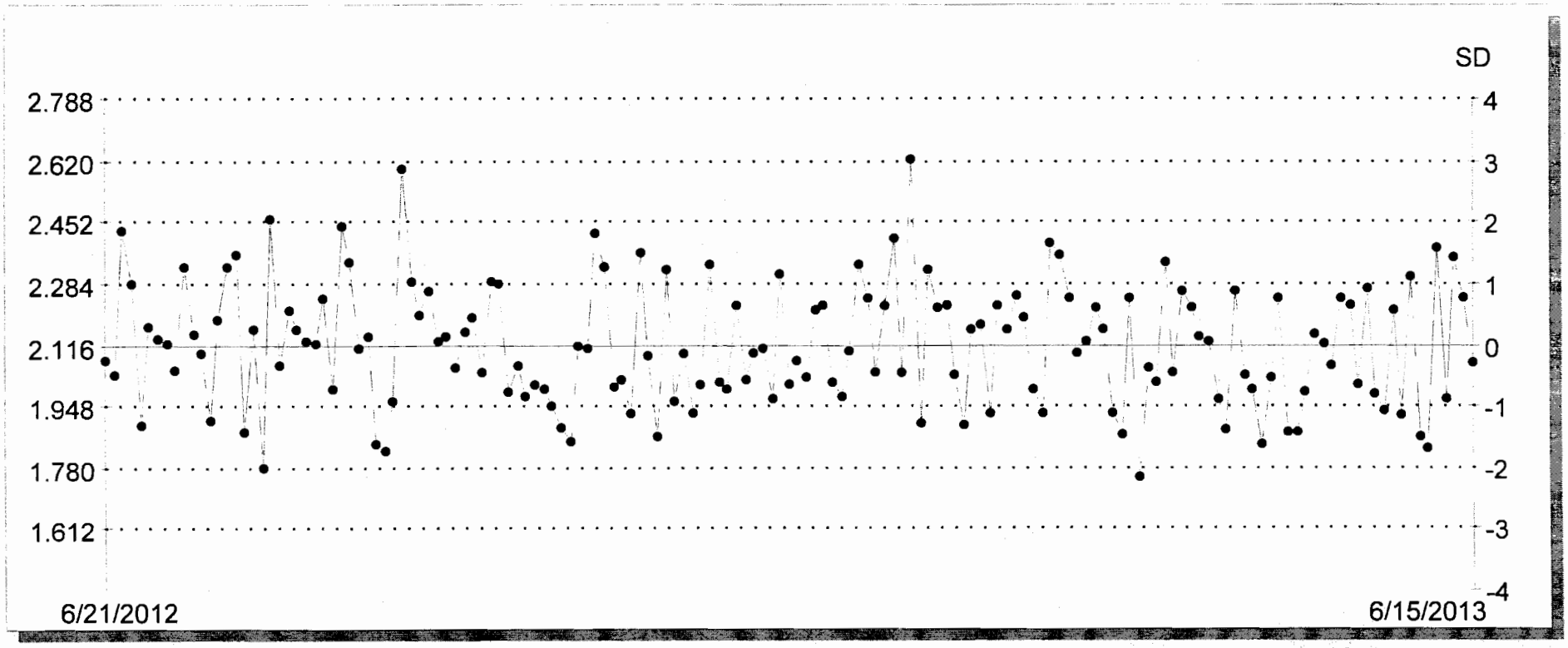
| | | |
|---|---|---|
| Oct 13, 2012 | 2.19 | X |
| Oct 17, 2012 | 2.04 | X |
| Oct 19, 2012 | 2.29 | X |
| Oct 22, 2012 | 2.29 | X |
| Oct 23, 2012 | 1.99 | X |
| Oct 23, 2012 | 2.06 | X |
| Oct 23, 2012 | 1.98 | X |
| Oct 23, 2012 | 2.01 | X |
| Oct 25, 2012 | 2.00 | X |
| Oct 27, 2012 | 1.95 | X |
| Oct 31, 2012 | 1.89 | X |
| Nov 02, 2012 | 1.85 | X |
| Nov 02, 2012 | 2.11 | X |
| Nov 04, 2012 | 2.11 | X |
| Nov 05, 2012 | 2.42 | X |
| Nov 10, 2012 | 2.33 | X |
| Nov 12, 2012 | 2.00 | X |
| Nov 12, 2012 | 2.02 | X |
| Nov 13, 2012 | 1.93 | X |
| Nov 14, 2012 | 2.37 | X |
| Nov 15, 2012 | 2.09 | X |
| Nov 18, 2012 | 1.86 | X |
| Nov 19, 2012 | 2.32 | X |
| Nov 19, 2012 | 1.96 | X |
| Nov 20, 2012 | 2.09 | X |
| Nov 21, 2012 | 1.93 | X |
| Nov 23, 2012 | 2.01 | X |
| Dec 04, 2012 | 2.34 | X |
| Dec 08, 2012 | 2.02 | X |
| Dec 12, 2012 | 2.00 | X |
| Dec 14, 2012 | 2.22 | X |
| Dec 15, 2012 | 2.02 | X |
| Dec 21, 2012 | 2.09 | X |
| Dec 21, 2012 | 2.10 | X |
| Dec 31, 2012 | 1.97 | X |
| Jan 02, 2013 | 2.31 | X |
| Jan 09, 2013 | 2.01 | X |
| Jan 10, 2013 | 2.08 | X |
| Feb 01, 2013 | 2.03 | X |
| Feb 02, 2013 | 2.21 | X |
| Feb 06, 2013 | 2.22 | X |
| Feb 08, 2013 | 2.01 | X |
| Feb 08, 2013 | 1.98 | X |
| Feb 15, 2013 | 2.10 | X |
| Feb 17, 2013 | 2.34 | X |
| Feb 18, 2013 | 2.25 | X |
| Feb 20, 2013 | 2.04 | X |
| Feb 21, 2013 | 2.23 | X |
| Feb 22, 2013 | 2.41 | X |
| Feb 28, 2013 | 2.04 | X |
| Mar 01, 2013 | 2.62 | X |
| Mar 01, 2013 | 1.90 | X |

| | | |
|---|---|---|
| Mar 04, 2013 | 2.22 | X |
| Mar 04, 2013 | 2.22 | X |
| Mar 06, 2013 | 2.04 | X |
| Mar 08, 2013 | 1.90 | X |
| Mar 08, 2013 | 2.16 | X |
| Mar 14, 2013 | 2.17 | X |
| Mar 15, 2013 | 1.93 | X |
| Mar 18, 2013 | 2.22 | X |
| Mar 22, 2013 | 2.16 | X |
| Mar 22, 2013 | 2.25 | X |
| Mar 23, 2013 | 2.19 | X |
| Mar 28, 2013 | 1.99 | X |
| Mar 29, 2013 | 1.93 | X |
| Apr 04, 2013 | 2.40 | X |
| Apr 05, 2013 | 2.36 | X |
| Apr 07, 2013 | 2.25 | X |
| Apr 11, 2013 | 2.09 | X |
| Apr 12, 2013 | 2.13 | X |
| Apr 15, 2013 | 2.22 | X |
| Apr 16, 2013 | 2.16 | X |
| Apr 16, 2013 | 1.93 | X |
| Apr 16, 2013 | 1.87 | X |
| Apr 16, 2013 | 2.24 | X |
| Apr 16, 2013 | 1.75 | X |
| Apr 16, 2013 | 2.05 | X |
| Apr 18, 2013 | 2.02 | X |
| Apr 19, 2013 | 2.34 | X |
| Apr 22, 2013 | 2.04 | X |
| Apr 24, 2013 | 2.26 | X |
| Apr 24, 2013 | 2.22 | X |
| Apr 25, 2013 | 2.14 | X |
| Apr 25, 2013 | 2.13 | X |
| Apr 27, 2013 | 1.97 | X |
| Apr 29, 2013 | 1.89 | X |
| May 01, 2013 | 2.26 | X |
| May 03, 2013 | 2.04 | X |
| May 06, 2013 | 1.99 | X |
| May 07, 2013 | 1.84 | X |
| May 09, 2013 | 2.03 | X |
| May 09, 2013 | 2.24 | X |
| May 09, 2013 | 1.88 | X |
| May 09, 2013 | 1.88 | X |
| May 09, 2013 | 1.99 | X |
| May 10, 2013 | 2.15 | X |
| May 14, 2013 | 2.12 | X |
| May 15, 2013 | 2.06 | X |
| May 16, 2013 | 2.25 | X |
| May 17, 2013 | 2.23 | X |
| May 17, 2013 | 2.01 | X |
| May 17, 2013 | 2.27 | X |
| May 17, 2013 | 1.99 | X |
| May 21, 2013 | 1.94 | X |

| | | |
|---|---|---|
| May 24, 2013 | 1.92 | X |
| May 24, 2013 | 2.31 | X |
| May 29, 2013 | 1.86 | X |
| Jun 07, 2013 | 1.83 | X |
| Jun 07, 2013 | 2.38 | X |
| Jun 09, 2013 | 1.97 | X |
| Jun 10, 2013 | 2.35 | X |
| Jun 13, 2013 | 2.24 | X |
| Jun 15, 2013 | 2.06 | X |

3H Background

| | |
|---|---|
| Total # pts | : 5565 |
| Valid # pts | : 157 |
| Mean | : 2.12 |
| SD | : 0.17 |



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1 (800) 401-4277 • Fax (225) 381-2996

# American Radiation Services Analytical Reports

for

# Los Alamos National Laboratory

# Low Level Liquid Scintillation Counting

# Calibration Information

ARS INTERNATIONAL

## QUALITY CONTROL PROGRAM

AMERICAN RADIATION SERVICES
RADIOACTIVE REFERENCE SOLUTIONS

# ANNUAL ACTIVITY VERIFICATION

VERIFICATION DATE 9/10/2012 20:16 *date counted*
STANDARD REFERENCE # S-0279

| Principal Radionuclide | | Half Life, Years | | Half Life, Days |
|---|---|---|---|---|
| H-3 | *ENTER -->* | | *OR -->* | 4.4998E+03 |
| | | 1.232E+01 | | 4.4998E+03 |

Radionuclide H-3 Dilution Reference Date 9/7/2012 10:40

| | | | |
|---|---|---|---|
| Dilution Activity | 2.58 | pCi per gram ===> dpm/g | 5.73 |
| Verif. Date Decay Corrected | 2.58 | pCi per gram ===> dpm/g | 5.72 |

*Minimum of 3 Required*

| Trial ID | Sample Counts | Count Time (min) | Detector | Efficiency | Bkg. (cpm) | Net Weight | Decay Corrected Activity Result (dpm/g) | Decay Corrected Activity Result (pCi/g) |
|---|---|---|---|---|---|---|---|---|
| S-0279-V1 | 15.91 | 1 | LSC | 0.3302 | 6.49 | 5.019 | 5.68 | 2.56 |
| S-0279-V2 | 16.21 | 1 | LSC | 0.3291 | 6.49 | 5.018 | 5.89 | 2.65 |
| S-0279-V3 | 15.76 | 1 | LSC | 0.3290 | 6.49 | 5.018 | 5.62 | 2.53 |
| S-0279-V4 | 15.62 | 1 | LSC | 0.3293 | 6.49 | 5.008 | 5.54 | 2.49 |
| S-0279-V5 | 15.76 | 1 | LSC | 0.3280 | 6.49 | 5.018 | 5.63 | 2.54 |

| | | | |
|---|---|---|---|
| | Average | 5.67 | 2.55 |
| | Two Sigma Uncertainty | 0.26 | 0.12 |
| *10% Max* *PASS* | Standard Deviation percent of known concentration | 2.30% | 2.30% |
| | Target Activity | 5.72 | 2.58 |
| *5% Max* *PASS* | % Diff | -0.91% | -0.91% |

Verification Expiration Date: ##############

Prepared & Counted By [signature] Date: 9/10/2012 20:16

Verified & Approved By [signature] Date: 9-11-12 0817

QC Approval [signature] Date: 9-11-12 0817

| | | |
|---|---|---|
| **S-0279** | | |
| **H-3** | Verified | *9/10/12* |
| SL | **Expires** | **9/10/13** |
| **Manufactuer** | **NIST SRM 4927F** | |
| **Sol Matrix** | H2O | |
| **Ref No** | NIST SRM 4927F | |
| **Tech** | Unknown | |
| **Parent ID** | S-0237 | |

ARS INTERNATIONAL

RADIOACTIVE STANDARDS -- BATON ROUGE LABORATORY

**H-3 Standard Verification**

**Verifier's Name:** Brian Steffens **Date:** 9/7/2012

**Pipettor ID:** FJ40469

**Pipettor ID:** Auto-pipettor

**Pipettor ID:** na

**Standard ID:** S-0279

**Standard ID:** N/A

Standards brought up to ~5g with distilled dead water.
Standards made in glass vials.

15mL of Ultima Gold added to standard

| | Weight of Standard |
|---|---|
| **S-0279-V1** | 5.019 **g** |
| **S-0279-V2** | 5.018 **g** |
| **S-0279-V3** | 5.018 **g** |
| **S-0279-V4** | 5.008 **g** |
| **S-0279-V5** | 5.018 **g** |
| | |
| | |
| | |
| | |
| | |

**Balance ID:** H1331122173560P

Assay Definition-

Assay Description:
H3 Normal Lvl

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931
Raw Results Path: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\20120910_0931.results
RTF File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\H3 Results.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\H3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\H-3 Normal 3.lsa

Count Conditions-

Nuclide: H-3 Normal
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: UG STD H-3
Count Time (min): 120.00
Count Mode: Normal
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

| Regions | LL | UL | 2Sigma % Terminator |
|---|---|---|---|
| A | 2.0 | 18.6 | 0.50 |
| B | 0.0 | 2000.0 | 0.00 |
| C | 0.0 | 2000.0 | 0.00 |

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

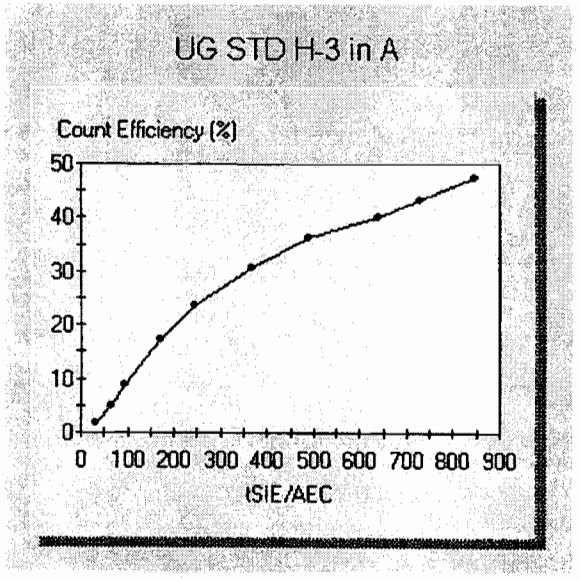
Half Life-

Half Life Correction: Off

| Regions | Half Life | Units | Reference Date | Reference Time |
|---|---|---|---|---|

A
B
C

Cycle 1 Results
Quench Curve Block Data




Date Acquired: 06/27/2012
Date Modified:
UG STD H-3 in A

| tSIE/AEC | Count Efficiency (%) |
|---|---|
| 846.90 | 47.58 |
| 730.85 | 43.21 |
| 639.47 | 40.08 |
| 487.78 | 36.36 |
| 365.41 | 30.73 |
| 244.81 | 23.69 |
| 169.28 | 17.31 |
| 95.01 | 8.79 |
| 64.60 | 4.97 |
| 34.32 | 1.64 |

| P# | S# | SMPL_ID | CPMA | DPM1 | tSIE | Eff Nucl In A | Count Time | DATE | TIME | MESSAGES |
|---|---|---|---|---|---|---|---|---|---|---|
| 54 | 1 | BACKGROUND | 6.49 | 19.81 | 409.74 | 32.77 | 120.00 | 9/10/2012 | 9:36:46 AM | |
| 54 | 2 | S-0279-V1 | 15.91 | 48.18 | 415.20 | 33.02 | 120.00 | 9/10/2012 | 11:44:40 AM | |
| 54 | 3 | S-0279-V2 | 16.21 | 49.25 | 412.72 | 32.91 | 120.00 | 9/10/2012 | 1:52:36 PM | |
| 54 | 4 | S-0279-V3 | 15.76 | 47.89 | 412.56 | 32.90 | 120.00 | 9/10/2012 | 4:00:32 PM | |
| 54 | 5 | S-0279-V4 | 15.62 | 47.44 | 413.22 | 32.93 | 120.00 | 9/10/2012 | 6:08:27 PM | |
| 54 | 6 | S-0279-V5 | 15.76 | 48.04 | 410.40 | 32.80 | 120.00 | 9/10/2012 | 8:16:20 PM | |

# STD ID: S-0279

ARS INTERNATIONAL

## Add/Edit *Secondary Stds*

| Planning | |
|---|---|
| Planning Comments | Create a H3 LCS standard. |
| Target dpm/g (on dil. date) | 5.5 |
| Target Final volume mL | 2000 |
| Appx mass g of Parent Sol'n | 3.606433954 |
| Appx vol ml of Parent Sol'n | 3.612937241 |
| Expected Addition for Analysis g | 5 |

| Standards Preparation / Dilution | |
|---|---|
| Secondary Solution # | S-0279 |
| Dilution Date (New Ref Date) | 09/07/2012 10:40 |
| Ampoule, Empty (g) | |
| Ampoule /Solution Gross (g) | |
| Net Wt Removed (g) | |
| Transfer Container, empty (g) | 13.144 |
| Container Plus Solution (g) | 16.89 |
| Net Wt Transferred (g) | 3.746 |
| DPM Xferred on 09/07/2012 10:40 | 11425.69101 |
| Diluent/matrix | DI H2O |
| Diluent Density Cont, empty (g) | |
| Test Mass of 5 ml of Diluent (g) | |
| Diluent Density Test - (g/mL) | |
| Dilution Empty Container Mass (g) | 473.93 |
| Dilution Full Cont g (If measured) | 2469.52 |
| Dilution Final Volume ml (If measured) | 2000 |
| Final Dilution Density (g/mL) | 0.997795 |
| Final Dilution Measured Mass g | 1995.59 |
| Comments | H3 LCS standard. Dilution performed as stated above by B Steffens. -BJS 9/7/12 |
| Final Dilution dpm/g | 5.725470166 |
| Final Dil New Ref Date/Time | 09/07/2012 10:40 |

## Parent Standard Data

| | | | | |
|---|---|---|---|---|
| Parent Solution Reference # | NIST SRM 4927F | | | |
| Parent Solution # | S-0237 | | | |
| Parent Principal Radionuclide | H-3 | Half Life (Days) | 4499.8000000 | |
| Parent Reference Date | 03/22/2010 10:10 | | | |
| Parent Certified Act | 3503.682716 | Certl Act/Vol Units | dpm | g |
| Parent Cert Act Uncert 1 Sigma | 0.0036 | | | |
| Parent Sp. Gravity G/Ml | 0.9982 | | | |
| Parent Supplier | NIST SRM 4927F | | | |
| Parent Date Recvd | 01/02/00 | | | |
| Parent Received By | Unknown | | | |
| Parent Cert Exp Date | | | | |
| Parent Matrix | H2O | | | |
| Certified dpm/g At Ref Date | 3503.682716 | | | |
| Certified dpm/g on 09/07/2012 10:40 | 3050.10438 | | | |
| Parent Comments | Intermediate level H-3 standard for creating LCS solutions and matrix spikes. Dilution performed as stated above by B Steffens. -BJS 3/22/10 | | | |
| Parent Tech | Unknown | | | |
| Is_Primary | FALSE | | | |
| Is_LCS | TRUE | | | |
| Is_Tracer | FALSE | | | |
| Is_Calib | FALSE | | | |

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

# American Radiation Services Analytical Reports

for

# Los Alamos National Laboratory

# Folder Duplicate

# Report Compilation Checklist

**ARS SDG:** 13-01039 **Client Name:** LANL **Sample Matrix:** AQ

| LEVEL 1 COMPONENTS | 1st Reviewer | |
|---|---|---|
| 1) Cover Page Complete and Accurate (see ARS-059)? | ~~Yes~~ No N/A | |
| 2) Technical Review Checklist(s) Complete and Accurate? | ~~Yes~~ No N/A | |
| 3) Case Narrative Complete and Accurate (see ARS-059)? | ~~Yes~~ No N/A | |
| 4) Form 1s Present for all Samples and Tests? | ~~Yes~~ No N/A | |
| 5) Client Specific Components are Present and Complete? | Yes No ~~N/A~~ | |

| LEVEL 2 COMPONENTS | 1st Reviewer | |
|---|---|---|
| 6) Batch Quality Control Report is Present and Accurate? | ~~Yes~~ No N/A | |
| 7) DQO Report is Present and Accurate? | ~~Yes~~ No N/A | |
| 8) Client Specific Batch QC Components are Present and Complete? | Yes No ~~N/A~~ | |

| LEVEL 3 COMPONENTS | 1st Reviewer | |
|---|---|---|
| 9) Efficiencies are Present? | ~~Yes~~ No N/A | |
| 10) Calibrations are Present? | ~~Yes~~ No N/A | |
| 11) Backgrounds are Present? | ~~Yes~~ No N/A | |
| 12) Spectrum Analysis is Present? | ~~Yes~~ No N/A | |
| 13) Spectral Plots are Present? | ~~Yes~~ No N/A | |
| 14) Plateaus are Present? | ~~Yes~~ No N/A | |
| 15) Control Charts are Present? | ~~Yes~~ No N/A | |
| 16) Other: | Yes No ~~N/A~~ | |

| LEVEL 4 COMPONENTS | 1st Reviewer | |
|---|---|---|
| 17) Preparation Raw Data Present, Signed and Complete? | ~~Yes~~ No N/A | |
| 18) Instrument Raw Data Present and Complete? | ~~Yes~~ No N/A | |
| 19) Calibration Certificates Present? | ~~Yes~~ No N/A | |
| 20) Copies of Log Book Pages Present? | ~~Yes~~ No N/A | |
| 21) Sample Receiving Documentation Present? | ~~Yes~~ No N/A | |
| 22) LIMS Reports Present? | ~~Yes~~ No N/A | |
| 23) Applicable Correspondence Present? | ~~Yes~~ No N/A | |
| 24) Other: | Yes No ~~N/A~~ | |

[signature] 6-19-13
**Report Generator Signature** **Date**

James D. [signature] 6-19-13
**Management Review Signature** **Date**

ARS-059
07/03/2009

# LSC
# Technical Review Checklist

**ARS SDG** ARS1-13-01039

**Sample Matrix:** AQ **Aliquot** (Circle One) : Dry As Received Filtered Other: _____

**Required QC Samples** (Mark all that apply): Blank LCS LCSD Sample Dup MS MSD

**ARS A. Batch ID(s):** **Batch A:** B13-01094 **Batch B:** NA **Batch C:** NA

**Test Method(s):** LSC-A-022 NA NA

## A. RADIOCHEMICAL PREPARATION REVIEW

| | Chemist Review | Verifier Review |
|---|---|---|
| 1) 100% of Manual Transcriptions Verified? | Yes No N/A | Yes No N/A |
| 2) 100% of Manual Calculations Verified? | Yes No N/A | Yes No N/A |
| 3) Blank Composition/Configuration Matches Calibration? | Yes No N/A | Yes No N/A |
| 4) Deviations from procedure are documented and verified? | Yes No N/A | Yes No N/A |
| 5) Appropriate Cocktail Selected? | Yes No N/A | Yes No N/A |

6) Sample Prep Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

Chemist Signature: [signature] Date: 6-17-13 Verifier Review Signature: [signature] Date: 6-17-13

## B. ANALYSIS REVIEW

| | Analyst Review | QA Officer Review |
|---|---|---|
| 1) Calibrations Valid and Current? | Yes No N/A | Yes No N/A |
| 2) Backgrounds Valid and Current? | Yes No N/A | Yes No N/A |
| 3) Source Checks Completed and Acceptable? | Yes No N/A | Yes No N/A |

QA Officer Signature: [signature] Date: 6-19-13

| | Analyst Review | Technicial Review |
|---|---|---|
| 4) Background Checks Complete and Acceptable? | Yes No N/A | Yes No N/A |
| 5) 100% of Manually Entered Parameters Verified Accurate? | Yes No N/A | Yes No N/A |
| 6) Appropriate QC samples initiated at required frequency? | Yes No N/A | Yes No N/A |
| 6) Test/Sample Specific Parameters (See ARS-059 for details) | | |
| a) Analysis Parameters Checked and Correct and Peak Shapes are Acceptable? | Yes No N/A | Yes No N/A |
| b) Spectra show no Evidence of Interferences? | Yes No N/A | Yes No N/A |
| c) Sample Quench for All Samples within Range of Quench Curve? | Yes No N/A | Yes No N/A |

7) Analysis Anomaly? ☑ No ☐ Yes (See Comments) NCR # (If initiated): _____

Analyst Signature: [signature] Date: 6-17-13 Technicial Reviewer Signature: [signature] Date: 6-14-13

Batch A: B13-01094

# LSC
# Technical Review Checklist

## C. BATCH QC VALIDATION

| | Proj. Mgr. Review | QA Officer Review |
|---|---|---|
| 1) Activity + 3xCSU a Negative Number? | Yes ~~No~~ N/A | Yes (No) N/A |
| 2) RDL Criteria are Met? | ~~Yes~~ No N/A | (Yes) No N/A |
| 3) Method Blank Criterion Met? | ~~Yes~~ No N/A | (Yes) No N/A |
| 4) LCS/LCD Criteria Met? | Yes ~~No~~ N/A | Yes (No) N/A |
| 5) Duplicate (Sample Duplicate, LCSD, MSD) Criteria Met? | Yes ~~No~~ N/A | Yes (No) N/A |
| 6) MS/MSD Criteria Met? | Yes No ~~N/A~~ | Yes No (N/A) |

7) Batch QC Anomaly? ☐ No ☑ Yes (See Tech Notes) NCR # (If initiated): _____

| Project Manager Signature | Date | QA Officer Signature | Date |
|---|---|---|---|
| SDR | 6-19-13 | James D. Pu | 6-19-13 |

## GENERAL COMMENTS

ARS INTERNATIONAL

# LSC
# Technical Review Checklist

**ARS SDG** ARS1-13-01038

**Sample Matrix:** AQ **Aliquot** (Circle One) : Dry As Received Filtered Other: _____

**Required QC Samples** (Mark all that apply): Blank LCS LCSD Sample Dup MS MSD

**ARS A. Batch ID(s):** **Batch A:** B13-01094 **Batch B:** NA **Batch C:** NA

**Test Method(s):** LSC-A-022 NA NA

## A. RADIOCHEMICAL PREPARATION REVIEW

| | Chemist Review | Verifier Review |
|---|---|---|
| 1) 100% of Manual Transcriptions Verified? | Yes No N/A | Yes No N/A |
| 2) 100% of Manual Calculations Verified? | Yes No N/A | Yes No N/A |
| 3) Blank Composition/Configuration Matches Calibration? | Yes No N/A | Yes No N/A |
| 4) Deviations from procedure are documented and verified? | Yes No N/A | Yes No N/A |
| 5) Appropriate Cocktail Selected? | Yes No N/A | Yes No N/A |

6) Sample Prep Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

Chemist Signature: [signature] Date: 6-17-13

Verifier Review Signature: [signature] Date: 6-17-13

## B. ANALYSIS REVIEW

| | Analyst Review | QA Officer Review |
|---|---|---|
| 1) Calibrations Valid and Current? | Yes No N/A | Yes No N/A |
| 2) Backgrounds Valid and Current? | Yes No N/A | Yes No N/A |
| 3) Source Checks Completed and Acceptable? | Yes No N/A | Yes No N/A |

QA Officer Signature: James D. Pu Date: 6-19-13

| | Analyst Review | Technicial Review |
|---|---|---|
| 4) Background Checks Complete and Acceptable? | Yes No N/A | Yes No N/A |
| 5) 100% of Manually Entered Parameters Verified Accurate? | Yes No N/A | Yes No N/A |
| 6) Appropriate QC samples initiated at required frequency? | Yes No N/A | Yes No N/A |
| 6) Test/Sample Specific Parameters (See ARS-059 for details) | | |
| a) Analysis Parameters Checked and Correct and Peak Shapes are Acceptable? | Yes No N/A | Yes No N/A |
| b) Spectra show no Evidence of Interferences? | Yes No N/A | Yes No N/A |
| c) Sample Quench for All Samples within Range of Quench Curve? | Yes No N/A | Yes No N/A |

7) Analysis Anomaly? ☑ No ☐ Yes (See Comments) NCR # (If initiated): _____

Analyst Signature: [signature] Date: 6-17-13

Technicial Reviewer Signature: [signature] Date: 6-14-13

ARS INTERNATIONAL

Batch A: B13-01094

# LSC
# Technical Review Checklist

## C. BATCH QC VALIDATION

| | Proj. Mgr. Review | QA Officer Review |
|---|---|---|
| 1) Activity + 3xCSU a Negative Number? | Yes ~~No~~ N/A | Yes (No) N/A |
| 2) RDL Criteria are Met? | ~~Yes~~ No N/A | (Yes) No N/A |
| 3) Method Blank Criterion Met? | ~~Yes~~ No N/A | (Yes) No N/A |
| 4) LCS/LCD Criteria Met? | Yes ~~No~~ N/A | Yes (No) N/A |
| 5) Duplicate (Sample Duplicate, LCSD, MSD) Criteria Met? | Yes ~~No~~ N/A | Yes (No) N/A |
| 6) MS/MSD Criteria Met? | Yes No ~~N/A~~ | Yes No (N/A) |

7) Batch QC Anomaly? ☐ No ☑ Yes (See Tech Notes) NCR # (If initiated): _____

| Project Manager Signature | Date | QA Officer Signature | Date |
|---|---|---|---|
| SDL | 6-19-13 | James D. Pu | 6-19-13 |

## GENERAL COMMENTS

Sample preserved prior to receipt SDL 6-19-13

# LSC
# Technical Review Checklist

**ARS SDG** ARS1-13-01039

**Sample Matrix:** AQ **Aliquot** (Circle One) : Dry As Received Filtered Other: _____

**Required QC Samples** (Mark all that apply): Blank LCS LCSD Sample Dup MS MSD

| | | | |
|---|---|---|---|
| **ARS A. Batch ID(s):** | **Batch A:** B13-01059 | **Batch B:** N/A | **Batch C:** N/A |
| **Test Method(s):** | LSC-A-021 | N/A | N/A |

## A. RADIOCHEMICAL PREPARATION REVIEW

| | Chemist Review | Verifier Review |
|---|---|---|
| **1) 100% of Manual Transcriptions Verified?** | Yes No N/A | Yes No N/A |
| **2) 100% of Manual Calculations Verified?** | Yes No N/A | Yes No N/A |
| **3) Blank Composition/Configuration Matches Calibration?** | Yes No N/A | Yes No N/A |
| **4) Deviations from procedure are documented and verified?** | Yes No N/A | Yes No N/A |
| **5) Appropriate Cocktail Selected?** | Yes No N/A | Yes No N/A |

**6) Sample Prep Anomaly?** ☑ **No** ☐ **Yes** (See Tech Notes) **NCR #** (If initiated): _____

| | | | |
|---|---|---|---|
| [signature] | 5-28-13 | [signature] | 5-28-13 |
| **Chemist Signature** | **Date** | **Verifier Review Signature** | **Date** |

## B. ANALYSIS REVIEW

| | Analyst Review | QA Officer Review |
|---|---|---|
| **1) Calibrations Valid and Current?** | Yes No N/A | Yes No N/A |
| **2) Backgrounds Valid and Current?** | Yes No N/A | Yes No N/A |
| **3) Source Checks Completed and Acceptable?** | Yes No N/A | Yes No N/A |

James D. Ren 6-19-13
**QA Officer Signature** **Date**

| | Analyst Review | Technicial Review |
|---|---|---|
| **4) Background Checks Complete and Acceptable?** | Yes No N/A | Yes No N/A |
| **5) 100% of Manually Entered Parameters Verified Accurate?** | Yes No N/A | Yes No N/A |
| **6) Appropriate QC samples initiated at required frequency?** | Yes No N/A | Yes No N/A |
| **6) Test/Sample Specific Parameters** (See ARS-059 for details) | | |
| a) Analysis Parameters Checked and Correct and Peak Shapes are Acceptable? | Yes No N/A | Yes No N/A |
| b) Spectra show no Evidence of Interferences? | Yes No N/A | Yes No N/A |
| c) Sample Quench for All Samples within Range of Quench Curve? | Yes No N/A | Yes No N/A |

**7) Analysis Anomaly?** ☑ **No** ☐ **Yes** (See Comments) **NCR #** (If initiated): _____

| | | | |
|---|---|---|---|
| [signature] | 5-28-13 | N/A | |
| **Analyst Signature** | **Date** | **Technicial Reviewer Signature** | **Date** |

Batch A: B13-01059

# LSC
# Technical Review Checklist

## C. BATCH QC VALIDATION

| | Proj. Mgr. Review | QA Officer Review |
|---|---|---|
| 1) Activity + 3xCSU a Negative Number? | Yes No ~~N/A~~ | Yes No (N/A) |
| 2) RDL Criteria are Met? | Yes No ~~N/A~~ | Yes No (N/A) |
| 3) Method Blank Criterion Met? | Yes No ~~N/A~~ | Yes No (N/A) |
| 4) LCS/LCD Criteria Met? | Yes No ~~N/A~~ | Yes No (N/A) |
| 5) Duplicate (Sample Duplicate, LCSD, MSD) Criteria Met? | Yes No ~~N/A~~ | Yes No (N/A) |
| 6) MS/MSD Criteria Met? | Yes No ~~N/A~~ | Yes No (N/A) |

7) Batch QC Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

| Project Manager Signature | Date | QA Officer Signature | Date |
|---|---|---|---|
| SDb | 6-19-13 | James D. Pu | 6-19-13 |

## GENERAL COMMENTS

# LSC
# Technical Review Checklist

**ARS SDG** ARS1-13-01038

**Sample Matrix:** AQ **Aliquot** (Circle One) : Dry As Received Filtered Other: _____

**Required QC Samples** (Mark all that apply): Blank LCS LCSD Sample Dup MS MSD

| | | | |
|---|---|---|---|
| **ARS A. Batch ID(s):** | **Batch A:** B13-01059 | **Batch B:** N/A | **Batch C:** N/A |
| **Test Method(s):** | LSC-A-021 | N/A | N/A |

## A. RADIOCHEMICAL PREPARATION REVIEW

| | Chemist Review | Verifier Review |
|---|---|---|
| **1) 100% of Manual Transcriptions Verified?** | Yes No N/A | Yes No N/A |
| **2) 100% of Manual Calculations Verified?** | Yes No N/A | Yes No N/A |
| **3) Blank Composition/Configuration Matches Calibration?** | Yes No N/A | Yes No N/A |
| **4) Deviations from procedure are documented and verified?** | Yes No N/A | Yes No N/A |
| **5) Appropriate Cocktail Selected?** | Yes No N/A | Yes No N/A |

**6) Sample Prep Anomaly?** ☑ **No** ☐ **Yes** (See Tech Notes) **NCR #** (If initiated): _____

| | | | |
|---|---|---|---|
| [signature] | 5-28-13 | [signature] | 5-28-13 |
| **Chemist Signature** | **Date** | **Verifier Review Signature** | **Date** |

## B. ANALYSIS REVIEW

| | Analyst Review | QA Officer Review |
|---|---|---|
| **1) Calibrations Valid and Current?** | Yes No N/A | Yes No N/A |
| **2) Backgrounds Valid and Current?** | Yes No N/A | Yes No N/A |
| **3) Source Checks Completed and Acceptable?** | Yes No N/A | Yes No N/A |

[signature] 6-19-13
**QA Officer Signature** **Date**

| | Analyst Review | Technicial Review |
|---|---|---|
| **4) Background Checks Complete and Acceptable?** | Yes No N/A | Yes No N/A |
| **5) 100% of Manually Entered Parameters Verified Accurate?** | Yes No N/A | Yes No N/A |
| **6) Appropriate QC samples initiated at required frequency?** | Yes No N/A | Yes No N/A |
| **6) Test/Sample Specific Parameters** (See ARS-059 for details) | | |
| a) Analysis Parameters Checked and Correct and Peak Shapes are Acceptable? | Yes No N/A | Yes No N/A |
| b) Spectra show no Evidence of Interferences? | Yes No N/A | Yes No N/A |
| c) Sample Quench for All Samples within Range of Quench Curve? | Yes No N/A | Yes No N/A |

N/A

**7) Analysis Anomaly?** ☑ **No** ☐ **Yes** (See Comments) **NCR #** (If initiated): _____

| | | | |
|---|---|---|---|
| [signature] | 5-28-13 | N/A | |
| **Analyst Signature** | **Date** | **Technicial Reviewer Signature** | **Date** |

Batch A: B13-01059

# LSC
# Technical Review Checklist

## C. BATCH QC VALIDATION

| | Proj. Mgr. Review | QA Officer Review |
|---|---|---|
| 1) Activity + 3xCSU a Negative Number? | Yes No ~~N/A~~ | Yes No (N/A) |
| 2) RDL Criteria are Met? | Yes No ~~N/A~~ | Yes No (N/A) |
| 3) Method Blank Criterion Met? | Yes No ~~N/A~~ | Yes No (N/A) |
| 4) LCS/LCD Criteria Met? | Yes No ~~N/A~~ | Yes No (N/A) |
| 5) Duplicate (Sample Duplicate, LCSD, MSD) Criteria Met? | Yes No ~~N/A~~ | Yes No (N/A) |
| 6) MS/MSD Criteria Met? | Yes No ~~N/A~~ | Yes No (N/A) |

7) Batch QC Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

SDL 6-19-13
Project Manager Signature Date

James D. Ruse 6-19-13
QA Officer Signature Date

## GENERAL COMMENTS

# DQO Report for SDG
ARS1-13-01039



| Analysis Code | Group | Isotope | Activity Units | Aliquot Units | ProcedureNo | RDL | LCS_LL | LCS_UL | MS_LL | MS_UL | RadY_LL | RadY_UL | GravY_LL | GravY_LL | RER | RPD | DiltionReq | RoughPrepReq | BlankCorrectionMDA | BlankCorrectionAll | CountTimeReq | AliquotRequired |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LSC-A-021 | STD | H-3 | pCi | L | ARS-054 | 0.00E+00 | 75 | 125 | 60 | 140 | 30 | 110 | 40 | 110 | 1.00 | 25 | FALSE | FALSE | FALSE | FALSE | | |
| LSC-A-022 | STD | Enriched H-3 | pCi | L | ARS-040 | 0.00E+00 | 75 | 125 | 60 | 140 | 30 | 110 | 40 | 110 | 1.00 | 25 | FALSE | FALSE | FALSE | FALSE | | |

# SDG Report - Samples and Containers

## SDG Specific Data

| | | | | | |
|---|---|---|---|---|---|
| SDG | ARS1-13-01039 | TAT Days | 30 | Project Type | Environmental |
| Sample Count | Rpt Level 4 | Date Received | 5/23/2013 | COC Number | 2013-876 |
| Client | Los Alamos National Laboratory | Client Deadline | 6/24/2013 | PO Number | 63641-001-10 |
| Client Code | 114 | Internal Deadline | 6/21/2013 | Job Number | |
| Profile Number | PN-00094 | Lab Deadline | 6/19/2013 | Job Location | |
| Comments | | | | | |

## Samples and Containers (➔) Checked In Thus Far

| FR | ClientID | Matrix | SampleStartDate | SampleEndDate | Disp | Hold | Arch | Storage | X | Units | Y | Units | Z | Units | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 001 | CAMO-13-30584 | AQ | 05/17/13 12:52 PM | 05/17/13 12:52 PM | H | 90 | 5 | K2 | | | | | | | |
| ➔ | IC_ID | Cnt | Volume_mL | Wt_g | pH_Orig | pH_Final | CPM | uR_Hr | Storage | VOA | Head Sp | AF Units | AF Rate | AF Mins | AF Total Vol |
| | 137019 | 1 | 1000.00 | | | | 80 | 30 | | N | N/A | | | | |

# SDG Report - Analysis Assignments

| | | | |
|---|---|---|---|
| Temp SDG | ARS1-13-01039 | Sample Count | |
| Client | Los Alamos National Laboratory | Analysis Count | 2-2 |

**Samples Count Totals per Analysis**

| Analysis Code | Analysis Description | Samples Count |
|---|---|---|
| LSC-A-021 | Low Level Tritium Screen in (Aqueous) | 1 |
| LSC-A-022 | Low Level Tritium by Enrichment Process in (Aqueous [AQ]) | 1 |

**Analyses Assigned Per Fraction**

| Fraction | Analysis Code | X = Assigned |
|---|---|---|
| 001 | LSC-A-021 | X |
| 001 | LSC-A-022 | X |

# ARS FILE TRACKING SHEET

**SDG:** ARS1-13-01039

| Task | Date / Time | Initials |
|---|---|---|
| Date & Time Samples Received | 5-23-13/10:00 | cad |
| ICOC Initiated/Storage Location: K2 | 5-23-13/10:29 | cad |
| Technical Checks Performed | See Batch | |
| Report Written / EDD Generated 6-19-13/1258 \| SDL<br>Date/Time Initials | 6-19-13/1255 | SDL |
| Quality Assurance Checks Performed on Report | 6-19-13 1425 | JDJ |
| Management Checks Performed on Report | | |
| *Preliminary Report Scan* | | |
| Report E-mailed | | |
| Report Faxed | | |
| Report Reviewed | | |
| Report Mailed | | |
| Invoice Completed Invoice #:_____ | | |
| Report Imaged | | |

**SPECIAL REQUIREMENTS**

| Requirement | Yes | No |
|---|---|---|
| 3 Hour Rush | | ✓ |
| 24 Hour Rush | | ✓ |
| 48 Hour Rush | | ✓ |
| 3 Day Rush | | ✓ |
| 5 Day Rush | | ✓ |
| Standard Oil/Gas Client (5 Day) | | ✓ |
| Standard Turnaround | ✓ | |

**NOTES**

ARS-062-005 r5

**COMPANY NAME:** LANL **SDG:** ARS1-13-001039

**SHIPPING CONTAINER**

| | | |
|---|---|---|
| Good Condition | ☑ Yes | ☐ No |
| Radioactive | ☐ Yes | ☑ No |
| UN2910 | ☐ Yes | ☑ No |
| Sec. Seals | ☑ Yes | ☐ No |
| Seals Intact | ☑ Yes ☐ No | ☐ N/A |
| Air Bill | ☐ Yes | ☑ No |

**COC PRESENT WITH SAMPLES**

| | | |
|---|---|---|
| COC | ☑ Yes | ☐ No |

**SAMPLE CONTAINER(S)**

| | | |
|---|---|---|
| Good Condition | ☑ Yes | ☐ No |
| Sec. Seals | ☑ Yes | ☐ No |
| Seal Intact | ☑ Yes ☐ No | ☐ N/A |
| Marked Radioactive | ☐ Yes | ☑ No |

# Samples Rcv 3

Matrix [ AF , AQ , BI , FE , LT , SI , SO , UR , VG ]

**External and Internal Surveys**

| | | | | | |
|---|---|---|---|---|---|
| Exposure Rate Meter: | M3242861 | Serial No.: | PR264266 | Calibration Due Date: | 4-16-14 |
| Count Rate Meter: | M2154859 | Serial No.: | PR184559 | Calibration Due Date: | 4-16-14 |

| | | | | |
|---|---|---|---|---|
| Background Exposure Rate (µR/hr) | 30 | Max. Exposure Rate on Shipping Containers Externals (Plus Bkgd) | 38 | µR/hr |
| Background Count Rate (cpm) | 80 | Max. Removable Count Rate on Shipping Containers Externals (Plus Bkgd) | 90 | cpm |
| | | Max. Removable Count Rate on Shipping Containers Internals (Plus Bkgd) | 90 | cpm |

| Sample Label/Comments/Notes | pH Orig (pH ≤ 2 is Acceptable) | pH Final | Mark if Preserve | Acid Lot # | Weight(g) / Volume(mL) | µR/hr (Acceptance Limits <500 µR/hr) | cpm (Acceptance Limits <100 cpm/cm²) |
|---|---|---|---|---|---|---|---|
| CAMO-13-30615 | | | ☐ | | 1000 mL | 30 | 80 |
| | | | ☐ | | | | |
| * CAMO-13-30584 | | | ☐ | | 1000 mL | 30 | 80 |
| | | | ☐ | | | | |
| CAMO-13-30585 | | | ☐ | | 1000 mL | 30 | 80 |
| | | | ☐ | | | | |
| | | | ☐ | | | | |
| | | | ☐ | | | | |
| | | | ☐ | | | | |
| | | | ☐ | | | | |
| | | | ☐ | | | | |
| | | | ☐ | | | | |
| | | | ☐ | | | | |
| | | | ☐ | | | | |
| | | | ☐ | | | | |
| | | | ☐ | | | | |
| | | | ☐ | | | | |
| | | | ☐ | | | | |

Surveyors' Name: [signature] Date/Time Surveyed: 5-23-13 / 1002



* this sample only in this SDG.

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

# Chain of Custody/Analysis Request

COC/Lab Request #: 2013-874



**Client Contact:**

**Lab Agreement # :** 126310011

**Project Number :**

**Analysis Turnaround Time:**

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

**Site Name:** Los Alamos National Laboratory

**Rad Screening Info:** Yes, Below Background

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | WSP-CL04 | WSP-GENINORG | WSP-Met+B+SN+SR+U | WSP-NH3+NO3/NO2+PO4 | WSP-TKN+TOC | Special Instructions: |
|---|---|---|---|---|---|---|---|---|---|
| CASA-13-30549 | May 21 2013 | 12:35 | W | | | | | 1 | |
| CASA-13-30557 | May 21 2013 | 12:35 | W | 1 | 1 | 1 | 1 | | |

**Special Instructions:**

| Relinquished by: | | Date/Time: | Received by: | |
|---|---|---|---|---|
| Relinquished by: | | Date/Time: | Received by: | |
| Relinquished by: | | Date/Time: | Received by: | |

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4194

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_SANDIA

**SAMPLE ID:** CASA-13-30549

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| **DATE COLLECTED (MM/DD/YYYY):** | | 5/21/2013 | **FIELD MATRIX:** | WG | ok |
| **TIME COLLECTED (HH:MM):** | | 1235 | **MEDIA:** | UA | |
| **PRS ID:** | | ok | **SAMPLE TECH CODE:** | UA | RSP |
| **LOCATION ID:** | SCI-2 | | **FIELD PREP:** | UF | ok |
| **LOCATION TYPE:** | MON | | **FIELD QC TYPE:** | REG | |
| **PORT:** | SINGLE COMPLETION | | **SAMPLE USAGE:** | INV | |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-TKN+TOC | 500 ML AMBER GLASS | 1 | H2SO4 | Y | NA |

**SAMPLE COMMENTS:** N/A

**LOCATION COMMENTS:** N/A

**FIELD PARAMETERS:**

Dissolved Oxygen 9.22 mg/L  Oxidation-Reduction Potential 221.7 MV  pH 7.42 SU

Specific Conductance 622 uS/cm  Temperature 14.47 deg C  Turbidity 1.2 NTU

**COLLECTED BY (PRINT)** M. Shende

| | | | |
|---|---|---|---|
| **RELINQUISHED BY (Printed Name) (Signature)** William Shaw | **Date/Time** 5/21/13 1325 | **RECEIVED BY (Printed Name) (Signature)** K. Green | **Date/Time** 5/21/13 1:25 |
| **RELINQUISHED BY (Printed Name) (Signature)** | **Date/Time** | **RECEIVED BY (Printed Name) (Signature)** | **Date/Time** |

Report Date 04/30/2013

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4194

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_SANDIA

**SAMPLE ID:** CASA-13-30557

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| **DATE COLLECTED (MM/DD/YYYY):** | | 5/21/2013 | **FIELD MATRIX:** | WG | OK |
| **TIME COLLECTED (HH:MM):** | | 1235 | **MEDIA:** | UA | |
| **PRS ID:** | | OK | **SAMPLE TECH CODE:** | UA | RSP |
| **LOCATION ID:** | SCI-2 | | **FIELD PREP:** | F | OK |
| **LOCATION TYPE:** | MON | | **FIELD QC TYPE:** | REG | |
| **PORT:** | SINGLE COMPLETION | | **SAMPLE USAGE:** | INV | |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| N/A | WSP-CL04 | 250 ML POLY | 1 | ICE | Y | N/A |
| | WSP-GENINORG | 1 LITER POLY | 1 | ICE | | |
| | WSP-Met+B+SN+SR+U | 1 LITER POLY | 1 | HNO3 | | |
| | WSP-NH3+NO3/NO2+PO4 | 500 ML AMBER GLASS | 1 | H2SO4 | | |

**SAMPLE COMMENTS:** N/A

**LOCATION COMMENTS:** NA

**FIELD PARAMETERS:**

Dissolved Oxygen NA mg/L  Oxidation-Reduction Potential NA MV  pH NA SU

Specific Conductance NA uS/cm  Temperature NA deg C  Turbidity NA NTU

**COLLECTED BY (PRINT)** M Shanda

| RELINQUISHED BY (Printed Name) (Signature) | Date/Time | RECEIVED BY (Printed Name) (Signature) | Date/Time |
|---|---|---|---|
| William Shaw | 5/21/13 1225 | K. Green | 5/21/13 1:25- |
| **RELINQUISHED BY (Printed Name) (Signature)** | **Date/Time** | **RECEIVED BY (Printed Name) (Signature)** | **Date/Time** |
| | | | |

Report Date 04/30/2013

Data Validation Report

Chain Of Custody No. 2013-874

**1. Distribution Of Samples In EDD.**

| SDG | Analytical Method | Regular Samples | Field Duplicates | Trip Blanks | Field Blanks | Equipment Blanks |
|---|---|---|---|---|---|---|
| 326214 | EPA:120.1 | 1 | | | | |
| 326214 | EPA:150.1 | 1 | | | | |
| 326214 | EPA:160.1 | 1 | | | | |
| 326214 | EPA:245.2 | 1 | | | | |
| 326214 | EPA:300.0 | 1 | | | | |
| 326214 | EPA:310.1 | 1 | | | | |
| 326214 | EPA:350.1 | 1 | | | | |
| 326214 | EPA:351.2 | 1 | | | | |
| 326214 | EPA:353.2 | 1 | | | | |
| 326214 | EPA:365.4 | 1 | | | | |
| 326214 | SM:A2340B | 1 | | | | |
| 326214 | SW-846:6010B | 1 | | | | |
| 326214 | SW-846:6020 | 1 | | | | |
| 326214 | SW-846:6850 | 1 | | | | |
| 326214 | SW-846:9060 | 1 | | | | |

| SDG | Analytical Method | Analysis Lot ID | Prep Lot ID | Regular Samples | Field Duplicates | Trip Blanks | Field Blanks | Equipment Blanks | Method Blanks | Matrix Spikes | Matrix Spike Dups |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 326214 | EPA:120.1 | 1306822 | 1306822 | 1 | | | | | | | |
| 326214 | EPA:150.1 | 1303918 | 1303918 | 1 | | | | | | | |
| 326214 | EPA:160.1 | 1303651 | 1303651 | 1 | | | | | 1 | | |
| 326214 | EPA:245.2 | 1304760 | 1304759 | 1 | | | | | 1 | 2 | 1 |
| 326214 | EPA:300.0 | 1303846 | 1303846 | 1 | | | | | 1 | | |
| 326214 | EPA:310.1 | 1305339 | 1305339 | 1 | | | | | 2 | 1 | |
| 326214 | EPA:350.1 | 1304209 | 1304208 | 1 | | | | | 1 | 2 | |
| 326214 | EPA:351.2 | 1303595 | 1303594 | 1 | | | | | 1 | 1 | |
| 326214 | EPA:353.2 | 1304211 | 1304211 | 1 | | | | | 1 | | |
| 326214 | EPA:365.4 | 1305420 | 1305419 | 1 | | | | | 1 | 1 | |
| 326214 | SM:A2340B | 1308026 | 1308026 | 1 | | | | | | | |
| 326214 | SW-846:6010B | 1304972 | 1304971 | 1 | | | | | 1 | 1 | |
| 326214 | SW-846:6020 | 1304840 | 1304838 | 1 | | | | | 1 | 1 | |
| 326214 | SW-846:6850 | 1304740 | 1304739 | 1 | | | | | 1 | 1 | 1 |
| 326214 | SW-846:9060 | 1304466 | 1304466 | 1 | | | | | 1 | | |

**2. Distribution Of Analytes In EDD.**

| Analytical Method | Method Category | Field Sample ID | Lab Sample ID | Sample Purpose | Target Analytes | Surrogates | Spikes | TICS |
|---|---|---|---|---|---|---|---|---|
| EPA:120.1 | GENERAL CHEMISTRY | CAPU-13-34781 | 1202889244 | DUP | 1 | 0 | 0 | 0 |
| EPA:120.1 | GENERAL CHEMISTRY | CASA-13-30557 | 326214002 | REG | 1 | 0 | 0 | 0 |
| EPA:120.1 | GENERAL CHEMISTRY | LCS | 1202889242 | LCS | 0 | 0 | 1 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | CAMO-13-30619 | 1202881402 | DUP | 1 | 0 | 0 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | CASA-13-30557 | 326214002 | REG | 1 | 0 | 0 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | LCS | 1202881404 | LCS | 0 | 0 | 1 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | CAMO-13-30619 | 1202881388 | DUP | 1 | 0 | 0 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | CASA-13-30557 | 326214002 | REG | 1 | 0 | 0 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | LCS | 1202880764 | LCS | 0 | 0 | 1 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | MB | 1202880762 | MB | 1 | 0 | 0 | 0 |

Data Validation Report for: Chain Of Custody No. 2013-874

| Analytical Spikes | Post-Digestion Spikes | Lab Control Samples | Lab Control Sample Dups | Blank Spikes | Blank Spike Dups | Lab Duplicates | Storage Blanks | Preparation Blanks | Reagent Blanks |
|---|---|---|---|---|---|---|---|---|---|
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 2 | | | |
| | | 1 | | | | 1 | | | |
| | | 2 | | | | 1 | | | |
| | | 1 | | | | 2 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 2 | | | |
| | | 1 | | | | 1 | | | |
| | | | | | | | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | | | | |
| | | 1 | | | | 1 | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| EPA:245.2 | INORGANIC | CAMO-13-30601 | 1202883732 | DUP | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30601 | 1202883733 | MS | 0 | 0 | 1 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30601 | 1202883738 | MSD | 0 | 0 | 1 | 0 |
| EPA:245.2 | INORGANIC | CASA-13-30557 | 326214002 | REG | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | LCS | 1202883731 | LCS | 0 | 0 | 1 | 0 |
| EPA:245.2 | INORGANIC | MB | 1202883730 | MB | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | WT_IPC-13-32171 | 1202883735 | DUP | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | WT_IPC-13-32171 | 1202883736 | MS | 0 | 0 | 1 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | CASA-13-30555 | 1202881257 | DUP | 4 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | CASA-13-30557 | 326214002 | REG | 4 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | LCS | 1202881259 | LCS | 0 | 0 | 4 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | MB | 1202881256 | MB | 4 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CAMO-13-30619 | 1202885271 | DUP | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CAMO-13-30619 | 1202885274 | MS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CASA-13-30557 | 326214002 | REG | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | LCS | 1202885275 | LCS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | LCS | 1202885276 | LCS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | MB | 1202885267 | MB | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | MB | 1202885268 | MB | 2 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30619 | 1202882331 | DUP | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30619 | 1202882333 | MS | 0 | 0 | 1 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CASA-13-30557 | 326214002 | REG | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | LCS | 1202882335 | LCS | 0 | 0 | 1 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | MB | 1202882330 | MB | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | SWWS46-13-33497 | 1202882332 | DUP | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | SWWS46-13-33497 | 1202882334 | MS | 0 | 0 | 1 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30584 | 1202882338 | DUP | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30584 | 1202882339 | MS | 0 | 0 | 1 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CASA-13-30549 | 326214001 | REG | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | LCS | 1202880631 | LCS | 0 | 0 | 1 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | MB | 1202880630 | MB | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CAMO-13-30619 | 1202882342 | DUP | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CASA-13-30557 | 326214002 | REG | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | LCS | 1202882349 | LCS | 0 | 0 | 1 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | MB | 1202882340 | MB | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | SWWS46-13-33497 | 1202882344 | DUP | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CASA-13-30553 | 1202885475 | DUP | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CASA-13-30553 | 1202885477 | MS | 0 | 0 | 1 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CASA-13-30557 | 326214002 | REG | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | LCS | 1202885479 | LCS | 0 | 0 | 1 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | MB | 1202885474 | MB | 1 | 0 | 0 | 0 |
| SM:A2340B | INORGANIC | CASA-13-30557 | 326214002 | REG | 1 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30601 | 1202884379 | DUP | 17 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30601 | 1202884380 | MS | 0 | 0 | 17 | 0 |
| SW-846:6010B | INORGANIC | CASA-13-30557 | 326214002 | REG | 17 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | LCS | 1202884378 | LCS | 0 | 0 | 17 | 0 |
| SW-846:6010B | INORGANIC | MB | 1202884377 | MB | 17 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30594 | 1202883956 | DUP | 11 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30594 | 1202883957 | MS | 0 | 0 | 11 | 0 |
| SW-846:6020 | INORGANIC | CASA-13-30557 | 326214002 | REG | 11 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | LCS | 1202883955 | LCS | 0 | 0 | 11 | 0 |
| SW-846:6020 | INORGANIC | MB | 1202883954 | MB | 11 | 0 | 0 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | CASA-13-30557 | 1202883691 | MS | 0 | 0 | 1 | 0 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| SW-846:6850 | LCMS/MS PERCHLORATE | CASA-13-30557 | 1202883692 | MSD | 0 | 0 | 1 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | CASA-13-30557 | 326214002 | REG | 1 | 0 | 0 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | LCS | 1202883690 | LCS | 0 | 0 | 1 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | MB | 1202883689 | MB | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | CASA-13-30548 | 1202882947 | DUP | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | CASA-13-30549 | 326214001 | REG | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | LCS | 1202882949 | LCS | 0 | 0 | 1 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | MB | 1202882946 | MB | 1 | 0 | 0 | 0 |

**3. Are any analytes missing?**

No.

**4. Were any holding times exceeded?**

No.

**5. Any contaminants in blanks?**

| Field Sample ID | Lab Sample ID | Type Of Blank | Analytical Method | Sample Matrix | Parameter Name | Lab Result | Lab Qualifier | Units | Lab Detection Limit |
|---|---|---|---|---|---|---|---|---|---|
| MB | 1202884377 | METHOD BLANK | SW-846:6010B | W | Potassium | 51.7 | J | ug/L | 150 |
| MB | 1202884377 | METHOD BLANK | SW-846:6010B | W | Vanadium | 1.06 | J | ug/L | 5 |

**Any samples affected by the presence of contaminants in blanks?**

| Field Sample ID | Blank Field Sample ID | Blank Lab Sample ID | Blank Type | Analytical Method | Parameter Name | Units | Blank Result | Sample Result | Lab Qualifier | Detect Limit | Detected |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CASA-13-30557 | MB | 1202884377 | METHOD BLANK | SW-846:6010B | Vanadium | ug/L | 1.06 | 1.63 | J | 5 | Y |

**6. Any surrogate recoveries outside the control limits?**

No.

**7. Any MS/MSD recoveries or RPDs outside the control limits?**

| Field Sample ID | Matrix Spike ID | Matrix Spike Dup ID | Analytical Method | Parameter Name | Analysis Lot ID | Analysis Date | Sample Matrix | MS % Recvry | MSD % Recvry | Upper Limit | Lower Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAMO-13-30584 | 1202882339 | | EPA:351.2 | Total Kjeldahl Nitrogen | 1303594 | 6/4/2013 | W | 128 | | 110 | 90 |
| CAMO-13-30601 | 1202884380 | | SW-846:6010B | Silicon Dioxide | 1304971 | 6/13/2013 | W | 72.3 | | 125 | 75 |

**8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?**

No.

**9. Any Field Duplicate RPDs outside the desired limits?**

No.

**10. Any Lab Duplicate RPDs outside the desired limits?**

No.

| Correction Factor (ND) | Correction Factor (J) | Use Factors |
|---|---|---|
| 5 | | Y |

| Rejection Limit | RPD |
|---|---|
| 10 | |
| 10 | |

RPD Limit

**11. Any required reporting limits exceeded?**

No.

**12. Additional Validator's Coments.**

None.

**13. Display Flagged Data.**

| Location ID | Chain Of Custody No | Field Sample ID | Sample Purpose | Analysis Type Code | Analytical Suite | Analytical Method | Parameter Name | Lab Qualifier | Validation Qualifier | Validation Reason Codes | Detected |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SCI-2 | 2013-874 | CASA-13-30557 | REG | INIT | INORGANIC | SW-846:6010B | Vanadium | J | U | i4 | N |

| Reason Code | Description |
|---|---|
| I4 | the sample result is =<5x the concentration of related analyte in the method blank. |
| J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL |
| NQ | The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample. |
| U_LAB | The analytical laboratory qualified the analyte as not detected. |

**14. Useable Result Count.**

| Field Sample ID | Location ID | Sample Purpose | Analytical Method | No. Unuseable Records | Total No. Of Records |
|---|---|---|---|---|---|
| CASA-13-30549 | SCI-2 | REG | EPA:351.2 | 0 | 1 |
| CASA-13-30549 | SCI-2 | REG | SW-846:9060 | 0 | 1 |
| CASA-13-30557 | SCI-2 | REG | EPA:120.1 | 0 | 1 |
| CASA-13-30557 | SCI-2 | REG | EPA:150.1 | 0 | 1 |
| CASA-13-30557 | SCI-2 | REG | EPA:160.1 | 0 | 1 |
| CASA-13-30557 | SCI-2 | REG | EPA:245.2 | 0 | 1 |
| CASA-13-30557 | SCI-2 | REG | EPA:300.0 | 0 | 4 |
| CASA-13-30557 | SCI-2 | REG | EPA:310.1 | 0 | 2 |
| CASA-13-30557 | SCI-2 | REG | EPA:350.1 | 0 | 1 |
| CASA-13-30557 | SCI-2 | REG | EPA:353.2 | 0 | 1 |
| CASA-13-30557 | SCI-2 | REG | EPA:365.4 | 0 | 1 |
| CASA-13-30557 | SCI-2 | REG | SM:A2340B | 0 | 1 |
| CASA-13-30557 | SCI-2 | REG | SW-846:6010B | 0 | 17 |
| CASA-13-30557 | SCI-2 | REG | SW-846:6020 | 0 | 11 |
| CASA-13-30557 | SCI-2 | REG | SW-846:6850 | 0 | 1 |

Data Validation Report for:

Chain Of Custody No. 2013-874

| Lab Result | Lab Units | Report Result | Report Units | Report MDA | Report Uncertainty | Lab Matrix | Sample Date | Percent Moisture | Analysis Lot ID | Validation Status Code | Use Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.63 | ug/L | 1.63 | ug/L | | | W | 5/21/2013 | | 1304972 | VAL | Y |

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178
www.gel.com

June 19, 2013

Keith Greene
Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Re: LANL-WQH Water Samples
Work Order: 326214
SDG: 2013-874

Dear Keith Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on May 23, 2013, and analyzed for General Chemistry, Metals and Perchlorates by LCMSMS. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,

Valerie Davis

Valerie Davis
Project Manager

Purchase Order: 63641-10
Chain of Custody: 2013-874
Enclosures

**ARS International (63641-10)**
**LANL-WQH Water Samples**
**Work Order #: 326214**
**SDG: 2013-874**

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# Case Narrative

**Case Narrative for**
**ARS International (63641-10)**
**LANL-WQH Water Samples**
**Workorder #: 326214**
**SDG # : 2013-874**

**June 19, 2013**

**Laboratory Identification:**

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

**Summary**

**Sample receipt** The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on May 23, 2013 for analysis. The samples were delivered with proper chain of custody documentation and signatures. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. Containers were checked for pH, where appropriate, and matched the preservative as documented on the accompanying chain of custody. Shipping container temperature was within specification (0 - 6C). Shipping container temperatures were checked, documented, and within specifications. There are no additional comments concerning sample receipt.

**Sample Identification** The laboratory received the following samples:

| Laboratory ID | Client ID |
|---|---|
| 326214001 | CASA-13-30549 |
| 326214002 | CASA-13-30557 |

**Case Narrative**

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

**Data Package**

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: General Chemistry, Metals and Perchlorates by LCMSMS.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.

Valerie Davis

Valerie Davis
Project Manager

**List of current GEL Certifications as of 19 June 2013**

| State | Certification |
|---|---|
| Alaska | UST−110 |
| Arkansas | 88−0651 |
| CLIA | 42D0904046 |
| California NELAP | 01151CA |
| Colorado | SC00012 |
| Connecticut | PH−0169 |
| Delaware | SC00012 |
| DoD ELAP A2LA ISO 17025 | 2567.01 |
| Florida NELAP | E87156 |
| Foreign Soils Permit | P330−12−00283, P330−12−00284 |
| Georgia | SC00012 |
| Georgia SDWA | 967 |
| Hawaii | SC00012 |
| Idaho | SC00012 |
| Illinois NELAP | 200029 |
| Indiana | C−SC−01 |
| Kansas NELAP | E−10332 |
| Kentucky | 90129 |
| Louisiana NELAP | 03046 (AI33904) |
| Louisiana SDWA | LA130005 |
| Maryland | 270 |
| Massachusetts | M−SC012 |
| Nevada | SC000122011−1 |
| New Hampshire NELAP | 2054 |
| New Jersey NELAP | SC002 |
| New Mexico | SC00012 |
| New York NELAP | 11501 |
| North Carolina | 233 |
| North Carolina SDWA | 45709 |
| Oklahoma | 9904 |
| Pennsylvania NELAP | 68−00485 |
| Plant Material Permit | PDEP−12−00260 |
| South Carolina Chemistry | 10120001 |
| South Carolina Radiochemi | 10120002 |
| Tennessee | TN 02934 |
| Texas NELAP | T104704235−13−8 |
| Utah NELAP | SC000122013−8 |
| Vermont | VT87156 |
| Virginia NELAP | 460202 |
| Washington | C780−12 |
| Wisconsin | 999887790 |

# Chain of Custody and Supporting Documentation

General Engineering Laboratories, Inc., Charleston, SC.
2040 Savage Rd
Charleston SC 29407

# Chain of Custody/Analysis Request

326214

COC/Lab Request #: 2013-874

Page 1 of 1

Client Contact:

Lab Agreement # : 126310011

Project Number :

Analysis Turnaround Time:
24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | WSP-CL04 | WSP-GENINORG | WSP-Met+B+SN+SR+U | WSP-NH3+NO3/NO2+PO4 | WSP-TKN+TOC |
|---|---|---|---|---|---|---|---|---|
| CASA-13-30549 | May 21 2013 | 12:35 | W | | | | | 1 |
| CASA-13-30557 | May 21 2013 | 12:35 | W | 1 | 1 | 1 | 1 | |

Special Instructions:

Special Instructions:

| | | | | |
|---|---|---|---|---|
| Relinquished by: Melissa Montoya | | Date/Time: 5/22/13 3:00 | Received by: P. West | 5-23-13 0850 |
| Relinquished by: | | Date/Time: | Received by: | |
| Relinquished by: | | Date/Time: | Received by: | |

GEL Laboratories LLC

# SAMPLE RECEIPT & REVIEW FORM

| | |
|---|---|
| **Client: LANL** | **SDG/AR/COC/Work Order: 2013-874** |
| **Received By: Patricia Dent** | **Date Received:May 23, 2013** |

| **Suspected Hazard Information** | **Yes** | **No** | *If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation. |
|---|---|---|---|
| COC/Samples marked as radioactive? | | X | Maximum Net Counts Observed* (Observed Counts - Area Background Counts): **0CPM** |
| Classified Radioactive II or III by RSO? | | X | If yes, Were swipes taken of sample contatiners < action levels? |
| COC/Samples marked containing PCBs? | | X | |
| Package, COC, and/or Samples marked as beryllium or asbestos containing? | | X | If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group. |
| Shipped as a DOT Hazardous? | | X | Hazard Class Shipped: UN#: |
| Samples identified as Foreign Soil? | | X | |

| | **Sample Receipt Criteria** | **Yes** | **NA** | **No** | **Comments/Qualifiers (Required for Non-Conforming Items)** |
|---|---|---|---|---|---|
| 1 | Shipping containers received intact and sealed? | X | | | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 2 | Samples requiring cold preservation within (0 ≤ 6 deg. C)?* | X | | | Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius **5C** |
| 2a | Daily check performed and passed on IR temperature gun? | X | | | Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable): **61524649** |
| 3 | Chain of custody documents included with shipment? | X | | | |
| 4 | Sample containers intact and sealed? | X | | | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 5 | Samples requiring chemical preservation at proper pH? | X | | | Sample ID's, containers affected and observed pH: If Preservation added, Lot#: |
| 6 | VOA vials free of headspace (defined as < 6mm bubble)? | | X | | Sample ID's and containers affected: |
| 7 | Are Encore containers present? | | | X | (If yes, immediately deliver to Volatiles laboratory) |
| 8 | Samples received within holding time? | X | | | ID's and tests affected: |
| 9 | Sample ID's on COC match ID's on bottles? | X | | | Sample ID's and containers affected: |
| 10 | Date & time on COC match date & time on bottles? | X | | | Sample ID's affected: |
| 11 | Number of containers received match number indicated on COC? | X | | | Sample ID's affected: |
| 12 | Are sample containers identifiable as GEL provided? | | | X | **Clients** |
| 13 | COC form is properly signed in relinquished/received sections? | X | | | |
| 14 | Carrier and tracking number. | | | | Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other **5462 9833 0343 5C** |

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials PH Date 052813 Page 1 of 1

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 22MAY13
ACTWGT: 50.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWL0

5c

5ODC1/99B3/10BC

FedEx Express

J1113110606 0125

TRK# 0201 5462 9833 0343

THU - 23 MAY 10:30A
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

Part # 156148-434 RITZ 08/10 ©

# Data Review Qualifier Flag Definition Sheet

## Data Review Qualifier Definitions

| Qualifier | Explanation |
|---|---|
| * | A quality control analyte recovery is outside of specified acceptance criteria |
| ** | Analyte is a surrogate compound |
| < | Result is less than value reported |
| > | Result is greater than value reported |
| ^ | RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL |
| A | The TIC is a suspected aldol-condensation product |
| B | Target analyte was detected in the associated blank |
| B | Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL |
| BD | Results are either below the MDC or tracer recovery is low |
| C | Analyte has been confirmed by GC/MS analysis |
| D | Results are reported from a diluted aliquot of the sample |
| d | 5-day BOD-The 2:1 depletion requirement was not met for this sample |
| E | Organics-Concentration of the target analyte exceeds the instrument calibration range |
| E | Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria |
| H | Analytical holding time was exceeded |
| h | Preparation or preservation holding time was exceeded |
| J | Value is estimated |
| N | Metals-The Matrix spike sample recovery is not within specified control limits |
| N | Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N/A | Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more |
| ND | Analyte concentration is not detected above the reporting limit |
| UI | Gamma Spectroscopy-Uncertain identification |
| X | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| Y | QC Samples were not spiked with this compound |
| Z | Paint Filter Test-Particulates passed through the filter, however no free liquids were observed. |

P Organics-The concentrations between the primary and confirmation columns/detectors is >40% difference. For HPLC, the difference is >70%.

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

# Perchlorates by LCMSMS Analysis

# Case Narrative

## Method/Analysis Information

| | |
|---|---|
| **Procedure:** | **Definitive Low Level Perchlorate Analysis Utilizing Liquid Chromatography/Mass Spectrometry/Mass Spectrometry (LC/MS/MS) by EPA Method 6850 Modified (6850M)** |
| Analytical Method: | SW846 6850 Modified |
| Prep Method: | SW846 6850 Modified |
| Analytical Batch Number: | 1304740 |
| Prep Batch Number: | 1304739 |

## Sample Analysis

| Sample ID | Client ID |
|---|---|
| 326214002 | CASA-13-30557 |
| 1202883693 | Interference Check Sample (ICS) |
| 1202883689 | Method Blank (MB) |
| 1202883690 | Laboratory Control Sample (LCS) |
| 1202883691 | 326214002(CASA-13-30557) Matrix Spike (MS) |
| 1202883692 | 326214002(CASA-13-30557) Matrix Spike Duplicate (MSD) |

The samples in this SDG were analyzed on an "as received" basis.

## Preparation/Analytical Method Verification

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-067 REV# 10.

## Calibration Information

**Initial Calibration**
All initial calibration requirements have been met for this SDG. Due to software constraints, all Initial Calibration Blanks must be designated as IPB001.

**ICV Requirements**
All associated initial calibration verification standard(s) (ICV) met the acceptance criteria.

**CCB Requirements**
All continuing calibration blanks (CCB) bracketing the analyses associated with this batch were within acceptance criteria.

**CCV Requirements**
All continuing calibration checks (CCV) requirements were met by all bracketing CCV standards.

**Low Level Standard (CRI) Requirements**
All low level calibration verification (CRI) requirements were met by all bracketing CRI standards.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Interference Check Sample (ICS)**
The ICS met all recovery acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recoveries met the acceptance limits.

**QC Sample Designation**
Client sample 326214002 (CASA-13-30557) was chosen for matrix spike and matrix spike duplicate analysis.

**Matrix Spike (MS) Recovery Statement**
The MS recoveries were within the established acceptance limits.

**Matrix Spike Duplicate (MSD) Recovery Statement**
The MSD recoveries were within the established acceptance limits.

**MS/MSD Relative Percent Difference (RPD) Statement**
The RPD(s) between the MS and MSD met the acceptance limits.

**Retention Time Standard Area Acceptance**
The retention time standard areas were within the required acceptance criteria for all samples and QC.

**Retention Time**
During the analysis of Perchlorate by LC/MS/MS, retention time shifts are commonly observed. These retention time shifts, which are caused by fouling of the column by the sample matrices, are problematic when the retention time is used as one of the criterion for confirmation. To overcome this problem, a known amount of O(18) labeled Perchlorate was added to each sample as a retention time standard. The presence of Perchlorate was confirmed by the relative retention time (RRT) of the Perchlorate peak and the O(18) standard. A RRT window of 0.98 to 1.02, as required by Method 332.0, has been used. In addition to the isotopic ratio, the presence of Perchlorate in the samples associated with this data package have been confirmed using the relative retention criteria stated above, not the absolute retention time.

**Technical Information**

**Holding Time Specifications**
All samples in this SDG in this analytical batch met the specified holding time. GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

**Preparation/Analytical Method Verification**
All procedures were performed as stated in the SOP.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-extraction/Re-analysis**
Re-extractions or re-analyses were not required in this SDG.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Manual Integrations**
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations.

**Method Comments**
The samples in this SDG were not originally analyzed using EPA Method 314.0.

**Additional Comments**
Because of the background concentration present in the parent sample, 326214002, the addition of the spike amount for the MS and MSD resulted in the detected concentration for the matrix spikes to be over-range. It was acceptable to report the data without further analysis. 1202883691 (CASA-13-30557) and 1202883692 (CASA-13-30557). The retention time marker, Perchlorate-O (18), is added to all samples, instrument blanks, and standards prior to injection. It is used to verify the retention time of Perchlorate and Perchlorate-101 and to insure an accurate injection occurred. Due to various anions affecting the recovery of Perchlorate-O (18) and not Perchlorate and Perchlorate-101, the calibration curves of Perchlorate and Perchlorate-101 are not internally corrected for using Perchlorate-O (18). They are external calibrations.

**Perchlorate Isotope Ratio**
The Perchlorate isotope ratio met acceptance criteria for all samples and QC samples. Please see the isotope ratio criteria in the Miscellaneous Section.

**System Configuration**

The laboratory utilizes a Waters LC 2795 liquid chromatography instrument for Perchlorate analysis. It is coupled with either a Micromass Quattro Micro Mass Spectrometer/ Mass Spectrometer, or a Micromass Quattro Ultima Mass Spectrometer/ Mass Spectrometer. Each being designated as LCMSMS #1 and LCMSMS #2, respectively. It is fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis. The laboratory may also utilize an Agilent 1100 liquid chromatography instrument for Perchlorate analysis. It is coupled with an Applied Biosystems 4000 Mass Spectrometer/ Mass Spectrometer, designated as LCMSMS #3 or LCMSMS #4. It is also fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An

electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Chromatographic Columns**

Chromatographic separation of Perchlorate is accomplished through analysis on the following anion column:

Dionex: IonPac AG-16 2 x 50 mm.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-874 GEL Work Order: 326214

**The Qualifiers in this report are defined as follows:**

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

**Review/Validation**

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

**Signature:** Pat Steele **Name: Patricia Steele**

**Date: 05 JUN 2013** **Title: Data Validator**

# Sample Data Summary

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1304739

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CASA-13-30557

**Date Received:** 23-MAY-13

**GEL Job No (SDG):** 2013-874

**GEL Sample ID:** 326214002

**Date Filtered:** 30-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.938 | ug/L | | 1 | 30-MAY-13 15:14 | per0530026a |
| | Perchlorate Isotope Ratio | | | 3.11 | | | 1 | 30-MAY-13 15:14 | per0530026a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.948 | ug/L | | 1 | 30-MAY-13 15:14 | per0530026a |
| | Perchlorate-O(18) | | | 0.501 | ug/L | | 1 | 30-MAY-13 15:14 | per0530026a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Quality Control Summary

## Perchlorate Laboratory Control Sample

**Lab Name:** General Engineering Laboratories

**Lab Code:** GEL

**GEL Job No. (SDG):** 2013-874

**Extract Batch Code:** 1304739

**Date Filtered:** 30-MAY-13

**Matrix:** WATER

**Sample ID:** 1202883690

| Analyte^ | True | Found | Units | %Rec | Q | Control Limits |
|---|---|---|---|---|---|---|
| Perchlorate | 0.200 | .187 | ug/L | 93.6 | | 85 - 115 |
| Perchlorate Isotope Ratio | | 3.08 | | | | - |
| Perchlorate-101 | 0.200 | .191 | ug/L | 95.3 | | 85 - 115 |
| Perchlorate-O(18) | | .477 | ug/L | | | - |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

## Perchlorate Spike/Spike Duplicate Summary

**Lab Name:** General Engineering Laboratories

**Lab Code:** GEL

**GEL Job No (SDG):** 2013-874

**Extract Batch Code:** 1304739

**Date Extracted:** 30-MAY-13

**GEL MS/PS ID:** 1202883691

**Client ID:** CASA-13-30557

**GEL MSD/PSD ID:** 1202883692

**QC Type:** MS

| Compound^ | Spike Added | Sample Conc | Units | MS Conc | MS Rec # | MSD Conc | MSD Rec # | RPD # | RPD Limit | Recovery Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| Perchlorate | 0.200 | 0.938 | ug/L | 1.14 | 99.7 | 1.13 | 93.5 | 1.1 | 30 | 75 - 125 |
| Perchlorate Isotope Ratio | 0 | 3.11 | | 3.07 | | 3.06 | | .211 | | - |
| Perchlorate-101 | 0.200 | 0.948 | ug/L | 1.16 | 108 | 1.15 | 103 | .886 | 30 | 75 - 125 |
| Perchlorate-O(18) | 0 | 0.501 | ug/L | 0.520 | | .507 | | 2.46 | | - |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

# Quality Control Data

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** EPA 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1304739

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
MB

**Date Received:** 30-MAY-13

**GEL Job No (SDG):** 2013-874

**GEL Sample ID:** 1202883689

**Date Filtered:** 30-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.200 | ug/L | U | 1 | 30-MAY-13 14:50 | per0530023a |
| | Perchlorate Isotope Ratio | | | | | | 1 | 30-MAY-13 14:50 | per0530023a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.200 | ug/L | U | 1 | 30-MAY-13 14:50 | per0530023a |
| | Perchlorate-O(18) | | | 0.479 | ug/L | | 1 | 30-MAY-13 14:50 | per0530023a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** EPA 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1304739

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
LCS

**Date Received:** 30-MAY-13

**GEL Job No (SDG):** 2013-874

**GEL Sample ID:** 1202883690

**Date Filtered:** 30-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.187 | ug/L | J | 1 | 30-MAY-13 14:58 | per0530024a |
| | Perchlorate Isotope Ratio | | | 3.08 | | | 1 | 30-MAY-13 14:58 | per0530024a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.191 | ug/L | J | 1 | 30-MAY-13 14:58 | per0530024a |
| | Perchlorate-O(18) | | | 0.477 | ug/L | | 1 | 30-MAY-13 14:58 | per0530024a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1304739

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
ICS

**Date Received:**

**GEL Job No (SDG):** 2013-874

**GEL Sample ID:** 1202883693

**Date Filtered:** 30-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.198 | ug/L | J | 1 | 30-MAY-13 15:06 | per0530025a |
| | Perchlorate Isotope Ratio | | | 3.07 | | | 1 | 30-MAY-13 15:06 | per0530025a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.202 | ug/L | | 1 | 30-MAY-13 15:06 | per0530025a |
| | Perchlorate-O(18) | | | 0.509 | ug/L | | 1 | 30-MAY-13 15:06 | per0530025a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1304739

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CASA-13-30557MS

**Date Received:** 23-MAY-13

**GEL Job No (SDG):** 2013-874

**GEL Sample ID:** 1202883691

**Date Filtered:** 30-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 1.14 | ug/L | | 1 | 30-MAY-13 15:22 | per0530027a |
| | Perchlorate Isotope Ratio | | | 3.07 | | | 1 | 30-MAY-13 15:22 | per0530027a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 1.16 | ug/L | | 1 | 30-MAY-13 15:22 | per0530027a |
| | Perchlorate-O(18) | | | 0.520 | ug/L | | 1 | 30-MAY-13 15:22 | per0530027a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1304739

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CASA-13-30557MSD

**Date Received:** 23-MAY-13

**GEL Job No (SDG):** 2013-874

**GEL Sample ID:** 1202883692

**Date Filtered:** 30-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 1.13 | ug/L | | 1 | 30-MAY-13 15:30 | per0530028a |
| | Perchlorate Isotope Ratio | | | 3.06 | | | 1 | 30-MAY-13 15:30 | per0530028a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 1.15 | ug/L | | 1 | 30-MAY-13 15:30 | per0530028a |
| | Perchlorate-O(18) | | | 0.507 | ug/L | | 1 | 30-MAY-13 15:30 | per0530028a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Metals Analysis

# Case Narrative

**Metals Fractional Narrative**
**ARS International (ARSL)**
**SDG 2013-874**

## Sample Analysis

| Sample ID | Client ID |
|---|---|
| 326214002 | CASA-13-30557 |
| 1202884377 | Method Blank (MB) **ICP** |
| 1202884378 | Laboratory Control Sample (LCS) |
| 1202884381 | 326426002(CAMO-13-30601L) Serial Dilution (SD) |
| 1202884379 | 326426002(CAMO-13-30601D) Sample Duplicate (DUP) |
| 1202884380 | 326426002(CAMO-13-30601S) Matrix Spike (MS) |
| 1202883954 | Method Blank (MB) **ICP-MS** |
| 1202883955 | Laboratory Control Sample (LCS) |
| 1202883958 | 325649002(CAMO-13-30594L) Serial Dilution (SD) |
| 1202883956 | 325649002(CAMO-13-30594D) Sample Duplicate (DUP) |
| 1202883957 | 325649002(CAMO-13-30594S) Matrix Spike (MS) |
| 1202883730 | Method Blank (MB) **CVAA** |
| 1202883731 | Laboratory Control Sample (LCS) |
| 1202883737 | 326057001(WT_IPC-13-32171L) Serial Dilution (SD) |
| 1202883735 | 326057001(WT_IPC-13-32171D) Sample Duplicate (DUP) |
| 1202883736 | 326057001(WT_IPC-13-32171S) Matrix Spike (MS) |

## Method/Analysis Information

| | |
|---|---|
| **Analytical Batch:** | 1304972, 1304840, 1304760 and 1308026 |
| **Prep Batch :** | 1304971, 1304838 and 1304759 |
| **Standard Operating Procedures:** | GL-MA-E-013 REV# 22, GL-MA-E-006 REV# 9, GL-MA-E-014 REV# 25, GL-MA-E-010 REV# 26 and GL-GC-E-107 REV# 8 |
| **Analytical Method:** | SW846 3005/6010B, SW846 3005/6020 DOE-AL, EPA 245.1/245.2 and SM 2340 B |
| **Prep Method :** | SW846 3005A and EPA 245.1/245.2 Prep |

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

**System Configuration**

The Hardness as CaCO3 is calculated from Calcium and Magnesium results.

The Metals analysis-ICP was performed on a P E 5300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN 9000 inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadruple mass spectrometer, and dual mode electron multiplier detector. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum. Operating conditions are set at 1400W power and combined argon pressures of 360+/-7 kPa for the plasma and auxiliary gases, and 0.85 L/min carrier gas flow, and an initial lens voltage of 5.2.

The Metals analysis-Mercury was performed on a Perkin-Elmer Flow Injection Mercury System (FIMS-100) automated mercury analyzer. The instrument consists of a cold vapor atomic absorption spectrometer set to detect mercury at a wavelength of 253.7 nm. Sample introduction through the flow injection system is performed via a peristaltic pump at 9 mL/min and nitrogen carrier gas rate of 80 mL/min.

**Calibration Information**

**Instrument Calibration**
All initial calibration requirements have been met for this sample delivery group (SDG).

**CRDL Requirements**
All CRDL standard(s) met the referenced advisory control limits.

**ICSA/ICSAB Statement**
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

**Continuing Calibration Blank (CCB) Requirements**
All continuing calibration blanks (CCB) bracketing this batch met the established

acceptance criteria.

**Continuing Calibration Verification (CCV) Requirements**
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

## Quality Control (QC) Information

**Method Blank (MB) Statement**
The MBs analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recoveries met the acceptance limits.

**Quality Control (QC) Sample Statement**
The following samples were selected as the quality control (QC) samples for this SDG: 326426002 (CAMO-13-30601)-ICP and CVAA, 325649002 (CAMO-13-30594)-ICP-MS and 326057001 (WT_IPC-13-32171)-CVAA.

**Matrix Spike (MS) Recovery Statement**
The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. All applicable elements met the acceptance criteria.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. All applicable analytes met these requirements.

**Serial Dilution % Difference Statement**
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations that are 25X the IDL/MDL for CVAA, 50X the IDL/MDL for ICP, and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the acceptance criteria of less than 10% difference (%D).

## Technical Information

**Holding Time Specifications**
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

**Preparation/Analytical Method Verification**
All procedures were performed as stated in the SOP.

**Sample Dilutions**
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instruments. Sample 326214002 required a dilution for tin in order to minimize suppression due to matrix interferences.

**Preparation Information**
The samples in this SDG were prepared exactly according to the cited SOP.

**Miscellaneous Information**

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.
Total Hardness by Calculation is determined using the results of Total Calcium (Ca) and Total Magnesium (Mg) determined by ICP or ICP-MS.

Hardness = 2.497 (Ca) + 4.118 (Mg)

Please refer to the Total Ca and Total Mg data to validate results appearing on the Hardness Summary sheet. Both results are in the Inorganic/metals section of the package. There is no Batch QC for calculated results, and thus no QC Summary for the Hardness by Calculation Batch. The MDLs and PQLs are calculated using the higher of the two calculated values of Ca or Mg.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

**Review Validation:**

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

**The following data validator verified the information presented in this case narrative:**

**Reviewer:**_____ **Date:** 06/14/13

# Sample Data Summary

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-874  GEL Work Order: 326214

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

J  Value is estimated

N  Metals--The Matrix spike sample recovery is not within specified control limits

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____ 06/14/13

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−874 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

**SAMPLE ID:** 326214002 **BASIS:** As Received **DATE COLLECTED** 21−MAY−13

**CLIENT ID:** CASA−13−30557 **LEVEL:** Low **DATE RECEIVED** 23−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7439−97−6 | Mercury | 0.20 | ug/L | U | 0.067 | 0.2 | 0.2 | 1 | AV | NOR1 | 05/31/13 11:16 | 053113W1−5 | 1304760 |

# METALS
## −1−
## INORGANICS ANALYSIS DATA PACKAGE

**SDG No:** 2013−874 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

**SAMPLE ID:** 326214002 **BASIS:** As Received **DATE COLLECTED** 21−MAY−13

**CLIENT ID:** CASA−13−30557 **LEVEL:** Low **DATE RECEIVED** 23−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7429−90−5 | Aluminum | 200 | ug/L | U | 68 | 200 | 200 | 1 | P | HSC | 06/13/13 07:47 | 061313−1 | 1304972 |
| 7440−36−0 | Antimony | 3 | ug/L | U | 1 | 3 | 3 | 1 | MS | PRB | 06/08/13 04:00 | 130607−4 | 1304840 |
| 7440−38−2 | Arsenic | 5 | ug/L | U | 1.7 | 5 | 5 | 1 | MS | BAJ | 06/07/13 08:47 | 130606−2 | 1304840 |
| 7440−39−3 | Barium | 67.1 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/13/13 07:47 | 061313−1 | 1304972 |
| 7440−41−7 | Beryllium | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/13/13 07:47 | 061313−1 | 1304972 |
| 7440−42−8 | Boron | 19.8 | ug/L | J | 15 | 50 | 50 | 1 | P | HSC | 06/13/13 07:47 | 061313−1 | 1304972 |
| 7440−43−9 | Cadmium | 1 | ug/L | U | 0.11 | 1 | 1 | 1 | MS | BAJ | 06/07/13 08:47 | 130606−2 | 1304840 |
| 7440−70−2 | Calcium | 70700 | ug/L | | 50 | 200 | 200 | 1 | P | HSC | 06/13/13 07:47 | 061313−1 | 1304972 |
| 7440−47−3 | Chromium | 427 | ug/L | | 2 | 10 | 10 | 1 | MS | BAJ | 06/07/13 08:47 | 130606−2 | 1304840 |
| 7440−48−4 | Cobalt | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/13/13 07:47 | 061313−1 | 1304972 |
| 7440−50−8 | Copper | 10 | ug/L | U | 3 | 10 | 10 | 1 | P | HSC | 06/13/13 07:47 | 061313−1 | 1304972 |
| 7439−89−6 | Iron | 100 | ug/L | U | 30 | 100 | 100 | 1 | P | HSC | 06/13/13 07:47 | 061313−1 | 1304972 |
| 7439−92−1 | Lead | 2 | ug/L | U | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/07/13 08:47 | 130606−2 | 1304840 |
| 7439−95−4 | Magnesium | 16700 | ug/L | | 110 | 300 | 300 | 1 | P | HSC | 06/13/13 07:47 | 061313−1 | 1304972 |
| 7439−96−5 | Manganese | 10 | ug/L | U | 2 | 10 | 10 | 1 | P | HSC | 06/13/13 07:47 | 061313−1 | 1304972 |
| 7439−98−7 | Molybdenum | 0.615 | ug/L | | 0.165 | 0.5 | 0.5 | 1 | MS | BAJ | 06/07/13 16:56 | 130607−3 | 1304840 |
| 7440−02−0 | Nickel | 18.6 | ug/L | | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/07/13 08:47 | 130606−2 | 1304840 |
| 7440−09−7 | Potassium | 3670 | ug/L | | 50 | 150 | 150 | 1 | P | HSC | 06/13/13 07:47 | 061313−1 | 1304972 |
| 7782−49−2 | Selenium | 2.1 | ug/L | J | 1.5 | 5 | 5 | 1 | MS | BAJ | 06/07/13 08:47 | 130606−2 | 1304840 |
| 7631−86−9 | Silica | 64200 | ug/L | | 53 | 213 | 213 | 1 | P | HSC | 06/13/13 07:47 | 061313−1 | 1304972 |
| 7440−22−4 | Silver | 1 | ug/L | U | 0.2 | 1 | 1 | 1 | MS | BAJ | 06/07/13 08:47 | 130606−2 | 1304840 |
| 7440−23−5 | Sodium | 23200 | ug/L | | 100 | 300 | 300 | 1 | P | HSC | 06/13/13 07:47 | 061313−1 | 1304972 |
| 7440−24−6 | Strontium | 338 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/13/13 07:47 | 061313−1 | 1304972 |
| 7440−28−0 | Thallium | 2 | ug/L | U | 0.45 | 2 | 2 | 1 | MS | BAJ | 06/07/13 08:47 | 130606−2 | 1304840 |
| 7440−31−5 | Tin | 500 | ug/L | U | 125 | 500 | 500 | 50 | P | HSC | 06/13/13 08:28 | 061313−1 | 1304972 |
| 7440−61−1 | Uranium | 2.05 | ug/L | | 0.067 | 0.2 | 0.2 | 1 | MS | BAJ | 06/07/13 16:56 | 130607−3 | 1304840 |
| 7440−62−2 | Vanadium | 1.63 | ug/L | J | 1 | 5 | 5 | 1 | P | HSC | 06/13/13 07:47 | 061313−1 | 1304972 |
| 7440−66−6 | Zinc | 4.22 | ug/L | J | 3.3 | 10 | 10 | 1 | P | HSC | 06/13/13 07:47 | 061313−1 | 1304972 |

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−874 **CONTRACT:** ESHL00210 **METHOD TYPE:**

**SAMPLE ID:** 326214002 **BASIS:** As Received **DATE COLLECTED** 21−MAY−13

**CLIENT ID:** CASA−13−30557 **LEVEL:** Low **DATE RECEIVED** 23−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Hardness as CaCO3 | 245 | mg/L | | 0.453 | 1.24 | 1.24 | 1 | | JJ2 | 06/13/13 15:11 | | 1308026 |

**Prep Information:**

| Analytical Batch | Prep Batch | Prep Method | Initial wt./vol. | Units | Final wt./vol. | Units | Date | Analyst |
|---|---|---|---|---|---|---|---|---|
| 1304760 | 1304759 | EPA 245.1/245.2 Prep | 20 | mL | 20 | mL | 05/30/13 | AXS5 |
| 1304840 | 1304838 | SW846 3005A | 50 | mL | 50 | mL | 06/06/13 | AXG2 |
| 1304972 | 1304971 | SW846 3005A | 50 | mL | 50 | mL | 06/12/13 | AXG2 |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**
**P** **SW846 3005/6010B**
**AV** **EPA 245.1/245.2**

# Quality Control Summary

**METALS**
**−3b−**
**PREPARATION BLANK SUMMARY**

**SDG NO.** 2013−874

**Contract:** ESHL00210

**Matrix:** W

| Sample ID | Analyte | Result | Units | Acceptance Window | Conc Qual | M* | MDL | RDL |
|---|---|---|---|---|---|---|---|---|
| 1202883730 | | | | | | | | |
| | Mercury | 0.067 | ug/L | +/−0.2 | U | AV | 0.067 | 0.2 |
| 1202883954 | | | | | | | | |
| | Antimony | 1 | ug/L | +/−3 | U | MS | 1 | 3 |
| | Arsenic | 1.7 | ug/L | +/−5 | U | MS | 1.7 | 5 |
| | Lead | 0.5 | ug/L | +/−2 | U | MS | 0.5 | 2 |
| | Nickel | 0.5 | ug/L | +/−2 | U | MS | 0.5 | 2 |
| | Silver | 0.2 | ug/L | +/−1 | U | MS | 0.2 | 1 |
| | Uranium | 0.067 | ug/L | +/−0.2 | U | MS | 0.067 | 0.2 |
| | Thallium | 0.45 | ug/L | +/−2 | U | MS | 0.45 | 2 |
| | Selenium | 1.5 | ug/L | +/−5 | U | MS | 1.5 | 5 |
| | Molybdenum | 0.165 | ug/L | +/−0.5 | U | MS | 0.165 | 0.5 |
| | Chromium | 2 | ug/L | +/−10 | U | MS | 2 | 10 |
| | Cadmium | 0.11 | ug/L | +/−1 | U | MS | 0.11 | 1 |
| 1202884377 | | | | | | | | |
| | Aluminum | 68 | ug/L | +/−200 | U | P | 68 | 200 |
| | Barium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Beryllium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Boron | 15 | ug/L | +/−50 | U | P | 15 | 50 |
| | Calcium | 50 | ug/L | +/−200 | U | P | 50 | 200 |
| | Cobalt | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Copper | 3 | ug/L | +/−10 | U | P | 3 | 10 |
| | Iron | 30 | ug/L | +/−100 | U | P | 30 | 100 |
| | Magnesium | 110 | ug/L | +/−300 | U | P | 110 | 300 |
| | Manganese | 2 | ug/L | +/−10 | U | P | 2 | 10 |
| | Potassium | 51.7 | ug/L | +/−150 | J | P | 50 | 150 |
| | Silica | 53 | ug/L | +/−213 | U | P | 53 | 213 |
| | Sodium | 100 | ug/L | +/−300 | U | P | 100 | 300 |
| | Strontium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Tin | 3.24 | ug/L | +/−10 | J | P | 2.5 | 10 |
| | Vanadium | 1.06 | ug/L | +/−5 | J | P | 1 | 5 |
| | Zinc | 3.3 | ug/L | +/−10 | U | P | 3.3 | 10 |

***Analytical Methods:**

| | |
|---|---|
| **MS** | **SW846 3005/6020 DOE−AL** |
| **P** | **SW846 3005/6010B** |
| **AV** | **EPA 245.1/245.2** |

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−874 **Client ID:** WT_IPC−13−32171S

**Contract:** ESHL00510 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 326057001 **Spike ID:** 1202883736

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | ug/L | 75−125 | 2.08 | | 0.067 | U | 2 | 104 | | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−874 **Client ID** CAMO−13−30594S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 325649002 **Spike ID:** 1202883957

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ug/L | 75−125 | 55 | | 1 | U | 50 | 110 | | MS |
| Arsenic | ug/L | 75−125 | 52.4 | | 1.7 | U | 50 | 102 | | MS |
| Cadmium | ug/L | 75−125 | 54.8 | | 0.11 | U | 50 | 110 | | MS |
| Chromium | ug/L | 75−125 | 68.1 | | 17.5 | | 50 | 101 | | MS |
| Lead | ug/L | 75−125 | 51.2 | | 0.5 | U | 50 | 102 | | MS |
| Molybdenum | ug/L | 75−125 | 51.8 | | 0.849 | | 50 | 102 | | MS |
| Nickel | ug/L | 75−125 | 53.4 | | 2.22 | | 50 | 102 | | MS |
| Selenium | ug/L | 75−125 | 59.2 | | 1.5 | U | 50 | 116 | | MS |
| Silver | ug/L | 75−125 | 54 | | 0.2 | U | 50 | 108 | | MS |
| Thallium | ug/L | 75−125 | 47.3 | | 0.45 | U | 50 | 94.6 | | MS |
| Uranium | ug/L | 75−125 | 51.9 | | 0.429 | | 50 | 103 | | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−874 **Client ID** CAMO−13−30601S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 326426002 **Spike ID:** 1202884380

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Vanadium | ug/L | 75−125 | 505 | | 7.88 | | 500 | 99.5 | | P |
| Zinc | ug/L | 75−125 | 471 | | 3.42 | J | 500 | 93.5 | | P |
| Aluminum | ug/L | 75−125 | 5180 | | 68 | U | 5000 | 103 | | P |
| Barium | ug/L | 75−125 | 508 | | 19.3 | | 500 | 97.8 | | P |
| Beryllium | ug/L | 75−125 | 502 | | 1 | U | 500 | 100 | | P |
| Boron | ug/L | 75−125 | 508 | | 20.5 | J | 500 | 97.5 | | P |
| Calcium | ug/L | 75−125 | 12500 | | 7690 | | 5000 | 96.7 | | P |
| Cobalt | ug/L | 75−125 | 491 | | 1 | U | 500 | 98.1 | | P |
| Copper | ug/L | 75−125 | 514 | | 3 | U | 500 | 103 | | P |
| Iron | ug/L | 75−125 | 5300 | | 167 | | 5000 | 103 | | P |
| Magnesium | ug/L | 75−125 | 8190 | | 3150 | | 5000 | 101 | | P |
| Manganese | ug/L | 75−125 | 551 | | 71.4 | | 500 | 95.9 | | P |
| Potassium | ug/L | 75−125 | 17200 | | 12500 | | 5000 | 93.3 | | P |
| Silica | ug/L | | 98700 | | 91000 | | 10700 | 72.3 | N/A | P |
| Sodium | ug/L | 75−125 | 19000 | | 14200 | | 5000 | 97.2 | | P |
| Strontium | ug/L | 75−125 | 536 | | 31.9 | | 500 | 101 | | P |
| Tin | ug/L | 75−125 | 482 | | 2.5 | U | 500 | 96.4 | | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−874 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** WT_IPC−13−32171D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 326057001 **Duplicate ID:** 1202883735 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | ug/L | | 0.067 | U | 0.067 | U | | | AV |

***Analytical Methods:**

**AV EPA 245.1/245.2**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−874 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CAMO−13−30594D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325649002 **Duplicate ID:** 1202883956 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Antimony | ug/L | | 1 | U | 1 | U | | | MS |
| Arsenic | ug/L | | 1.7 | U | 1.7 | U | | | MS |
| Cadmium | ug/L | | 0.11 | U | 0.11 | U | | | MS |
| Chromium | ug/L | +/−10 | 17.5 | | 16 | | 9.39 | | MS |
| Lead | ug/L | | 0.5 | U | 0.5 | U | | | MS |
| Molybdenum | ug/L | +/−.5 | 0.849 | | 0.877 | | 3.24 | | MS |
| Nickel | ug/L | +/−2 | 2.22 | | 1.9 | J | 15.5 | | MS |
| Selenium | ug/L | | 1.5 | U | 1.5 | U | | | MS |
| Silver | ug/L | | 0.2 | U | 0.2 | U | | | MS |
| Thallium | ug/L | | 0.45 | U | 0.45 | U | | | MS |
| Uranium | ug/L | +/−.2 | 0.429 | | 0.42 | | 2.12 | | MS |

***Analytical Methods:**

**MS SW846 3005/6020 DOE−AL**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−874 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CAMO−13−30601D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 326426002 **Duplicate ID:** 1202884379 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | ug/L | | 68 | U | 68 | U | | | P |
| Barium | ug/L | +/−5 | 19.3 | | 19.1 | | 1.23 | | P |
| Beryllium | ug/L | | 1 | U | 1 | U | | | P |
| Boron | ug/L | +/−50 | 20.5 | J | 19.1 | J | 6.83 | | P |
| Calcium | ug/L | +/−20% | 7690 | | 7460 | | 3.14 | | P |
| Cobalt | ug/L | | 1 | U | 1 | U | | | P |
| Copper | ug/L | | 3 | U | 3 | U | | | P |
| Iron | ug/L | +/−100 | 167 | | 160 | | 4.17 | | P |
| Magnesium | ug/L | +/−20% | 3150 | | 3040 | | 3.75 | | P |
| Manganese | ug/L | +/−20% | 71.4 | | 68.9 | | 3.54 | | P |
| Potassium | ug/L | +/−20% | 12500 | | 12100 | | 3.51 | | P |
| Silica | ug/L | +/−20% | 91000 | | 87800 | | 3.6 | | P |
| Sodium | ug/L | +/−20% | 14200 | | 13700 | | 3.18 | | P |
| Strontium | ug/L | +/−20% | 31.9 | | 30.6 | | 4.26 | | P |
| Tin | ug/L | | 2.5 | U | 2.5 | U | | | P |
| Vanadium | ug/L | +/−5 | 7.88 | | 7.34 | | 7.1 | | P |
| Zinc | ug/L | | 3.42 | J | 3.3 | U | 200 | | P |

***Analytical Methods:**

**P SW846 3005/6010B**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−874

**Contract:** ESHL00210

**Aqueous LCS Source:** GEL **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202883731 | | | | | | | | |
| | Mercury | ug/L | 2 | 2.05 | | 102 | 85−115 | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−874

**Contract:** ESHL00210

**Aqueous LCS Source:** O2Si **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202883955 | | | | | | | | |
| | Antimony | ug/L | 50 | 55.6 | | 111 | 80−120 | MS |
| | Arsenic | ug/L | 50 | 51.7 | | 103 | 80−120 | MS |
| | Cadmium | ug/L | 50 | 54.4 | | 109 | 80−120 | MS |
| | Chromium | ug/L | 50 | 52.9 | | 106 | 80−120 | MS |
| | Lead | ug/L | 50 | 51.4 | | 103 | 80−120 | MS |
| | Molybdenum | ug/L | 50 | 50.2 | | 100 | 80−120 | MS |
| | Nickel | ug/L | 50 | 52.7 | | 105 | 80−120 | MS |
| | Selenium | ug/L | 50 | 59.7 | | 119 | 80−120 | MS |
| | Silver | ug/L | 50 | 53.8 | | 108 | 80−120 | MS |
| | Thallium | ug/L | 50 | 46.7 | | 93.5 | 80−120 | MS |
| | Uranium | ug/L | 50 | 49.6 | | 99.3 | 80−120 | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−874

**Contract:** ESHL00210

**Aqueous LCS Source:** OS2I **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202884378 | | | | | | | | |
| | Aluminum | ug/L | 5000 | 5270 | | 105 | 80−120 | P |
| | Barium | ug/L | 500 | 499 | | 99.8 | 80−120 | P |
| | Beryllium | ug/L | 500 | 500 | | 100 | 80−120 | P |
| | Boron | ug/L | 500 | 486 | | 97.2 | 80−120 | P |
| | Calcium | ug/L | 5000 | 5230 | | 105 | 80−120 | P |
| | Cobalt | ug/L | 500 | 500 | | 100 | 80−120 | P |
| | Copper | ug/L | 500 | 506 | | 101 | 80−120 | P |
| | Iron | ug/L | 5000 | 5180 | | 104 | 80−120 | P |
| | Magnesium | ug/L | 5000 | 5310 | | 106 | 80−120 | P |
| | Manganese | ug/L | 500 | 489 | | 97.8 | 80−120 | P |
| | Potassium | ug/L | 5000 | 5090 | | 102 | 80−120 | P |
| | Silica | ug/L | 10700 | 10500 | | 98 | 80−120 | P |
| | Sodium | ug/L | 5000 | 5200 | | 104 | 80−120 | P |
| | Strontium | ug/L | 500 | 513 | | 103 | 80−120 | P |
| | Tin | ug/L | 500 | 496 | | 99.1 | 80−120 | P |
| | Vanadium | ug/L | 500 | 503 | | 101 | 80−120 | P |
| | Zinc | ug/L | 500 | 484 | | 96.9 | 80−120 | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−874 **Client ID:** WT_IPC−13−32171L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 326057001 **Serial Dilution ID:** 1202883737

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Mercury | .067 | U | .335 | U | | | | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−874 **Client ID** CAMO−13−30594L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325649002 **Serial Dilution ID:** 1202883958

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Antimony | 1 | U | 5 | U | | | | MS |
| Arsenic | 1.7 | U | 8.5 | U | | | | MS |
| Cadmium | .11 | U | .55 | U | | | | MS |
| Chromium | 17.5 | | 16.6 | J | 5.12 | | | MS |
| Lead | .5 | U | 2.5 | U | | | | MS |
| Molybdenum | .849 | | 1.15 | J | 35.5 | | | MS |
| Nickel | 2.22 | | 2.5 | U | 100 | | | MS |
| Selenium | 1.5 | U | 7.5 | U | | | | MS |
| Silver | .2 | U | 1 | U | | | | MS |
| Thallium | .45 | U | 2.25 | U | | | | MS |
| Uranium | .429 | | .53 | J | 23.5 | | | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−874 **Client ID** CAMO−13−30601L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 326426002 **Serial Dilution ID:** 1202884381

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Aluminum | 68 | U | 340 | U | | | | P |
| Barium | 19.3 | | 19.8 | J | 2.49 | | | P |
| Beryllium | 1 | U | 5 | U | | | | P |
| Boron | 20.5 | J | 75 | U | 100 | | | P |
| Calcium | 7690 | | 7440 | | 3.3 | | 10 | P |
| Cobalt | 1 | U | 5 | U | | | | P |
| Copper | 3 | U | 15 | U | | | | P |
| Iron | 167 | | 164 | J | 1.76 | | | P |
| Magnesium | 3150 | | 3170 | | .534 | | | P |
| Manganese | 71.4 | | 72.4 | | 1.46 | | | P |
| Potassium | 12500 | | 12800 | | 2.81 | | 10 | P |
| Silica | 91000 | | 89100 | | 2.05 | | 10 | P |
| Sodium | 14200 | | 14400 | | 1.87 | | 10 | P |
| Strontium | 31.9 | | 36.5 | | 14.5 | | | P |
| Tin | 2.5 | U | 12.5 | U | | | | P |
| Vanadium | 7.88 | | 7.26 | J | 7.87 | | | P |
| Zinc | 3.42 | J | 16.5 | U | 100 | | | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

# General Chem Analysis

# Case Narrative

**General Chemistry Narrative**
**ARS International (ARSL)**
**SDG 2013-874**

## Method/Analysis Information

**Product:** **Carbon, Total Organic**

**Analytical Batch:** 1304466 **Method:** SW 9060 Total Organic Carbon

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9060:

| Sample ID | Client ID |
|---|---|
| 326214001 | CASA-13-30549 |
| 1202882946 | Method Blank (MB) |
| 1202882947 | 326056003(CASA-13-30548) Sample Duplicate (DUP) |
| 1202882948 | 326056003(CASA-13-30548) Post Spike (PS) |
| 1202882949 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-093 REV# 12.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Carbon analysis was performed on a O-I Analytical Model 1010 Total Organic Carbon Analyzer.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

## Quality Control (QC) Information

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 326056003 (CASA-13-30548).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

## Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

## Miscellaneous Information

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Specific Conductivity** | | |
| **Analytical Batch:** | 1306822 | **Method:** | EPA120.1 Specific Conductivity |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 120.1:

| Sample ID | Client ID |
|---|---|
| 326214002 | CASA-13-30557 |
| 1202889242 | Laboratory Control Sample (LCS) |
| 1202889244 | 327172002(CAPU-13-34781) Sample Duplicate (DUP) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-009 REV# 11.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Conductivity analysis was performed on a Orion 160 Conductivity Meter.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 327172002 (CAPU-13-34781).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

**Product:** **pH**

**Analytical Batch:** 1303918 **Method:** EPA 150.1 pH

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 150.1:

| Sample ID | Client ID |
|---|---|
| 326214002 | CASA-13-30557 |
| 1202881402 | 326213002(CAMO-13-30619) Sample Duplicate (DUP) |
| 1202881404 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-008 REV# 21.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Electrode analysis was performed on a PerpHect pH Meter Orion 370.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**

The following sample was selected for QC analysis: 326213002 (CAMO-13-30619).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
The following sample from this sample group was received by the lab outside of the method specified holding time: 326214002 (CASA-13-30557).

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1189773 326214002 (CASA-13-30557).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Ion Chromatography** | | |
| **Analytical Batch:** | 1303846 | **Method:** | EPA 300.0 Anions Liquid 28 day |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

| Sample ID | Client ID |
|---|---|
| 326214002 | CASA-13-30557 |
| 1202881256 | Method Blank (MB) |
| 1202881257 | 325847002(CASA-13-30555) Sample Duplicate (DUP) |
| 1202881258 | 325847002(CASA-13-30555) Post Spike (PS) |
| 1202881259 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 21.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-3000 Ion Chromatograph.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325847002 (CASA-13-30555).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The spike recovery falls outside of the established acceptance limits due to matrix interference: 1202881258 (CASA-13-30555).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The following sample in this sample group was diluted due to high concentration: 326214002 (CASA-13-30557).

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1193509 1202881258 (CASA-13-30555).

**Manual Integrations**
The following samples from this sample group had to be manually integrated due to errors in the instrument software peak integration: 1202881257 (CASA-13-30555), 1202881258 (CASA-13-30555) and 326214002 (CASA-13-30557).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an

effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Ammonia Nitrogen** | | |
| **Analytical Batch:** | 1304209 | **Method:** | EPA 350.1 Nitrogen and Ammonia L |
| **Prep Batch :** | 1304208 | **Method:** | EEPA 350.2 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 350.1:

| Sample ID | Client ID |
|---|---|
| 326214002 | CASA-13-30557 |
| 1202882330 | Method Blank (MB) |
| 1202882331 | 326213002(CAMO-13-30619) Sample Duplicate (DUP) |
| 1202882332 | 326427001(SWWS46-13-33497) Sample Duplicate (DUP) |
| 1202882333 | 326213002(CAMO-13-30619) Matrix Spike (MS) |
| 1202882334 | 326427001(SWWS46-13-33497) Matrix Spike (MS) |
| 1202882335 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-106 REV# 9.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following samples were selected for QC analysis: 326213002 (CAMO-13-30619) and 326427001 (SWWS46-13-33497).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recoveries for this sample set were within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
One or more of the values for the sample and/or duplicate are less than 5 times the Practical Quantitation Limit (PQL), and the difference is within one PQL value; therefore, the RPD is not applicable. 1202882331 (CAMO-13-30619).

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The following sample was re-analyzed due to instrument failure: 1202882335 (LCS). The following samples were re-analyzed due to CCV failure: 1202882330 (MB), 1202882331 (CAMO-13-30619), 1202882333 (CAMO-13-30619), 1202882335 (LCS) and 326214002 (CASA-13-30557).

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced

SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Total Kjeldahl Nitrogen** | | |
| **Analytical Batch:** | 1303595 | **Method:** | Nitrogen and Total Kjeldahl (TKN) |
| **Prep Batch :** | 1303594 | **Method:** | EEPA 351.2 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 351.2:

| Sample ID | Client ID |
|---|---|
| 326214001 | CASA-13-30549 |
| 1202880630 | Method Blank (MB) |
| 1202880631 | Laboratory Control Sample (LCS) |
| 1202882338 | 326020001(CAMO-13-30584) Sample Duplicate (DUP) |
| 1202882339 | 326020001(CAMO-13-30584) Matrix Spike (MS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-104 REV# 14.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 326020001 (CAMO-13-30584).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The spike recovery falls outside of the established acceptance limits due to matrix interference: 1202882339 (CAMO-13-30584).

**Duplicate Relative Percent Difference (RPD) Statement**
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202882338 (CAMO-13-30584).

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1191929 1202882339 (CAMO-13-30584).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an

effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Nitrate Nitrite by Cadmium Reduction** | | |
| **Analytical Batch:** | 1304211 | **Method:** | EPA 353.2 Nitrogen and Nitrate/Nitrite |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 353.2:

| Sample ID | Client ID |
|---|---|
| 326214002 | CASA-13-30557 |
| 1202882340 | Method Blank (MB) |
| 1202882342 | 326213002(CAMO-13-30619) Sample Duplicate (DUP) |
| 1202882344 | 326427001(SWWS46-13-33497) Sample Duplicate (DUP) |
| 1202882346 | 326213002(CAMO-13-30619) Post Spike (PS) |
| 1202882348 | 326427001(SWWS46-13-33497) Post Spike (PS) |
| 1202882349 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-128 REV# 8.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8500 Series.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following samples were selected for QC analysis: 326213002 (CAMO-13-30619) and 326427001 (SWWS46-13-33497).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The spike recovery falls outside of the GEL acceptance limits but within the client specified limits. 1202882348 (SWWS46-13-33497).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The following sample in this sample group was diluted due to high concentration: 326214002 (CASA-13-30557).

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1190497 1202882348 (SWWS46-13-33497).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Total Phosphorus** | | |
| **Analytical Batch:** | 1305420 | **Method:** | EPA 365.4 Phosphorus and Total in |
| **Prep Batch :** | 1305419 | **Method:** | EEPA 365.4 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 365.4:

| Sample ID | Client ID |
|---|---|
| 326214002 | CASA-13-30557 |
| 1202885474 | Method Blank (MB) |
| 1202885475 | 326056002(CASA-13-30553) Sample Duplicate (DUP) |
| 1202885477 | 326056002(CASA-13-30553) Matrix Spike (MS) |
| 1202885479 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-103 REV# 10.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

## Quality Control (QC) Information

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 326056002 (CASA-13-30553).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202885475 (CASA-13-30553).

## Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

## Miscellaneous Information

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are

present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Solids, Total Dissolved** | | |
| **Analytical Batch:** | 1303651 | **Method:** | EPA 160.1 Solids and Dissolved-F |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 160.1:

| Sample ID | Client ID |
|---|---|
| 326214002 | CASA-13-30557 |
| 1202880762 | Method Blank (MB) |
| 1202880764 | Laboratory Control Sample (LCS) |
| 1202881388 | 326213002(CAMO-13-30619) Sample Duplicate (DUP) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-001 REV# 13.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Solids analysis was performed on a Sartorius Balance BAL216. Solids lab

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

## Quality Control (QC) Information

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**

The following sample was selected for QC analysis: 326213002 (CAMO-13-30619).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Sample Aliquot**
A sufficient amount of sample was provided by the client for analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

**Product:** **Alkalinity**

**Analytical Batch:** 1305339 **Method:** EPA 310.1 Total Alkalinity

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 310.1:

| Sample ID | Client ID |
|---|---|
| 326214002 | CASA-13-30557 |
| 1202885271 | 326213002(CAMO-13-30619) Sample Duplicate (DUP) |
| 1202885274 | 326213002(CAMO-13-30619) Matrix Spike (MS) |
| 1202885275 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-033 REV# 10.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Titration analysis was performed on a Manually operated buret.

**Initial Standardization**
The titrant was properly standardized

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 326213002 (CAMO-13-30619).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**

The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

**Review Validation:**

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

**The following data validator verified the information presented in this case narrative:**

**Reviewer:**_____ **Date:**_____19Jun13_____

# Sample Data Summary

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-874  GEL Work Order: 326214

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

**  Analyte is a Tracer compound

**  Analyte is a surrogate compound

H  Analytical holding time was exceeded

J  Value is estimated

N  Metals--The Matrix spike sample recovery is not within specified control limits

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: June 14, 2013

| | |
|---|---|
| Company : | Los Alamos National Laboratory |
| Address : | PO Box 1663<br>TA-03, SM271, Drop Pt. 02U, Rm111<br>Los Alamos, New Mexico 87545 |
| Contact: | Keith Greene |
| Project: | LANL-WQH Water Samples |

Client SDG: 2013-874

| | | | |
|---|---|---|---|
| Client Sample ID: | CASA-13-30549 | Project: | ESHL00210 |
| Sample ID: | 326214001 | Client ID: | ARSL001 |
| Matrix: | W | | |
| Collect Date: | 21-MAY-13 12:35 | | |
| Receive Date: | 23-MAY-13 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon Analysis | | | | | | | | | | | |
| SW 9060 Total Organic Carbon "As Received" | | | | | | | | | | | |
| Total Organic Carbon Average | | 1.37 | 0.330 | 1.00 | mg/L | 1 | TSM | 05/31/13 | 2042 | 1304466 | 1 |
| Nutrient Analysis | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl (TKN) "As Received" | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | 0.101 | 0.033 | 0.100 | mg/L | 1 | KLP1 | 06/04/13 | 1402 | 1303595 | 2 |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 351.2 Prep | EPA 351.2 Total Kjeldahl Nitrogen Prep | KLP1 | 06/03/13 | 1700 | 1303594 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | SW846 9060 | |
| 2 | EPA 351.2 | |

**Notes:**

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: June 14, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-874

Client Sample ID: CASA-13-30557
Sample ID: 326214002
Matrix: W
Collect Date: 21-MAY-13 12:35
Receive Date: 23-MAY-13
Collector: Client
Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Conductivity Analysis | | | | | | | | | | | |
| EPA120.1 Specific Conductivity "As Received" | | | | | | | | | | | |
| Conductivity | | 624 | 1.00 | 1.00 | umhos/cm | 1 | LXA1 | 06/11/13 | 1111 | 1306822 | 1 |
| Electrode Analysis | | | | | | | | | | | |
| EPA 150.1 pH "As Received" | | | | | | | | | | | |
| pH at Temp 10.7C | H | 7.64 | 0.010 | 0.100 | SU | 1 | LYG1 | 05/24/13 | 0903 | 1303918 | 2 |
| Ion Chromatography | | | | | | | | | | | |
| EPA 300.0 Anions Liquid 28 day "As Received" | | | | | | | | | | | |
| Bromide | | 0.683 | 0.067 | 0.200 | mg/L | 1 | MAR1 | 06/09/13 | 2201 | 1303846 | 3 |
| Fluoride | | 0.206 | 0.033 | 0.100 | mg/L | 1 | | | | | |
| Chloride | | 68.2 | 1.34 | 4.00 | mg/L | 20 | MAR1 | 06/09/13 | 2231 | 1303846 | 4 |
| Sulfate | | 103 | 2.66 | 8.00 | mg/L | 20 | | | | | |
| Nutrient Analysis | | | | | | | | | | | |
| EPA 350.1 Nitrogen, Ammonia L "As Received" | | | | | | | | | | | |
| Nitrogen, Ammonia | U | ND | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/29/13 | 1503 | 1304209 | 5 |
| EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received" | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | 3.67 | 0.085 | 0.250 | mg/L | 5 | KLP1 | 05/29/13 | 1452 | 1304211 | 6 |
| EPA 365.4 Phosphorus, Total in "As Received" | | | | | | | | | | | |
| Phosphorus, Total as P | J | 0.0348 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 06/05/13 | 1100 | 1305420 | 7 |
| Solids Analysis | | | | | | | | | | | |
| EPA 160.1 Solids, Dissolved-F "As Received" | | | | | | | | | | | |
| Total Dissolved Solids | | 421 | 3.40 | 14.3 | mg/L | | LYG1 | 05/24/13 | 0943 | 1303651 | 8 |
| Titration Analysis | | | | | | | | | | | |
| EPA 310.1 Total Alkalinity "As Received" | | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | 84.2 | 0.725 | 1.00 | mg/L | | LXA1 | 06/03/13 | 1403 | 1305339 | 9 |
| Carbonate alkalinity (CaCO3) | U | ND | 0.725 | 1.00 | mg/L | | | | | | |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 350.2 Prep | EPA 350.1 Ammonia Nitrogen Prep | KLP1 | 05/29/13 | 1257 | 1304208 |
| EPA 365.4 Prep | EPA 365.4 Phosphorus, Total in liquid PR | KLP1 | 06/04/13 | 1700 | 1305419 |

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: June 14, 2013

| | | | |
|---|---|---|---|
| Company : | Los Alamos National Laboratory | | |
| Address : | PO Box 1663<br>TA-03, SM271, Drop Pt. 02U, Rm111<br>Los Alamos, New Mexico 87545 | | |
| Contact: | Keith Greene | Client SDG: | 2013-874 |
| Project: | LANL-WQH Water Samples | | |

| | | | |
|---|---|---|---|
| Client Sample ID: | CASA-13-30557 | Project: | ESHL00210 |
| Sample ID: | 326214002 | Client ID: | ARSL001 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | EPA 120.1 | |
| 2 | EPA 150.1 | |
| 3 | EPA 300.0 | |
| 4 | EPA 300.0 | |
| 5 | EPA 350.1 | |
| 6 | EPA 353.2 | |
| 7 | EPA 365.4 | |
| 8 | EPA 160.1 | |
| 9 | EPA 310.1 | |

**Notes:**

# Quality Control Summary

# GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

## QC Summary

**Report Date: June 14, 2013**


**Los Alamos National Laboratory**
**PO Box 1663**
**TA-03, SM271, Drop Pt. 02U, Rm111**
**Los Alamos, New Mexico**

**Contact:** **Keith Greene**

**Workorder:** **326214**

| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Carbon Analysis** | | | | | | | | | | | | |
| Batch 1304466 | | | | | | | | | | | | |
| QC1202882947 326056003 DUP | | | | | | | | | | | | |
| Total Organic Carbon Average | | | 1.54 | | 1.57 | mg/L | 2.12 | ^ | | (+/-1.00) | TSM | 05/31/13 19:40 |
| QC1202882949 LCS | | | | | | | | | | | | |
| Total Organic Carbon Average | 10.0 | | | | 10.0 | mg/L | | | 100 | (85%-115%) | | 05/31/13 18:24 |
| QC1202882946 MB | | | | | | | | | | | | |
| Total Organic Carbon Average | | | | U | ND | mg/L | | | | | | 05/31/13 18:15 |
| QC1202882948 326056003 PS | | | | | | | | | | | | |
| Total Organic Carbon Average | 10.0 | | 1.54 | | 11.0 | mg/L | | | 94.4 | (65%-120%) | | 05/31/13 20:00 |
| **Conductivity Analysis** | | | | | | | | | | | | |
| Batch 1306822 | | | | | | | | | | | | |
| QC1202889244 327172002 DUP | | | | | | | | | | | | |
| Conductivity | | | 447 | | 451 | umhos/cm | 0.891 | | | (0%-10%) | LXA1 | 06/11/13 11:22 |
| QC1202889242 LCS | | | | | | | | | | | | |
| Conductivity | 1410 | | | | 1440 | umhos/cm | | | 102 | (95%-105%) | | 06/11/13 11:08 |
| **Electrode Analysis** | | | | | | | | | | | | |
| Batch 1303918 | | | | | | | | | | | | |
| QC1202881402 326213002 DUP | | | | | | | | | | | | |
| pH | | H | 7.74 | H | 7.75 | SU | 0.129 | | | (0%-10%) | LYG1 | 05/24/13 09:01 |
| QC1202881404 LCS | | | | | | | | | | | | |
| pH | 7.00 | | | | 7.00 | SU | | | 100 | (99%-101%) | | 05/24/13 08:25 |
| **Ion Chromatography** | | | | | | | | | | | | |
| Batch 1303846 | | | | | | | | | | | | |
| QC1202881257 325847002 DUP | | | | | | | | | | | | |
| Bromide | | J | 0.0687 | U | ND | mg/L | N/A | ^ | | | MAR1 | 06/09/13 15:03 |
| Chloride | | | 4.23 | | 4.18 | mg/L | 1.07 | | | (0%-20%) | | |
| Fluoride | | | 0.319 | | 0.306 | mg/L | 4.45 | ^ | | (+/-0.100) | | |
| Sulfate | | | 4.82 | | 4.95 | mg/L | 2.59 | | | (0%-20%) | | |
| QC1202881259 LCS | | | | | | | | | | | | |
| Bromide | 1.25 | | | | 1.29 | mg/L | | | 103 | (90%-110%) | | 06/09/13 14:03 |

## QC Summary

**Workorder: 326214**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Ion Chromatography** | | | | | | | | | | | |
| Batch 1303846 | | | | | | | | | | | |
| Chloride | 5.00 | | | | 5.22 | mg/L | | 104 | (90%-110%) | MAR1 | 06/09/13 14:03 |
| Fluoride | 2.50 | | | | 2.66 | mg/L | | 106 | (90%-110%) | | |
| Sulfate | 10.0 | | | | 10.3 | mg/L | | 103 | (90%-110%) | | |
| QC1202881256 MB | | | | | | | | | | | |
| Bromide | | | | U | ND | mg/L | | | | | 06/09/13 13:33 |
| Chloride | | | | U | ND | mg/L | | | | | |
| Fluoride | | | | U | ND | mg/L | | | | | |
| Sulfate | | | | U | ND | mg/L | | | | | |
| QC1202881258 325847002 PS | | | | | | | | | | | |
| Bromide | 1.25 | J | 0.0687 | | 1.33 | mg/L | | 101 | (90%-110%) | | 06/09/13 15:33 |
| Chloride | 5.00 | | 4.23 | | 9.90 | mg/L | | 113* | (90%-110%) | | |
| Fluoride | 2.50 | | 0.319 | | 2.87 | mg/L | | 102 | (90%-110%) | | |
| Sulfate | 10.0 | | 4.82 | | 15.3 | mg/L | | 104 | (90%-110%) | | |
| **Nutrient Analysis** | | | | | | | | | | | |
| Batch 1303595 | | | | | | | | | | | |
| QC1202882338 326020001 DUP | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | U | ND | U | ND | mg/L | N/A | | | KLP1 | 06/04/13 13:47 |
| QC1202880631 LCS | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | | | | 1.01 | mg/L | | 101 | (90%-110%) | | 06/04/13 13:45 |
| QC1202880630 MB | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | | | U | ND | mg/L | | | | | 06/04/13 13:44 |
| QC1202882339 326020001 MS | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | U | ND | | 1.28 | mg/L | | 128* | (90%-110%) | | 06/04/13 13:47 |
| Batch 1304209 | | | | | | | | | | | |
| QC1202882331 326213002 DUP | | | | | | | | | | | |
| Nitrogen, Ammonia | | | 0.0781 | J | 0.048 | mg/L | 47.7 ^ | | (+/-0.050) | KLP1 | 05/29/13 15:01 |
| QC1202882332 326427001 DUP | | | | | | | | | | | |
| Nitrogen, Ammonia | | | 0.226 | | 0.238 | mg/L | 5.17 ^ | | (+/-0.050) | | 05/29/13 15:13 |

## QC Summary

**Workorder: 326214**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Nutrient Analysis** | | | | | | | | | | | |
| Batch 1304209 | | | | | | | | | | | |
| QC1202882335 LCS | | | | | | | | | | | |
| Nitrogen, Ammonia | 1.00 | | | | 1.06 | mg/L | | 106 | (90%-110%) | KLP1 | 05/29/13 15:10 |
| QC1202882330 MB | | | | | | | | | | | |
| Nitrogen, Ammonia | | | | J | 0.0321 | mg/L | | | | | 05/29/13 14:58 |
| QC1202882333 326213002 MS | | | | | | | | | | | |
| Nitrogen, Ammonia | 1.00 | | 0.0781 | | 1.06 | mg/L | | 98.2 | (90%-110%) | | 05/29/13 15:02 |
| QC1202882334 326427001 MS | | | | | | | | | | | |
| Nitrogen, Ammonia | 1.00 | | 0.226 | | 1.23 | mg/L | | 100 | (90%-110%) | | 05/29/13 15:14 |
| Batch 1304211 | | | | | | | | | | | |
| QC1202882342 326213002 DUP | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | | 0.314 | | 0.315 | mg/L | 0.318 | | (0%-20%) | KLP1 | 05/29/13 14:13 |
| QC1202882344 326427001 DUP | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | | 0.207 | | 0.207 | mg/L | 0.00 ^ | | (+/-0.050) | | 05/29/13 14:30 |
| QC1202882349 LCS | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | 1.00 | | | | 1.01 | mg/L | | 101 | (90%-110%) | | 05/29/13 13:57 |
| QC1202882340 MB | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | | | U | ND | mg/L | | | | | 05/29/13 13:55 |
| QC1202882346 326213002 PS | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | 1.00 | | 0.314 | | 1.28 | mg/L | | 96.6 | (90%-110%) | | 05/29/13 14:14 |
| QC1202882348 326427001 PS | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | 1.00 | | 0.207 | | 1.07 | mg/L | | 86.3* | (90%-110%) | | 05/29/13 14:31 |
| Batch 1305420 | | | | | | | | | | | |
| QC1202885475 326056002 DUP | | | | | | | | | | | |
| Phosphorus, Total as P | | U | ND | U | ND | mg/L | N/A | | | KLP1 | 06/05/13 10:57 |
| QC1202885479 LCS | | | | | | | | | | | |
| Phosphorus, Total as P | 1.00 | | | | 0.919 | mg/L | | 91.9 | (76%-120%) | | 06/05/13 10:55 |
| QC1202885474 MB | | | | | | | | | | | |
| Phosphorus, Total as P | | | | U | ND | mg/L | | | | | 06/05/13 10:54 |
| QC1202885477 326056002 MS | | | | | | | | | | | |
| Phosphorus, Total as P | 1.00 | U | ND | | 0.975 | mg/L | | 96.3 | (62%-139%) | | 06/05/13 10:58 |
| **Solids Analysis** | | | | | | | | | | | |
| Batch 1303651 | | | | | | | | | | | |

## QC Summary

**Workorder: 326214**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Solids Analysis** | | | | | | | | | | | |
| Batch 1303651 | | | | | | | | | | | |
| QC1202881388 326213002 DUP | | | | | | | | | | | |
| Total Dissolved Solids | | | 103 | | 106 | mg/L | 5.56 | | (0%-10%) | LYG1 | 05/24/13 09:43 |
| QC1202880764 LCS | | | | | | | | | | | |
| Total Dissolved Solids | 300 | | | | 289 | mg/L | | 96.2 | (95%-105%) | | 05/24/13 09:43 |
| QC1202880762 MB | | | | | | | | | | | |
| Total Dissolved Solids | | | | U | ND | mg/L | | | | | 05/24/13 09:43 |
| **Titration Analysis** | | | | | | | | | | | |
| Batch 1305339 | | | | | | | | | | | |
| QC1202885271 326213002 DUP | | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | | 55.8 | | 56.3 | mg/L | 0.905 | | (0%-20%) | LXA1 | 06/03/13 13:56 |
| Carbonate alkalinity (CaCO3) | | U | ND | U | ND | mg/L | N/A | | | | |
| QC1202885275 LCS | | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | 50.0 | | | | 50.8 | mg/L | | 102 | (90%-110%) | | 06/03/13 12:27 |
| QC1202885274 326213002 MS | | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | 50.0 | | 55.8 | | 105 | mg/L | | 97.4 | (80%-120%) | | 06/03/13 13:59 |

**Notes:**

| | |
|---|---|
| ** | Analyte is a surrogate compound |
| < | Result is less than value reported |
| > | Result is greater than value reported |
| A | The TIC is a suspected aldol-condensation product |
| B | The target analyte was detected in the associated blank. |
| C | Analyte has been confirmed by GC/MS analysis |
| D | Results are reported from a diluted aliquot of the sample |
| E | %difference of sample and SD is >10%. Sample concentration must meet flagging criteria |
| E | Concentration of the target analyte exceeds the instrument calibration range |
| E | General Chemistry--Concentration of the target analyte exceeds the instrument calibration range |
| FB | Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies |
| H | Analytical holding time was exceeded |
| J | Value is estimated |
| JNX | Non Calibrated Compound |
| N | Metals--The Matrix spike sample recovery is not within specified control limits |
| N | Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |

## QC Summary

**Workorder:** **326214**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|

| | |
|---|---|
| N | Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N/A | RPD or %Recovery limits do not apply. |
| N1 | See case narrative |
| ND | Analyte concentration is not detected above the detection limit |
| NJ | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| P | Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70% |
| Q | One or more quality control criteria have not been met. Refer to the applicable narrative or DER. |
| R | Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes. |
| R | Sample results are rejected |
| U | Analyte was analyzed for, but not detected above the MDL, MDA, or LOD. |
| UJ | Compound cannot be extracted |
| X | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| Y | Other specific qualifiers were required to properly define the results. Consult case narrative. |
| Y | QC Samples were not spiked with this compound |
| Z | Paint Filter Test--Particulates passed through the filter, however no free liquids were observed. |
| ^ | RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry. |
| d | 5-day BOD--The 2:1 depletion requirement was not met for this sample |
| h | Preparation or preservation holding time was exceeded |

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

# Miscellaneous

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 28-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| ELECTRODE | EPA 150.1 | Liquid | CCEG, ESHL, INPA, OBGE, |
| **Batch ID:** | **Sample Numbers:** | | |
| 1303918 | See below. | | |

**Potentially affected work order(s)(SDG): 326137,326206,326209,326210,326213(2013-873),326214(2013-874)**

**Application Issues:**

Sample received out of holding

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Sample received out of holding:<br>326137 001,002,003,004,005<br>326206 001<br>326209 001,002<br>326210 001<br>326213 002<br>326214 002 | 1. Samples were received out of holding. |

**Originator's Name:**

Lisa Gregory 28-MAY-13

**Data Validator/Group Leader:**

Julia Hamilton 29-MAY-13

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 30-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| LACHAT Flow Injection Analyzer | EPA 353.2 | Liquid | ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1304211 | See below. | | |

**Potentially affected work order(s)(SDG): 326066,326213(2013-873),326214(2013-874),326221,326426(2013-886),326427(2013-887),326443**

**Application Issues:**

Failed Recovery for MS/PS

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed Recovery for PS:<br><br>QC 1202882348PS | 1. The spike recovery falls outside of the GEL acceptance limits but within the client specified limits. |

**Originator's Name:**

Kristen Parson 30-MAY-13

**Data Validator/Group Leader:**

Julia Hamilton 30-MAY-13

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 04-JUN-13 | Industrial | Specifications | Process |
| **Instrument Type:** LACHAT Flow Injection Analyzer | **Test / Method:** EPA 351.2 | **Matrix Type:** Liquid | **Client Code:** ANRL, DSMN, ESHL, SOOP, |
| **Batch ID:** 1303595 | **Sample Numbers:** See below. | | |

**Potentially affected work order(s)(SDG): 326020(2013-866),326183,326213(2013-873),326214(2013-874),326426(2013-886),326558,326681,326804,326805**

**Application Issues:**

Failed Recovery for MS/PS

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed Recovery for MS:<br><br>QC 1202880633MS and QC 1202882339MS | 1. The spike recoveries fall outside of the established acceptance limits due to matrix interference. |

**Originator's Name:**

Kristen Parson 04-JUN-13

**Data Validator/Group Leader:**

Julia Hamilton 05-JUN-13

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 11-JUN-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| IC | EPA 300.0 | Liquid | ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1303846 | See Below | | |

**Potentially affected work order(s)(SDG):** **325847(2013-847),325922(2013-855),325923(2013-856),326018(2013-865),326020(2013-866),326056(2013-868),326057(2013-869),326213(2013-873),326214(2013-874),326426(2013-886)**

**Application Issues:**

Failed Recovery for MS/PS

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed Recovery for MS/PS:<br><br>QC 1202881258PS | 1. The MS/PS mixture contains seven anions of interest. Of those, all requested anions except chloride met normal acceptance criteria for recovery (90 - 110%). This failure is attributed to the matrix of the sample because the successful recovery of the other compounds indicate that the laboratory process was in control. This variance is judged to have no negative impact on the data. The deviation is noted in the Case Narrative and DER, and the data has been reported. |

**Originator's Name:**
Mary Sherwood 11-JUN-13

**Data Validator/Group Leader:**
Virginia Wininger 11-JUN-13

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

# Chain of Custody/Analysis Request

COC/Lab Request #: 2013-868



**Client Contact:**

**Lab Agreement # :** 126310011

**Project Number :**

**Analysis Turnaround Time:**

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

**Site Name:** Los Alamos National Laboratory

**Rad Screening Info:** Yes, Below Background

**Special Instructions:**

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | WSP-CL04 | WSP-GENINORG | WSP-Met+B+SN+SR+U | WSP-NH3+NO3/NO2+PO4 | WSP-TKN+TOC |
|---|---|---|---|---|---|---|---|---|
| CASA-13-30545 | May 17 2013 | 12:50 | W | | | | | 1 |
| CASA-13-30553 | May 17 2013 | 12:50 | W | | 1 | 1 | 1 | |
| CASA-13-30548 | May 17 2013 | 11:13 | W | | | | | 1 |
| CASA-13-30556 | May 17 2013 | 11:13 | W | 1 | 1 | 1 | 1 | |

Special Instructions:

| | | | |
|---|---|---|---|
| Relinquished by: Melissa Montoya | | Date/Time: 5/20/13 3:00 | Received by: |
| Relinquished by: | | Date/Time: | Received by: |
| Relinquished by: | | Date/Time: | Received by: |

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4194

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_SANDIA

**SAMPLE ID:** CASA-13-30545

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | 5/17/2013 | FIELD MATRIX: | WG | ok |
| TIME COLLECTED (HH:MM): | | 1250 | MEDIA: | UA | |
| PRS ID: | | ok | SAMPLE TECH CODE: | UA | GSP |
| LOCATION ID: | R-36 | | FIELD PREP: | UF | ok |
| LOCATION TYPE: | MON | | FIELD QC TYPE: | REG | |
| PORT: | SINGLE COMPLETION | | SAMPLE USAGE: | INV | |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-TKN+TOC | 500 ML AMBER GLASS | 1 | H2SO4 | Y | NA |

**SAMPLE COMMENTS:** Deisel Generator running while sampling

**LOCATION COMMENTS:** NA

**FIELD PARAMETERS:**

Dissolved Oxygen 5.76 mg/L  Oxidation-Reduction Potential 105.8 MV  pH 7.27 SU

Specific Conductance 192 uS/cm  Temperature 21.40 deg C  Turbidity 1.08 NTU

**COLLECTED BY (PRINT)** A. Stocker

| RELINQUISHED BY | Date/Time | RECEIVED BY | Date/Time |
|---|---|---|---|
| (Printed Name) William Ohr<br>(Signature) | 5/17/2013 1315 | (Printed Name) S. Sherwood<br>(Signature) Sheri Sherwood | 5/17/13 1315 |
| **RELINQUISHED BY**<br>**(Printed Name)**<br>**(Signature)** | **Date/Time** | **RECEIVED BY**<br>**(Printed Name)**<br>**(Signature)** | **Date/Time** |

Report Date 04/30/2013

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4194

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_SANDIA

**SAMPLE ID:** CASA-13-30548

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | 5/17/2013 | FIELD MATRIX: | WG | ok |
| TIME COLLECTED (HH:MM): | | 1113 | MEDIA: | UA | |
| PRS ID: | | ok | SAMPLE TECH CODE: | UA | RSP |
| LOCATION ID: | SCI-1 | | FIELD PREP: | UF | ok |
| LOCATION TYPE: | MON | | FIELD QC TYPE: | REG | |
| PORT: | SINGLE COMPLETION | | SAMPLE USAGE: | INV | |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| N/A | WSP-TKN+TOC | 500 ML AMBER GLASS | 1 | H2SO4 | Y | N/A |

**SAMPLE COMMENTS:** well located in 40' from Truck route

**LOCATION COMMENTS:** N/A

**FIELD PARAMETERS:**

Dissolved Oxygen 8.69 mg/L Oxidation-Reduction Potential 67.4 MV pH 7.09 SU

Specific Conductance 719 uS/cm Temperature 11.40 deg C Turbidity 0.7 NTU

**COLLECTED BY (PRINT)** A. Stocker

| RELINQUISHED BY | Date/Time | RECEIVED BY | Date/Time |
|---|---|---|---|
| (Printed Name) William Shaw (Signature) | 5/17/13 1315 | (Printed Name) S. Sherwood (Signature) Sheri Sherwood | 5/17/13 1315 |
| RELINQUISHED BY (Printed Name) (Signature) | Date/Time | RECEIVED BY (Printed Name) (Signature) | Date/Time |

Report Date 04/30/2013

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4194

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_SANDIA

**SAMPLE ID:** CASA-13-30553

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| **DATE COLLECTED (MM/DD/YYYY):** | | 5/17/2013 | **FIELD MATRIX:** | WG | ok |
| **TIME COLLECTED (HH:MM):** | | 1250 | **MEDIA:** | UA | ↓ |
| **PRS ID:** | | ok | **SAMPLE TECH CODE:** | UA | GSP |
| **LOCATION ID:** | R-36 | ↓ | **FIELD PREP:** | F | ok |
| **LOCATION TYPE:** | MON | ↓ | **FIELD QC TYPE:** | REG | ↓ |
| **PORT:** | SINGLE COMPLETION | ↓ | **SAMPLE USAGE:** | INV | ↓ |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| N/A | WSP-GENINORG | 1 LITER POLY | 1 | ICE | Y | N/A |
| ↓ | WSP-Met+B+SN+SR+U | 1 LITER POLY | 1 | HNO3 | ↓ | ↓ |
| ↓ | WSP-NH3+NO3/NO2+PO4 | 500 ML AMBER GLASS | 1 | H2SO4 | ↓ | ↓ |

**SAMPLE COMMENTS:** N/A

**LOCATION COMMENTS:** N/A

**FIELD PARAMETERS:**

Dissolved Oxygen N/A mg/L  Oxidation-Reduction Potential N/A MV  pH N/A SU

Specific Conductance N/A uS/cm  Temperature N/A deg C  Turbidity N/A NTU

**COLLECTED BY (PRINT)** A Stocker

| RELINQUISHED BY | Date/Time | RECEIVED BY | Date/Time |
|---|---|---|---|
| (Printed Name) Williamsham<br>(Signature) | 5/17/13 1315 | (Printed Name) B. Sherwood<br>(Signature) Sheri Sherwood | 5/17/13 1315 |
| **RELINQUISHED BY** | **Date/Time** | **RECEIVED BY** | **Date/Time** |
| (Printed Name)<br>(Signature) | | (Printed Name)<br>(Signature) | |

Report Date 04/30/2013

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4194

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_SANDIA

**SAMPLE ID:** CASA-13-30556

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| **DATE COLLECTED (MM/DD/YYYY):** | | 5/17/2013 | **FIELD MATRIX:** | WG | ok |
| **TIME COLLECTED (HH:MM):** | | 1113 | **MEDIA:** | UA | ↓ |
| **PRS ID:** | | ok | **SAMPLE TECH CODE:** | UA | RSP |
| **LOCATION ID:** | SCI-1 | ↓ | **FIELD PREP:** | F | ok |
| **LOCATION TYPE:** | MON | ↓ | **FIELD QC TYPE:** | REG | ↓ |
| **PORT:** | SINGLE COMPLETION | ↓ | **SAMPLE USAGE:** | INV | ↓ |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| N/A | WSP-CL04 | 250 ML POLY | 1 | ICE | Y | N/A |
| ↓ | WSP-GENINORG | 1 LITER POLY | 1 | ICE | ↓ | ↓ |
| ↓ | WSP-Met+B+SN+SR+U | 1 LITER POLY | 1 | HNO3 | ↓ | ↓ |
| ↓ | WSP-NH3+NO3/NO2+PO4 | 500 ML AMBER GLASS | 1 | H2SO4 | ↓ | ↓ |

**SAMPLE COMMENTS:** N/A

**LOCATION COMMENTS:** N/A

**FIELD PARAMETERS:**

Dissolved Oxygen N/A mg/L  Oxidation-Reduction Potential N/A MV  pH N/A SU

Specific Conductance N/A uS/cm  Temperature N/A deg C  Turbidity N/A NTU

**COLLECTED BY (PRINT)** A Stocker

| RELINQUISHED BY | Date/Time | RECEIVED BY | Date/Time |
|---|---|---|---|
| (Printed Name) William Shaw<br>(Signature) | 5/17/13 1315 | (Printed Name) S. Sherwood<br>(Signature) Sheri Sherwood | 5/17/13 1315 |
| **RELINQUISHED BY**<br>**(Printed Name)**<br>**(Signature)** | **Date/Time** | **RECEIVED BY**<br>**(Printed Name)**<br>**(Signature)** | **Date/Time** |

Report Date 04/30/2013

Data Validation Report for: Chain Of Custody No. 2013-868

Data Validation Report

Chain Of Custody No. 2013-868

**1. Distribution Of Samples In EDD.**

| SDG | Analytical Method | Regular Samples | Field Duplicates | Trip Blanks | Field Blanks | Equipment Blanks |
|---|---|---|---|---|---|---|
| 326056 | EPA:120.1 | 2 | | | | |
| 326056 | EPA:150.1 | 2 | | | | |
| 326056 | EPA:160.1 | 2 | | | | |
| 326056 | EPA:245.2 | 2 | | | | |
| 326056 | EPA:300.0 | 2 | | | | |
| 326056 | EPA:310.1 | 2 | | | | |
| 326056 | EPA:350.1 | 2 | | | | |
| 326056 | EPA:351.2 | 2 | | | | |
| 326056 | EPA:353.2 | 2 | | | | |
| 326056 | EPA:365.4 | 2 | | | | |
| 326056 | SM:A2340B | 2 | | | | |
| 326056 | SW-846:6010B | 2 | | | | |
| 326056 | SW-846:6020 | 2 | | | | |
| 326056 | SW-846:6850 | 1 | | | | |
| 326056 | SW-846:9060 | 2 | | | | |

| SDG | Analytical Method | Analysis Lot ID | Prep Lot ID | Regular Samples | Field Duplicates | Trip Blanks | Field Blanks | Equipment Blanks | Method Blanks | Matrix Spikes | Matrix Spike Dups |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 326056 | EPA:120.1 | 1305450 | 1305450 | 2 | | | | | | | |
| 326056 | EPA:150.1 | 1303375 | 1303375 | 2 | | | | | | | |
| 326056 | EPA:160.1 | 1303373 | 1303373 | 2 | | | | | 1 | | |
| 326056 | EPA:245.2 | 1304760 | 1304759 | 2 | | | | | 1 | 2 | 1 |
| 326056 | EPA:300.0 | 1303846 | 1303846 | 2 | | | | | 1 | | |
| 326056 | EPA:310.1 | 1304792 | 1304792 | 2 | | | | | 2 | 1 | |
| 326056 | EPA:350.1 | 1302909 | 1302908 | 2 | | | | | 1 | 1 | |
| 326056 | EPA:351.2 | 1302893 | 1302892 | 2 | | | | | 1 | 2 | |
| 326056 | EPA:353.2 | 1303599 | 1303599 | 2 | | | | | 1 | | |
| 326056 | EPA:365.4 | 1305420 | 1305419 | 2 | | | | | 1 | 1 | |
| 326056 | SM:A2340B | 1306982 | 1306982 | 2 | | | | | | | |
| 326056 | SW-846:6010B | 1304837 | 1304836 | 2 | | | | | 1 | 1 | |
| 326056 | SW-846:6020 | 1304840 | 1304838 | 2 | | | | | 1 | 1 | |
| 326056 | SW-846:6850 | 1302799 | 1302798 | 1 | | | | | 1 | 2 | 2 |
| 326056 | SW-846:9060 | 1304466 | 1304466 | 2 | | | | | 1 | | |

**2. Distribution Of Analytes In EDD.**

| Analytical Method | Method Category | Field Sample ID | Lab Sample ID | Sample Purpose | Target Analytes | Surrogates | Spikes | TICS |
|---|---|---|---|---|---|---|---|---|
| EPA:120.1 | GENERAL CHEMISTRY | CASA-13-30553 | 326056002 | REG | 1 | 0 | 0 | 0 |
| EPA:120.1 | GENERAL CHEMISTRY | CASA-13-30555 | 1202885569 | DUP | 1 | 0 | 0 | 0 |
| EPA:120.1 | GENERAL CHEMISTRY | CASA-13-30556 | 326056004 | REG | 1 | 0 | 0 | 0 |
| EPA:120.1 | GENERAL CHEMISTRY | LCS | 1202885571 | LCS | 0 | 0 | 1 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | CASA-13-30553 | 1202880073 | DUP | 1 | 0 | 0 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | CASA-13-30553 | 326056002 | REG | 1 | 0 | 0 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | CASA-13-30556 | 326056004 | REG | 1 | 0 | 0 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | LCS | 1202880075 | LCS | 0 | 0 | 1 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | WT_IPC-13-32171 | 1202880074 | DUP | 1 | 0 | 0 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | CASA-13-30553 | 326056002 | REG | 1 | 0 | 0 | 0 |

Data Validation Report for:

Chain Of Custody No. 2013-868

| Analytical Spikes | Post-Digestion Spikes | Lab Control Samples | Lab Control Sample Dups | Blank Spikes | Blank Spike Dups | Lab Duplicates | Storage Blanks | Preparation Blanks | Reagent Blanks |
|---|---|---|---|---|---|---|---|---|---|
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 2 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 2 | | | |
| | | 1 | | | | 1 | | | |
| | | 2 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 2 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | | | | | | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | | | | |
| | | 1 | | | | 1 | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| EPA:160.1 | GENERAL CHEMISTRY | CASA-13-30556 | 1202880070 | DUP | 1 | 0 | 0 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | CASA-13-30556 | 326056004 | REG | 1 | 0 | 0 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | LCS | 1202880071 | LCS | 0 | 0 | 1 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | MB | 1202880068 | MB | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30601 | 1202883732 | DUP | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30601 | 1202883733 | MS | 0 | 0 | 1 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30601 | 1202883738 | MSD | 0 | 0 | 1 | 0 |
| EPA:245.2 | INORGANIC | CASA-13-30553 | 326056002 | REG | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CASA-13-30556 | 326056004 | REG | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | LCS | 1202883731 | LCS | 0 | 0 | 1 | 0 |
| EPA:245.2 | INORGANIC | MB | 1202883730 | MB | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | WT_IPC-13-32171 | 1202883735 | DUP | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | WT_IPC-13-32171 | 1202883736 | MS | 0 | 0 | 1 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | CASA-13-30553 | 326056002 | REG | 4 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | CASA-13-30555 | 1202881257 | DUP | 4 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | CASA-13-30556 | 326056004 | REG | 4 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | LCS | 1202881259 | LCS | 0 | 0 | 4 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | MB | 1202881256 | MB | 4 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CASA-13-30551 | 1202883815 | DUP | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CASA-13-30551 | 1202883816 | MS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CASA-13-30553 | 326056002 | REG | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CASA-13-30556 | 326056004 | REG | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | LCS | 1202883809 | LCS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | LCS | 1202884506 | LCS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | MB | 1202883808 | MB | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | MB | 1202884505 | MB | 2 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CASA-13-30553 | 1202880634 | DUP | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CASA-13-30553 | 1202880635 | MS | 0 | 0 | 1 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CASA-13-30553 | 326056002 | REG | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CASA-13-30556 | 326056004 | REG | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | LCS | 1202878849 | LCS | 0 | 0 | 1 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | MB | 1202878848 | MB | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-31070 | 1202878783 | DUP | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-31070 | 1202878785 | MS | 0 | 0 | 1 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CASA-13-30545 | 326056001 | REG | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CASA-13-30548 | 326056003 | REG | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | LCS | 1202878787 | LCS | 0 | 0 | 1 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | MB | 1202878782 | MB | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | SWWS46-13-33497 | 1202878784 | DUP | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | SWWS46-13-33497 | 1202878786 | MS | 0 | 0 | 1 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CASA-13-30553 | 1202880651 | DUP | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CASA-13-30553 | 326056002 | REG | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CASA-13-30556 | 326056004 | REG | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | LCS | 1202880658 | LCS | 0 | 0 | 1 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | MB | 1202880650 | MB | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CASA-13-30553 | 1202885475 | DUP | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CASA-13-30553 | 1202885477 | MS | 0 | 0 | 1 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CASA-13-30553 | 326056002 | REG | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CASA-13-30556 | 326056004 | REG | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | LCS | 1202885479 | LCS | 0 | 0 | 1 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | MB | 1202885474 | MB | 1 | 0 | 0 | 0 |
| SM:A2340B | INORGANIC | CASA-13-30553 | 326056002 | REG | 1 | 0 | 0 | 0 |
| SM:A2340B | INORGANIC | CASA-13-30556 | 326056004 | REG | 1 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30594 | 1202883951 | DUP | 17 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30594 | 1202883952 | MS | 0 | 0 | 17 | 0 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| SW-846:6010B | INORGANIC | CASA-13-30553 | 326056002 | REG | 17 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | CASA-13-30556 | 326056004 | REG | 17 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | LCS | 1202883950 | LCS | 0 | 0 | 17 | 0 |
| SW-846:6010B | INORGANIC | MB | 1202883949 | MB | 17 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30594 | 1202883956 | DUP | 11 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30594 | 1202883957 | MS | 0 | 0 | 11 | 0 |
| SW-846:6020 | INORGANIC | CASA-13-30553 | 326056002 | REG | 11 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | CASA-13-30556 | 326056004 | REG | 11 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | LCS | 1202883955 | LCS | 0 | 0 | 11 | 0 |
| SW-846:6020 | INORGANIC | MB | 1202883954 | MB | 11 | 0 | 0 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | CAMO-13-30600 | 1202878496 | MS | 0 | 0 | 1 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | CAMO-13-30600 | 1202878497 | MSD | 0 | 0 | 1 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | CASA-13-30556 | 326056004 | REG | 1 | 0 | 0 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | LCS | 1202878495 | LCS | 0 | 0 | 1 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | MB | 1202878494 | MB | 1 | 0 | 0 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | SWWS46-13-33504 | 1202882336 | MS | 0 | 0 | 1 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | SWWS46-13-33504 | 1202882337 | MSD | 0 | 0 | 1 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | CASA-13-30545 | 326056001 | REG | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | CASA-13-30548 | 1202882947 | DUP | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | CASA-13-30548 | 326056003 | REG | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | LCS | 1202882949 | LCS | 0 | 0 | 1 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | MB | 1202882946 | MB | 1 | 0 | 0 | 0 |

**3. Are any analytes missing?**

No.

**4. Were any holding times exceeded?**

No.

**5. Any contaminants in blanks?**

No.

**Any samples affected by the presence of contaminants in blanks?**

No.

**6. Any surrogate recoveries outside the control limits?**

No.

**7. Any MS/MSD recoveries or RPDs outside the control limits?**

| Field Sample ID | Matrix Spike ID | Matrix Spike Dup ID | Analytical Method | Parameter Name | Analysis Lot ID | Analysis Date | Sample Matrix | MS % Recvry | MSD % Recvry | Upper Limit | Lower Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SWWS46-13-33497 | 1202878786 | | EPA:351.2 | Total Kjeldahl Nitrogen | 1302892 | 5/30/2013 | W | 115 | | 110 | 90 |
| CAMO-13-30594 | 1202883952 | | SW-846:6010B | Silicon Dioxide | 1304836 | 6/6/2013 | W | 62.8 | | 125 | 75 |

Data Validation Report for:

Chain Of Custody No. 2013-868

| Rejection Limit | RPD |
|---|---|
| 10 | |
| 10 | |

RPD Limit

**8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?**

No.

**9. Any Field Duplicate RPDs outside the desired limits?**

No.

**10. Any Lab Duplicate RPDs outside the desired limits?**

| Field Sample ID | Lab SampleID | Lab Duplicate Sample ID | Analytical Method | Parameter Name | Sample Matrix | Sample Result | Dup Sample Result | Units | Detected In Sample | Detected In Dup | RPD |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CASA-13-30556 | 326056004 | 1202880070 | EPA:160.1 | Total Dissolved Solids | W | 357 | 409 | mg/L | Y | Y | 13.4 |
| CASA-13-30553 | 326056002 | 1202880634 | EPA:350.1 | Ammonia as Nitrogen | W | 0.0994 | 0.122 | mg/L | Y | Y | 20.4 |

**11. Any required reporting limits exceeded?**

No.

**12. Additional Validator's Coments.**

None.

**13. Display Flagged Data.**

| Location ID | Chain Of Custody No | Field Sample ID | Sample Purpose | Analysis Type Code | Analytical Suite | Analytical Method | Parameter Name | Lab Qualifier | Validation Qualifier | Validation Reason Codes | Detected |
|---|---|---|---|---|---|---|---|---|---|---|---|
| R-36 | 2013-868 | CASA-13-30553 | REG | INIT | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | | J | I10a | Y |
| SCI-1 | 2013-868 | CASA-13-30556 | REG | INIT | GENERAL CHEMISTRY | EPA:160.1 | Total Dissolved Solids | | J | I10a | Y |

| **Reason Code** | Description |
|---|---|
| I10a | The sample and the duplicate sample results were >=5X the RL and the duplicate RPD was >20% for water samples and >35% for soil samples. |
| J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL |
| NQ | The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample. |
| U_LAB | The analytical laboratory qualified the analyte as not detected. |

**14. Useable Result Count.**

| Field Sample ID | Location ID | Sample Purpose | Analytical Method | No. Unuseable Records | Total No. Of Records |
|---|---|---|---|---|---|
| CASA-13-30545 | R-36 | REG | EPA:351.2 | 0 | 1 |
| CASA-13-30545 | R-36 | REG | SW-846:9060 | 0 | 1 |
| CASA-13-30548 | SCI-1 | REG | EPA:351.2 | 0 | 1 |
| CASA-13-30548 | SCI-1 | REG | SW-846:9060 | 0 | 1 |
| CASA-13-30553 | R-36 | REG | EPA:120.1 | 0 | 1 |
| CASA-13-30553 | R-36 | REG | EPA:150.1 | 0 | 1 |
| CASA-13-30553 | R-36 | REG | EPA:160.1 | 0 | 1 |
| CASA-13-30553 | R-36 | REG | EPA:245.2 | 0 | 1 |

Data Validation Report for:

Chain Of Custody No. 2013-868

| RPD Limit |
|---|
| 10 |
| 20 |

| Lab Result | Lab Units | Report Result | Report Units | Report MDA | Report Uncertainty | Lab Matrix | Sample Date | Percent Moisture | Analysis Lot ID | Validation Status Code | Use Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0994 | mg/L | 0.0994 | mg/L | | | W | 5/17/2013 | | 1302909 | VAL | Y |
| 357 | mg/L | 357 | mg/L | | | W | 5/17/2013 | | 1303373 | VAL | Y |

| | | | | | |
|---|---|---|---|---|---|
| CASA-13-30553 | R-36 | REG | EPA:300.0 | 0 | 4 |
| CASA-13-30553 | R-36 | REG | EPA:310.1 | 0 | 2 |
| CASA-13-30553 | R-36 | REG | EPA:350.1 | 0 | 1 |
| CASA-13-30553 | R-36 | REG | EPA:353.2 | 0 | 1 |
| CASA-13-30553 | R-36 | REG | EPA:365.4 | 0 | 1 |
| CASA-13-30553 | R-36 | REG | SM:A2340B | 0 | 1 |
| CASA-13-30553 | R-36 | REG | SW-846:6010B | 0 | 17 |
| CASA-13-30553 | R-36 | REG | SW-846:6020 | 0 | 11 |
| CASA-13-30556 | SCI-1 | REG | EPA:120.1 | 0 | 1 |
| CASA-13-30556 | SCI-1 | REG | EPA:150.1 | 0 | 1 |
| CASA-13-30556 | SCI-1 | REG | EPA:160.1 | 0 | 1 |
| CASA-13-30556 | SCI-1 | REG | EPA:245.2 | 0 | 1 |
| CASA-13-30556 | SCI-1 | REG | EPA:300.0 | 0 | 4 |
| CASA-13-30556 | SCI-1 | REG | EPA:310.1 | 0 | 2 |
| CASA-13-30556 | SCI-1 | REG | EPA:350.1 | 0 | 1 |
| CASA-13-30556 | SCI-1 | REG | EPA:353.2 | 0 | 1 |
| CASA-13-30556 | SCI-1 | REG | EPA:365.4 | 0 | 1 |
| CASA-13-30556 | SCI-1 | REG | SM:A2340B | 0 | 1 |
| CASA-13-30556 | SCI-1 | REG | SW-846:6010B | 0 | 17 |
| CASA-13-30556 | SCI-1 | REG | SW-846:6020 | 0 | 11 |
| CASA-13-30556 | SCI-1 | REG | SW-846:6850 | 0 | 1 |

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178
www.gel.com

June 17, 2013

Keith Greene
Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Re: LANL-WQH Water Samples
Work Order: 326056
SDG: 2013-868

Dear Keith Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on May 21, 2013, and analyzed for General Chemistry, Metals and Perchlorates by LCMSMS. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,

for

Valerie Davis
Project Manager

Purchase Order: 63641-10
Chain of Custody: 2013-868
Enclosures

**ARS International (63641-10)**
**LANL-WQH Water Samples**
**Work Order #: 326056**
**SDG: 2013-868**

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# Case Narrative

**Case Narrative for**
**ARS International (63641-10)**
**LANL-WQH Water Samples**
**Workorder #: 326056**
**SDG # : 2013-868**

**June 17, 2013**

**Laboratory Identification:**

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

**Summary**

**Sample receipt** The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on May 21, 2013 for analysis. The samples were delivered with proper chain of custody documentation and signatures. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. Containers were checked for pH, where appropriate, and matched the preservative as documented on the accompanying chain of custody. Shipping container temperature was within specification (0 - 6C). Shipping container temperatures were checked, documented, and within specifications. There are no additional comments concerning sample receipt.

**Sample Identification** The laboratory received the following samples:

| Laboratory ID | Client ID |
|---|---|
| 326056001 | CASA-13-30545 |
| 326056002 | CASA-13-30553 |
| 326056003 | CASA-13-30548 |
| 326056004 | CASA-13-30556 |

**Case Narrative**

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

**Data Package**

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: General Chemistry, Metals and Perchlorates by LCMSMS.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.

for

Valerie Davis
Project Manager

**List of current GEL Certifications as of 17 June 2013**

| State | Certification |
|---|---|
| Alaska | UST−110 |
| Arkansas | 88−0651 |
| CLIA | 42D0904046 |
| California NELAP | 01151CA |
| Colorado | SC00012 |
| Connecticut | PH−0169 |
| Delaware | SC00012 |
| DoD ELAP A2LA ISO 17025 | 2567.01 |
| Florida NELAP | E87156 |
| Foreign Soils Permit | P330−12−00283, P330−12−00284 |
| Georgia | SC00012 |
| Georgia SDWA | 967 |
| Hawaii | SC00012 |
| Idaho | SC00012 |
| Illinois NELAP | 200029 |
| Indiana | C−SC−01 |
| Kansas NELAP | E−10332 |
| Kentucky | 90129 |
| Louisiana NELAP | 03046 (AI33904) |
| Louisiana SDWA | LA130005 |
| Maryland | 270 |
| Massachusetts | M−SC012 |
| Nevada | SC000122011−1 |
| New Hampshire NELAP | 2054 |
| New Jersey NELAP | SC002 |
| New Mexico | SC00012 |
| New York NELAP | 11501 |
| North Carolina | 233 |
| North Carolina SDWA | 45709 |
| Oklahoma | 9904 |
| Pennsylvania NELAP | 68−00485 |
| Plant Material Permit | PDEP−12−00260 |
| South Carolina Chemistry | 10120001 |
| South Carolina Radiochemi | 10120002 |
| Tennessee | TN 02934 |
| Texas NELAP | T104704235−13−8 |
| Utah NELAP | SC000122013−8 |
| Vermont | VT87156 |
| Virginia NELAP | 460202 |
| Washington | C780−12 |
| Wisconsin | 999887790 |

# Chain of Custody and Supporting Documentation

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

# Chain of Custody/Analysis Request

326056

**COC/Lab Request #:** 2013-868

Page 1 of 1

**Client Contact:**

**Lab Agreement # :** 126310011

**Project Number :**

**Analysis Turnaround Time:**

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

**Site Name:** Los Alamos National Laboratory

**Rad Screening Info:** Yes, Below Background

**Special Instructions:**

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | WSP-CL04 | WSP-GENINORG | WSP-Met+B+SN+SR+U | WSP-NH3+NO3/NO2+PO4 | WSP-TKN+TOC |
|---|---|---|---|---|---|---|---|---|
| CASA-13-30545 | May 17 2013 | 12:50 | W | | | | | 1 |
| CASA-13-30553 | May 17 2013 | 12:50 | W | | 1 | 1 | 1 | |
| CASA-13-30548 | May 17 2013 | 11:13 | W | | | | | 1 |
| CASA-13-30556 | May 17 2013 | 11:13 | W | 1 | 1 | 1 | 1 | |

Special Instructions:

| | | | | |
|---|---|---|---|---|
| Relinquished by: Melissa Montoya | | Date/Time: 5/20/13 3:00 | Received by: P. Went | 5.21.13 09:10 |
| Relinquished by: | | Date/Time: | Received by: | |
| Relinquished by: | | Date/Time: | Received by: | |

GEL Laboratories LLC

# SAMPLE RECEIPT & REVIEW FORM

| | |
|---|---|
| **Client: LANL** | **SDG/AR/COC/Work Order: 2013-868** |
| **Received By: Patricia Dent** | **Date Received:May 21, 2013** |

| **Suspected Hazard Information** | **Yes** | **No** | *If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation. |
|---|---|---|---|
| COC/Samples marked as radioactive? | | X | Maximum Net Counts Observed* (Observed Counts - Area Background Counts): **0CPM** |
| Classified Radioactive II or III by RSO? | | X | If yes, Were swipes taken of sample contatiners < action levels? |
| COC/Samples marked containing PCBs? | | X | |
| Package, COC, and/or Samples marked as beryllium or asbestos containing? | | X | If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group. |
| Shipped as a DOT Hazardous? | | X | Hazard Class Shipped: UN#: |
| Samples identified as Foreign Soil? | | X | |

| | **Sample Receipt Criteria** | **Yes** | **NA** | **No** | **Comments/Qualifiers (Required for Non-Conforming Items)** |
|---|---|---|---|---|---|
| 1 | Shipping containers received intact and sealed? | X | | | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 2 | Samples requiring cold preservation within (0 ≤ 6 deg. C)?* | X | | | Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius 4C |
| 2a | Daily check performed and passed on IR temperature gun? | X | | | Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable): **61524649** |
| 3 | Chain of custody documents included with shipment? | X | | | |
| 4 | Sample containers intact and sealed? | X | | | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 5 | Samples requiring chemical preservation at proper pH? | X | | | Sample ID's, containers affected and observed pH: If Preservation added, Lot#: |
| 6 | VOA vials free of headspace (defined as < 6mm bubble)? | | X | | Sample ID's and containers affected: |
| 7 | Are Encore containers present? | | | X | (If yes, immediately deliver to Volatiles laboratory) |
| 8 | Samples received within holding time? | X | | | ID's and tests affected: |
| 9 | Sample ID's on COC match ID's on bottles? | X | | | Sample ID's and containers affected: |
| 10 | Date & time on COC match date & time on bottles? | X | | | Sample ID's affected: |
| 11 | Number of containers received match number indicated on COC? | X | | | Sample ID's affected: |
| 12 | Are sample containers identifiable as GEL provided? | | | X | **Clients** |
| 13 | COC form is properly signed in relinquished/received sections? | X | | | |
| 14 | Carrier and tracking number. | | | | Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other **5462 9833 0284 4C 5462 9833 0295 4C** |

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials PH Date 05/22/13 Page 1 of 1

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: RT
ACTWGT: 51
CAD: 001417 2511

BILL SENDER FZ

B
0284
05.21

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWK0

4

50DC1/9983/10BC

FedEx Express

J111311060660125

TRK# 0201 5462 9833 0284

TUE - 21 MAY 10:30A
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 08/10 ®

ORIGIN ID: SAFA
KEITH GREENE
LOS ALAMOS NATL
TA00 BLDG 1237

LOS ALAMOS, NM
UNITED STATES

TO VALERIE D
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MROA00EC5YQ0

4

50DC1/9983/1F

FedEx Express

J111311060660125

TRK# 0201 5462 9833 0295

TUE - 21 MAY 10:30A
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 08/10 ®

# Data Review Qualifier Flag Definition Sheet

## Data Review Qualifier Definitions

| Qualifier | Explanation |
|---|---|
| * | A quality control analyte recovery is outside of specified acceptance criteria |
| ** | Analyte is a surrogate compound |
| < | Result is less than value reported |
| > | Result is greater than value reported |
| ^ | RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL |
| A | The TIC is a suspected aldol-condensation product |
| B | Target analyte was detected in the associated blank |
| B | Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL |
| BD | Results are either below the MDC or tracer recovery is low |
| C | Analyte has been confirmed by GC/MS analysis |
| D | Results are reported from a diluted aliquot of the sample |
| d | 5-day BOD-The 2:1 depletion requirement was not met for this sample |
| E | Organics-Concentration of the target analyte exceeds the instrument calibration range |
| E | Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria |
| H | Analytical holding time was exceeded |
| h | Preparation or preservation holding time was exceeded |
| J | Value is estimated |
| N | Metals-The Matrix spike sample recovery is not within specified control limits |
| N | Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N/A | Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more |
| ND | Analyte concentration is not detected above the reporting limit |
| UI | Gamma Spectroscopy-Uncertain identification |
| X | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| Y | QC Samples were not spiked with this compound |
| Z | Paint Filter Test-Particulates passed through the filter, however no free liquids were observed. |

P Organics-The concentrations between the primary and confirmation columns/detectors is >40% difference. For HPLC, the difference is >70%.

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

# Perchlorates by LCMSMS Analysis

# Case Narrative

## Method/Analysis Information

| | |
|---|---|
| **Procedure:** | **Definitive Low Level Perchlorate Analysis Utilizing Liquid Chromatography/Mass Spectrometry/Mass Spectrometry (LC/MS/MS) by EPA Method 6850 Modified (6850M)** |
| Analytical Method: | SW846 6850 Modified |
| Prep Method: | SW846 6850 Modified |
| Analytical Batch Number: | 1302799 |
| Prep Batch Number: | 1302798 |

## Sample Analysis

| Sample ID | Client ID |
|---|---|
| 326056004 | CASA-13-30556 |
| 1202878498 | Interference Check Sample (ICS) |
| 1202878494 | Method Blank (MB) |
| 1202878495 | Laboratory Control Sample (LCS) |
| 1202878496 | 326020002(CAMO-13-30600) Matrix Spike (MS) |
| 1202878497 | 326020002(CAMO-13-30600) Matrix Spike Duplicate (MSD) |

The samples in this SDG were analyzed on an "as received" basis.

## Preparation/Analytical Method Verification

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-067 REV# 10.

## Calibration Information

**Initial Calibration**
All initial calibration requirements have been met for this SDG. Due to software constraints, all Initial Calibration Blanks must be designated as IPB001.

**ICV Requirements**
All associated initial calibration verification standard(s) (ICV) met the acceptance criteria.

**CCB Requirements**
All continuing calibration blanks (CCB) bracketing the analyses associated with this batch were within acceptance criteria.

**CCV Requirements**
All continuing calibration checks (CCV) requirements were met by all bracketing CCV standards.

**Low Level Standard (CRI) Requirements**
All low level calibration verification (CRI) requirements were met by all bracketing CRI standards.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Interference Check Sample (ICS)**
The ICS met all recovery acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recoveries met the acceptance limits.

**QC Sample Designation**
Client sample 326020002 (CAMO-13-30600) was chosen for matrix spike and matrix spike duplicate analysis.

**Matrix Spike (MS) Recovery Statement**
The Perchlorate recovery in the matrix spike 1202878496 (CAMO-13-30600) was below the acceptance limits. The recovery for Perchlorate was 35% and with an acceptance range of 75-125%. The low recovery was attributed to a significant background concentration of Perchlorate in the parent sample and sample dilutions needed to analyze the extracts. Data were reported with the appropriate Data Exception Report (DER).

**Matrix Spike Duplicate (MSD) Recovery Statement**
The Perchlorate and Perchlorate-101 recoveries in the matrix spike duplicate 1202878497 (CAMO-13-30600) were below the acceptance limits. The recovery for Perchlorate was 29% and with an acceptance range of 75-125%. The low recovery was attributed to a significant background concentration of Perchlorate in the parent sample and sample dilutions needed to analyze the extracts. Data were reported with the appropriate Data Exception Report (DER).

**MS/MSD Relative Percent Difference (RPD) Statement**
The RPD(s) between the MS and MSD met the acceptance limits.

**Retention Time Standard Area Acceptance**
The retention time standard areas were within the required acceptance criteria for all samples and QC.

**Retention Time**
During the analysis of Perchlorate by LC/MS/MS, retention time shifts are commonly observed. These retention time shifts, which are caused by fouling of the column by the sample matrices, are problematic when the retention time is used as one of the criterion for confirmation. To overcome this problem, a known amount of O(18) labeled Perchlorate was added to each sample as a retention time standard. The presence of Perchlorate was confirmed by the relative retention time (RRT) of the Perchlorate peak and the O(18) standard. A RRT window of 0.98 to 1.02, as required by Method 332.0, has been used. In addition to the isotopic ratio, the presence of Perchlorate in the samples associated with this data package have been confirmed using the relative retention criteria stated above, not the absolute retention time.

## Technical Information

### Holding Time Specifications
All samples in this SDG in this analytical batch met the specified holding time. GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

### Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

### Sample Dilutions
Samples 1202878496 (CAMO-13-30600) and 1202878497 (CAMO-13-30600) were diluted due to over range target analytes.

### Sample Re-extraction/Re-analysis
The samples in this batch were initially analyzed on 05/28/13, however the batch was re-analyzed due to unacceptable responses in the calibration verification standards bracketing the samples. The samples were re-analyzed the following day and data were reported.

## Miscellaneous Information

### Data Exception (DER) Documentation
The following DER was generated for this SDG: 1190616.

### Manual Integrations
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations.

### Method Comments
The samples in this SDG were not originally analyzed using EPA Method 314.0.

### Additional Comments
The Perchlorate Isotope Ratio on the Form I may differ slightly from the ratio on the corresponding raw data due to rounding rules and/or significant figures or due to software limitations when there are manual integrations, dilutions or other factors. The ratio value of the Form I is the correct value. The retention time marker, Perchlorate-O (18), is added to all samples, instrument blanks, and standards prior to injection. It is used to verify the retention time of Perchlorate and Perchlorate-101 and to insure an accurate injection occurred. Due to various anions affecting the recovery of Perchlorate-O (18) and not Perchlorate and Perchlorate-101, the calibration curves of Perchlorate and Perchlorate-101 are not internally corrected for using Perchlorate-O (18). They are external calibrations.

### Perchlorate Isotope Ratio
The Perchlorate isotope ratio met acceptance criteria for all samples and QC samples. Please see the isotope ratio criteria in the Miscellaneous Section.

## System Configuration

The laboratory utilizes a Waters LC 2795 liquid chromatography instrument for Perchlorate analysis. It is coupled with either a Micromass Quattro Micro Mass Spectrometer/ Mass Spectrometer, or a Micromass Quattro Ultima Mass Spectrometer/ Mass Spectrometer. Each being designated as LCMSMS #1 and LCMSMS #2, respectively. It is fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis. The laboratory may also utilize an Agilent 1100 liquid chromatography instrument for Perchlorate analysis. It is coupled with an Applied Biosystems 4000 Mass Spectrometer/ Mass Spectrometer, designated as LCMSMS #3 or LCMSMS #4. It is also fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Chromatographic Columns**

Chromatographic separation of Perchlorate is accomplished through analysis on the following anion column:

Dionex: IonPac AG-16 2 x 50 mm.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-868 GEL Work Order: 326056

**The Qualifiers in this report are defined as follows:**

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

**Review/Validation**

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

**Signature:** Pat Steele **Name: Patricia Steele**

**Date: 05 JUN 2013** **Title: Data Validator**

# Sample Data Summary

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1302798

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CASA-13-30556

**Date Received:** 21-MAY-13

**GEL Job No (SDG):** 2013-868

**GEL Sample ID:** 326056004

**Date Filtered:** 28-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.682 | ug/L | | 1 | 29-MAY-13 19:16 | per0529027a |
| | Perchlorate Isotope Ratio | | | 3.14 | | | 1 | 29-MAY-13 19:16 | per0529027a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.676 | ug/L | | 1 | 29-MAY-13 19:16 | per0529027a |
| | Perchlorate-O(18) | | | 0.464 | ug/L | | 1 | 29-MAY-13 19:16 | per0529027a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Quality Control Summary

## Perchlorate Laboratory Control Sample

**Lab Name:** General Engineering Laboratories

**Lab Code:** GEL

**GEL Job No. (SDG):** 2013-868

**Extract Batch Code:** 1302798

**Date Filtered:** 28-MAY-13

**Matrix:** WATER

**Sample ID:** 1202878495

| Analyte^ | True | Found | Units | %Rec | Q | Control Limits |
|---|---|---|---|---|---|---|
| Perchlorate | 0.200 | .196 | ug/L | 98.2 | | 85 - 115 |
| Perchlorate Isotope Ratio | | 2.91 | | | | - |
| Perchlorate-101 | 0.200 | .21 | ug/L | 105 | | 85 - 115 |
| Perchlorate-O(18) | | .479 | ug/L | | | - |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

## Perchlorate Spike/Spike Duplicate Summary

**Lab Name:** General Engineering Laboratories

**Lab Code:** GEL

**GEL Job No (SDG):** 2013-868

**Extract Batch Code:** 1302798

**Date Extracted:** 28-MAY-13

**GEL MS/PS ID:** 1202878496

**Client ID:** CAMO-13-30600

**GEL MSD/PSD ID:** 1202878497

**QC Type:** MS

| Compound^ | Spike Added | Sample Conc | Units | MS Conc | MS Rec | # | MSD Conc | MSD Rec | # | RPD | # | RPD Limit | Recovery Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Perchlorate | 0.200 | 5.82 | ug/L | 5.89 | 34.9 | * | 5.88 | 29.4 | * | .186 | | 30 | 75 - 125 |
| Perchlorate Isotope Ratio | 0 | 3.16 | | 3.1 | | | 3.15 | | | 1.64 | | | - |
| Perchlorate-101 | 0.200 | 5.73 | ug/L | 5.91 | 89.3 | | 5.8 | 35.8 | * | 1.83 | | 30 | 75 - 125 |
| Perchlorate-O(18) | 0 | 4.70 | ug/L | 4.77 | | | 4.72 | | | 1.05 | | | - |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

# Quality Control Data

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** EPA 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1302798

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
MB

**Date Received:** 28-MAY-13

**GEL Job No (SDG):** 2013-868

**GEL Sample ID:** 1202878494

**Date Filtered:** 28-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.200 | ug/L | U | 1 | 29-MAY-13 17:16 | per0529012a |
| | Perchlorate Isotope Ratio | | | | | | 1 | 29-MAY-13 17:16 | per0529012a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.200 | ug/L | U | 1 | 29-MAY-13 17:16 | per0529012a |
| | Perchlorate-O(18) | | | 0.504 | ug/L | | 1 | 29-MAY-13 17:16 | per0529012a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** EPA 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1302798

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
LCS

**Date Received:** 28-MAY-13

**GEL Job No (SDG):** 2013-868

**GEL Sample ID:** 1202878495

**Date Filtered:** 28-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.196 | ug/L | J | 1 | 29-MAY-13 17:24 | per0529013a |
| | Perchlorate Isotope Ratio | | | 2.91 | | | 1 | 29-MAY-13 17:24 | per0529013a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.210 | ug/L | | 1 | 29-MAY-13 17:24 | per0529013a |
| | Perchlorate-O(18) | | | 0.479 | ug/L | | 1 | 29-MAY-13 17:24 | per0529013a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1302798

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
ICS

**Date Received:**

**GEL Job No (SDG):** 2013-868

**GEL Sample ID:** 1202878498

**Date Filtered:** 28-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.205 | ug/L | | 1 | 29-MAY-13 17:32 | per0529014a |
| | Perchlorate Isotope Ratio | | | 3.23 | | | 1 | 29-MAY-13 17:32 | per0529014a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.198 | ug/L | J | 1 | 29-MAY-13 17:32 | per0529014a |
| | Perchlorate-O(18) | | | 0.503 | ug/L | | 1 | 29-MAY-13 17:32 | per0529014a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1302798

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CAMO-13-30600MS

**Date Received:** 18-MAY-13

**GEL Job No (SDG):** 2013-868

**GEL Sample ID:** 1202878496

**Date Filtered:** 28-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .5 | 2 | 5.89 | ug/L | | 10 | 29-MAY-13 19:00 | per0529025a |
| | Perchlorate Isotope Ratio | | | 3.1 | | | 10 | 29-MAY-13 19:00 | per0529025a |
| 14797-73-0 | Perchlorate-101 | .5 | 2 | 5.91 | ug/L | | 10 | 29-MAY-13 19:00 | per0529025a |
| | Perchlorate-O(18) | | | 4.77 | ug/L | | 10 | 29-MAY-13 19:00 | per0529025a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1302798

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CAMO-13-30600MSD

**Date Received:** 18-MAY-13

**GEL Job No (SDG):** 2013-868

**GEL Sample ID:** 1202878497

**Date Filtered:** 28-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .5 | 2 | 5.88 | ug/L | | 10 | 29-MAY-13 19:08 | per0529026a |
| | Perchlorate Isotope Ratio | | | 3.15 | | | 10 | 29-MAY-13 19:08 | per0529026a |
| 14797-73-0 | Perchlorate-101 | .5 | 2 | 5.80 | ug/L | | 10 | 29-MAY-13 19:08 | per0529026a |
| | Perchlorate-O(18) | | | 4.72 | ug/L | | 10 | 29-MAY-13 19:08 | per0529026a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Miscellaneous

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 30-MAY-13 | Federal | | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| LC-MS/MS | SW846 6850 Modified | Liquid | ARSL001 |
| **Batch ID:** | **Sample Numbers:** | | |
| 1302799 | See below | | |

**Potentially affected work order(s)(SDG):** **325733(2013-838),325736(2013-840),325739(2013-841),325847(2013-847),325923(2013-856),326020(2013-866),326056(2013-868),326427(2013-887)**

**Application Issues:**

Failed Recovery for MS/PS

Failed Recovery for MSD/PSD

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Low recovery for Perchlorate was observed in 1202878496 (MS). The recovery was 35% and the acceptance range is 75-125%.<br><br>2. Low recoveries for Perchlorate and Perchlorate-101 were observed in 1202878497 (MSD). The recoveries were 29% and 36%, respectively. The acceptance range is 75-125%. | 1. & 2. The low recoveries may be the result of the background concentration present in the parent sample, 326020002, and the need to dilute all at a 1:10 dilution prior to analysis. The data are reported with the appropriate DER. |

**Originator's Name:**

Charles Wilson 30-MAY-13

**Data Validator/Group Leader:**

Michael Penny 30-MAY-13

# Metals Analysis

# Case Narrative

**Metals Fractional Narrative**
**ARS International (ARSL)**
**SDG 2013-868**

## Sample Analysis

| Sample ID | Client ID |
|---|---|
| 326056002 | CASA-13-30553 |
| 326056004 | CASA-13-30556 |
| 1202883949 | Method Blank (MB) **ICP** |
| 1202883950 | Laboratory Control Sample (LCS) |
| 1202883953 | 325649002(CAMO-13-30594L) Serial Dilution (SD) |
| 1202883951 | 325649002(CAMO-13-30594D) Sample Duplicate (DUP) |
| 1202883952 | 325649002(CAMO-13-30594S) Matrix Spike (MS) |
| 1202883954 | Method Blank (MB) **ICP-MS** |
| 1202883955 | Laboratory Control Sample (LCS) |
| 1202883958 | 325649002(CAMO-13-30594L) Serial Dilution (SD) |
| 1202883956 | 325649002(CAMO-13-30594D) Sample Duplicate (DUP) |
| 1202883957 | 325649002(CAMO-13-30594S) Matrix Spike (MS) |
| 1202883730 | Method Blank (MB) **CVAA** |
| 1202883731 | Laboratory Control Sample (LCS) |
| 1202883737 | 326057001(WT_IPC-13-32171L) Serial Dilution (SD) |
| 1202883735 | 326057001(WT_IPC-13-32171D) Sample Duplicate (DUP) |
| 1202883736 | 326057001(WT_IPC-13-32171S) Matrix Spike (MS) |

## Method/Analysis Information

| | |
|---|---|
| **Analytical Batch:** | 1304837, 1304840, 1304760 and 1306982 |
| **Prep Batch :** | 1304836, 1304838 and 1304759 |
| **Standard Operating Procedures:** | GL-MA-E-013 REV# 22, GL-MA-E-006 REV# 9, GL-MA-E-014 REV# 25, GL-MA-E-010 REV# 26 and GL-GC-E-107 REV# 8 |
| **Analytical Method:** | SW846 3005/6010B, SW846 3005/6020 DOE-AL, EPA 245.1/245.2 and SM 2340 B |

**Prep Method :** SW846 3005A and EPA 245.1/245.2 Prep

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

**System Configuration**

The Hardness as CaCO3 is calculated from Calcium and Magnesium results.

The Metals analysis-ICP was performed on a P E 5300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis-ICP was performed on a PE 7300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN 9000 inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadruple mass spectrometer, and dual mode electron multiplier detector. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum. Operating conditions are set at 1400W power and combined argon pressures of 360+/-7 kPa for the plasma and auxiliary gases, and 0.85 L/min carrier gas flow, and an initial lens voltage of 5.2.

The Metals analysis-Mercury was performed on a Perkin-Elmer Flow Injection Mercury System (FIMS-100) automated mercury analyzer. The instrument consists of a cold vapor atomic absorption spectrometer set to detect mercury at a wavelength of 253.7 nm. Sample introduction through the flow injection system is performed via a peristaltic pump at 9 mL/min and nitrogen carrier gas rate of 80 mL/min.

**Calibration Information**

**Instrument Calibration**
All initial calibration requirements have been met for this sample delivery group (SDG).

**CRDL Requirements**
All CRDL standard(s) met the referenced advisory control limits.

**ICSA/ICSAB Statement**
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

**Continuing Calibration Blank (CCB) Requirements**
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

**Continuing Calibration Verification (CCV) Requirements**
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MBs analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recoveries met the acceptance limits.

**Quality Control (QC) Sample Statement**
The following samples were selected as the quality control (QC) samples for this SDG: 325649002 (CAMO-13-30594)-ICP and ICP-MS and 326057001 (WT_IPC-13-32171)-CVAA.

**Matrix Spike (MS) Recovery Statement**
The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. All applicable elements met the acceptance criteria.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. All applicable analytes met these requirements.

**Serial Dilution % Difference Statement**
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations that are 25X the IDL/MDL for CVAA, 50X the IDL/MDL for ICP, and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the acceptance criteria of less than 10% difference (%D).

## Technical Information

### Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

### Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

### Sample Dilutions
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. The samples in this SDG did not require dilutions.

### Preparation Information
The samples in this SDG were prepared exactly according to the cited SOP.

## Miscellaneous Information

### Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

### Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

### Additional Comments
Additional comments were not required for this SDG.
Total Hardness by Calculation is determined using the results of Total Calcium (Ca) and Total Magnesium (Mg) determined by ICP or ICP-MS.

Hardness = 2.497 (Ca) + 4.118 (Mg)

Please refer to the Total Ca and Total Mg data to validate results appearing on the Hardness Summary sheet. Both results are in the Inorganic/metals section of the package. There is no Batch QC for calculated results, and thus no QC Summary for the Hardness by Calculation Batch. The MDLs and PQLs are calculated using the higher of the two calculated values of Ca or Mg.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

**Review Validation:**

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

**The following data validator verified the information presented in this case narrative:**

**Reviewer:**_____ **Date:** 06/13/13

# Sample Data Summary

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-868  GEL Work Order: 326056

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

J  Value is estimated

N  Metals--The Matrix spike sample recovery is not within specified control limits

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____ 06/13/13

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−868 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

**SAMPLE ID:** 326056002 **BASIS:** As Received **DATE COLLECTED** 17−MAY−13

**CLIENT ID:** CASA−13−30553 **LEVEL:** Low **DATE RECEIVED** 21−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7439−97−6 | Mercury | 0.20 | ug/L | U | 0.067 | 0.2 | 0.2 | 1 | AV | NOR1 | 05/31/13 10:57 | 053113W1−6 | 1304760 |

# METALS
## −1−
## INORGANICS ANALYSIS DATA PACKAGE

**SDG No:** 2013−868 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

**SAMPLE ID:** 326056002 **BASIS:** As Received **DATE COLLECTED** 17−MAY−13

**CLIENT ID:** CASA−13−30553 **LEVEL:** Low **DATE RECEIVED** 21−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7429−90−5 | Aluminum | 200 | ug/L | U | 68 | 200 | 200 | 1 | P | HSC | 06/06/13 16:05 | 060613−1 | 1304837 |
| 7440−36−0 | Antimony | 3 | ug/L | U | 1 | 3 | 3 | 1 | MS | PRB | 06/08/13 03:49 | 130607−5 | 1304840 |
| 7440−38−2 | Arsenic | 5 | ug/L | U | 1.7 | 5 | 5 | 1 | MS | BAJ | 06/07/13 08:27 | 130606−3 | 1304840 |
| 7440−39−3 | Barium | 36.2 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 16:05 | 060613−1 | 1304837 |
| 7440−41−7 | Beryllium | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 16:05 | 060613−1 | 1304837 |
| 7440−42−8 | Boron | 15.2 | ug/L | J | 15 | 50 | 50 | 1 | P | HSC | 06/06/13 16:05 | 060613−1 | 1304837 |
| 7440−43−9 | Cadmium | 1 | ug/L | U | 0.11 | 1 | 1 | 1 | MS | BAJ | 06/07/13 08:27 | 130606−3 | 1304840 |
| 7440−70−2 | Calcium | 18700 | ug/L | | 50 | 200 | 200 | 1 | P | HSC | 06/06/13 16:05 | 060613−1 | 1304837 |
| 7440−47−3 | Chromium | 5.09 | ug/L | J | 2 | 10 | 10 | 1 | MS | BAJ | 06/07/13 08:27 | 130606−3 | 1304840 |
| 7440−48−4 | Cobalt | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 16:05 | 060613−1 | 1304837 |
| 7440−50−8 | Copper | 10 | ug/L | U | 3 | 10 | 10 | 1 | P | HSC | 06/06/13 16:05 | 060613−1 | 1304837 |
| 7439−89−6 | Iron | 100 | ug/L | U | 30 | 100 | 100 | 1 | P | HSC | 06/06/13 16:05 | 060613−1 | 1304837 |
| 7439−92−1 | Lead | 2 | ug/L | U | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/07/13 08:27 | 130606−3 | 1304840 |
| 7439−95−4 | Magnesium | 4300 | ug/L | | 110 | 300 | 300 | 1 | P | HSC | 06/07/13 11:06 | 060713B−2 | 1304837 |
| 7439−96−5 | Manganese | 3.04 | ug/L | J | 2 | 10 | 10 | 1 | P | HSC | 06/06/13 16:05 | 060613−1 | 1304837 |
| 7439−98−7 | Molybdenum | 1.73 | ug/L | | 0.165 | 0.5 | 0.5 | 1 | MS | BAJ | 06/07/13 16:46 | 130607−4 | 1304840 |
| 7440−02−0 | Nickel | 1.87 | ug/L | J | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/07/13 08:27 | 130606−3 | 1304840 |
| 7440−09−7 | Potassium | 2190 | ug/L | | 50 | 150 | 150 | 1 | P | HSC | 06/06/13 16:05 | 060613−1 | 1304837 |
| 7782−49−2 | Selenium | 1.72 | ug/L | J | 1.5 | 5 | 5 | 1 | MS | BAJ | 06/07/13 08:27 | 130606−3 | 1304840 |
| 7631−86−9 | Silica | 75200 | ug/L | | 53 | 213 | 213 | 1 | P | HSC | 06/06/13 16:05 | 060613−1 | 1304837 |
| 7440−22−4 | Silver | 1 | ug/L | U | 0.2 | 1 | 1 | 1 | MS | BAJ | 06/07/13 08:27 | 130606−3 | 1304840 |
| 7440−23−5 | Sodium | 14300 | ug/L | | 100 | 300 | 300 | 1 | P | HSC | 06/07/13 11:06 | 060713B−2 | 1304837 |
| 7440−24−6 | Strontium | 72.4 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 16:05 | 060613−1 | 1304837 |
| 7440−28−0 | Thallium | 2 | ug/L | U | 0.45 | 2 | 2 | 1 | MS | BAJ | 06/07/13 08:27 | 130606−3 | 1304840 |
| 7440−31−5 | Tin | 10 | ug/L | U | 2.5 | 10 | 10 | 1 | P | HSC | 06/07/13 11:06 | 060713B−2 | 1304837 |
| 7440−61−1 | Uranium | 0.276 | ug/L | | 0.067 | 0.2 | 0.2 | 1 | MS | BAJ | 06/07/13 16:46 | 130607−4 | 1304840 |
| 7440−62−2 | Vanadium | 15.6 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 16:05 | 060613−1 | 1304837 |
| 7440−66−6 | Zinc | 58.4 | ug/L | | 3.3 | 10 | 10 | 1 | P | HSC | 06/06/13 16:05 | 060613−1 | 1304837 |

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−868 **CONTRACT:** ESHL00210 **METHOD TYPE:**

**SAMPLE ID:** 326056002 **BASIS:** As Received **DATE COLLECTED** 17−MAY−13

**CLIENT ID:** CASA−13−30553 **LEVEL:** Low **DATE RECEIVED** 21−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Hardness as CaCO3 | 64.5 | mg/L | | 0.453 | 1.24 | 1.24 | 1 | | JJ2 | 06/10/13 14:16 | | 1306982 |

**Prep Information:**

| Analytical Batch | Prep Batch | Prep Method | Initial wt./vol. | Units | Final wt./vol. | Units | Date | Analyst |
|---|---|---|---|---|---|---|---|---|
| 1304760 | 1304759 | EPA 245.1/245.2 Prep | 20 | mL | 20 | mL | 05/30/13 | AXS5 |
| 1304837 | 1304836 | SW846 3005A | 50 | mL | 50 | mL | 06/06/13 | AXG2 |
| 1304840 | 1304838 | SW846 3005A | 50 | mL | 50 | mL | 06/06/13 | AXG2 |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**
**P** **SW846 3005/6010B**
**AV** **EPA 245.1/245.2**

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−868 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

**SAMPLE ID:** 326056004 **BASIS:** As Received **DATE COLLECTED** 17−MAY−13

**CLIENT ID:** CASA−13−30556 **LEVEL:** Low **DATE RECEIVED** 21−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7439−97−6 | Mercury | 0.20 | ug/L | U | 0.067 | 0.2 | 0.2 | 1 | AV | NOR1 | 05/31/13 10:59 | 053113W1−6 | 1304760 |

# METALS
## −1−
## INORGANICS ANALYSIS DATA PACKAGE

**SDG No:** 2013−868 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

**SAMPLE ID:** 326056004 **BASIS:** As Received **DATE COLLECTED** 17−MAY−13

**CLIENT ID:** CASA−13−30556 **LEVEL:** Low **DATE RECEIVED** 21−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7429−90−5 | Aluminum | 200 | ug/L | U | 68 | 200 | 200 | 1 | P | HSC | 06/06/13 16:08 | 060613−1 | 1304837 |
| 7440−36−0 | Antimony | 3 | ug/L | U | 1 | 3 | 3 | 1 | MS | PRB | 06/08/13 03:53 | 130607−5 | 1304840 |
| 7440−38−2 | Arsenic | 2.31 | ug/L | J | 1.7 | 5 | 5 | 1 | MS | BAJ | 06/07/13 08:33 | 130606−3 | 1304840 |
| 7440−39−3 | Barium | 41 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 16:08 | 060613−1 | 1304837 |
| 7440−41−7 | Beryllium | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 16:08 | 060613−1 | 1304837 |
| 7440−42−8 | Boron | 80.6 | ug/L | | 15 | 50 | 50 | 1 | P | HSC | 06/06/13 16:08 | 060613−1 | 1304837 |
| 7440−43−9 | Cadmium | 1 | ug/L | U | 0.11 | 1 | 1 | 1 | MS | BAJ | 06/07/13 08:33 | 130606−3 | 1304840 |
| 7440−70−2 | Calcium | 66900 | ug/L | | 50 | 200 | 200 | 1 | P | HSC | 06/06/13 16:08 | 060613−1 | 1304837 |
| 7440−47−3 | Chromium | 10.5 | ug/L | | 2 | 10 | 10 | 1 | MS | BAJ | 06/07/13 08:33 | 130606−3 | 1304840 |
| 7440−48−4 | Cobalt | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 16:08 | 060613−1 | 1304837 |
| 7440−50−8 | Copper | 10 | ug/L | U | 3 | 10 | 10 | 1 | P | HSC | 06/06/13 16:08 | 060613−1 | 1304837 |
| 7439−89−6 | Iron | 100 | ug/L | U | 30 | 100 | 100 | 1 | P | HSC | 06/06/13 16:08 | 060613−1 | 1304837 |
| 7439−92−1 | Lead | 2 | ug/L | U | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/07/13 08:33 | 130606−3 | 1304840 |
| 7439−95−4 | Magnesium | 10300 | ug/L | | 110 | 300 | 300 | 1 | P | HSC | 06/07/13 11:09 | 060713B−2 | 1304837 |
| 7439−96−5 | Manganese | 10 | ug/L | U | 2 | 10 | 10 | 1 | P | HSC | 06/06/13 16:08 | 060613−1 | 1304837 |
| 7439−98−7 | Molybdenum | 78.2 | ug/L | | 0.165 | 0.5 | 0.5 | 1 | MS | BAJ | 06/07/13 16:49 | 130607−4 | 1304840 |
| 7440−02−0 | Nickel | 6.33 | ug/L | | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/07/13 08:33 | 130606−3 | 1304840 |
| 7440−09−7 | Potassium | 1790 | ug/L | | 50 | 150 | 150 | 1 | P | HSC | 06/06/13 16:08 | 060613−1 | 1304837 |
| 7782−49−2 | Selenium | 2.75 | ug/L | J | 1.5 | 5 | 5 | 1 | MS | BAJ | 06/07/13 08:33 | 130606−3 | 1304840 |
| 7631−86−9 | Silica | 67500 | ug/L | | 53 | 213 | 213 | 1 | P | HSC | 06/06/13 16:08 | 060613−1 | 1304837 |
| 7440−22−4 | Silver | 1 | ug/L | U | 0.2 | 1 | 1 | 1 | MS | BAJ | 06/07/13 08:33 | 130606−3 | 1304840 |
| 7440−23−5 | Sodium | 58100 | ug/L | | 100 | 300 | 300 | 1 | P | HSC | 06/07/13 11:09 | 060713B−2 | 1304837 |
| 7440−24−6 | Strontium | 309 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 16:08 | 060613−1 | 1304837 |
| 7440−28−0 | Thallium | 2 | ug/L | U | 0.45 | 2 | 2 | 1 | MS | BAJ | 06/07/13 08:33 | 130606−3 | 1304840 |
| 7440−31−5 | Tin | 10 | ug/L | U | 2.5 | 10 | 10 | 1 | P | HSC | 06/07/13 11:09 | 060713B−2 | 1304837 |
| 7440−61−1 | Uranium | 2.03 | ug/L | | 0.067 | 0.2 | 0.2 | 1 | MS | BAJ | 06/07/13 16:49 | 130607−4 | 1304840 |
| 7440−62−2 | Vanadium | 1.32 | ug/L | J | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 16:08 | 060613−1 | 1304837 |
| 7440−66−6 | Zinc | 10 | ug/L | U | 3.3 | 10 | 10 | 1 | P | HSC | 06/06/13 16:08 | 060613−1 | 1304837 |

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−868 **CONTRACT:** ESHL00210 **METHOD TYPE:**

**SAMPLE ID:** 326056004 **BASIS:** As Received **DATE COLLECTED** 17−MAY−13

**CLIENT ID:** CASA−13−30556 **LEVEL:** Low **DATE RECEIVED** 21−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Hardness as CaCO3 | 209 | mg/L | | 0.453 | 1.24 | 1.24 | 1 | | JJ2 | 06/10/13 14:16 | | 1306982 |

**Prep Information:**

| Analytical Batch | Prep Batch | Prep Method | Initial wt./vol. | Units | Final wt./vol. | Units | Date | Analyst |
|---|---|---|---|---|---|---|---|---|
| 1304760 | 1304759 | EPA 245.1/245.2 Prep | 20 | mL | 20 | mL | 05/30/13 | AXS5 |
| 1304837 | 1304836 | SW846 3005A | 50 | mL | 50 | mL | 06/06/13 | AXG2 |
| 1304840 | 1304838 | SW846 3005A | 50 | mL | 50 | mL | 06/06/13 | AXG2 |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**
**P** **SW846 3005/6010B**
**AV** **EPA 245.1/245.2**

# Quality Control Summary

**METALS**
**−3b−**
**PREPARATION BLANK SUMMARY**

**SDG NO.** 2013−868

**Contract:** ESHL00210

**Matrix:** W

| Sample ID | Analyte | Result | Units | Acceptance Window | Conc Qual | M* | MDL | RDL |
|---|---|---|---|---|---|---|---|---|
| 1202883730 | | | | | | | | |
| | Mercury | 0.067 | ug/L | +/−0.2 | U | AV | 0.067 | 0.2 |
| 1202883949 | | | | | | | | |
| | Aluminum | 68 | ug/L | +/−200 | U | P | 68 | 200 |
| | Barium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Beryllium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Boron | 15 | ug/L | +/−50 | U | P | 15 | 50 |
| | Calcium | 50 | ug/L | +/−200 | U | P | 50 | 200 |
| | Cobalt | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Copper | 3 | ug/L | +/−10 | U | P | 3 | 10 |
| | Iron | 30 | ug/L | +/−100 | U | P | 30 | 100 |
| | Magnesium | 110 | ug/L | +/−300 | U | P | 110 | 300 |
| | Manganese | 2 | ug/L | +/−10 | U | P | 2 | 10 |
| | Potassium | 50 | ug/L | +/−150 | U | P | 50 | 150 |
| | Silica | 53 | ug/L | +/−213 | U | P | 53 | 213 |
| | Sodium | 100 | ug/L | +/−300 | U | P | 100 | 300 |
| | Strontium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Tin | 2.5 | ug/L | +/−10 | U | P | 2.5 | 10 |
| | Vanadium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Zinc | 3.3 | ug/L | +/−10 | U | P | 3.3 | 10 |
| 1202883954 | | | | | | | | |
| | Antimony | 1 | ug/L | +/−3 | U | MS | 1 | 3 |
| | Arsenic | 1.7 | ug/L | +/−5 | U | MS | 1.7 | 5 |
| | Cadmium | 0.11 | ug/L | +/−1 | U | MS | 0.11 | 1 |
| | Chromium | 2 | ug/L | +/−10 | U | MS | 2 | 10 |
| | Lead | 0.5 | ug/L | +/−2 | U | MS | 0.5 | 2 |
| | Molybdenum | 0.165 | ug/L | +/−0.5 | U | MS | 0.165 | 0.5 |
| | Nickel | 0.5 | ug/L | +/−2 | U | MS | 0.5 | 2 |
| | Selenium | 1.5 | ug/L | +/−5 | U | MS | 1.5 | 5 |
| | Silver | 0.2 | ug/L | +/−1 | U | MS | 0.2 | 1 |
| | Thallium | 0.45 | ug/L | +/−2 | U | MS | 0.45 | 2 |
| | Uranium | 0.067 | ug/L | +/−0.2 | U | MS | 0.067 | 0.2 |

***Analytical Methods:**

| | |
|---|---|
| **MS** | **SW846 3005/6020 DOE−AL** |
| **P** | **SW846 3005/6010B** |
| **AV** | **EPA 245.1/245.2** |

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−868 **Client ID** WT_IPC−13−32171S

**Contract:** ESHL00510 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 326057001 **Spike ID:** 1202883736

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | ug/L | 75−125 | 2.08 | | 0.067 | U | 2 | 104 | | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−868 **Client ID** CAMO−13−30594S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 325649002 **Spike ID:** 1202883952

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | ug/L | 75−125 | 5060 | | 68 | U | 5000 | 101 | | P |
| Barium | ug/L | 75−125 | 513 | | 21.9 | | 500 | 98.3 | | P |
| Beryllium | ug/L | 75−125 | 498 | | 1 | U | 500 | 99.5 | | P |
| Boron | ug/L | 75−125 | 491 | | 15 | U | 500 | 97.5 | | P |
| Calcium | ug/L | 75−125 | 17600 | | 13300 | | 5000 | 86.2 | | P |
| Cobalt | ug/L | 75−125 | 496 | | 1 | U | 500 | 99.2 | | P |
| Copper | ug/L | 75−125 | 532 | | 3 | U | 500 | 106 | | P |
| Iron | ug/L | 75−125 | 5140 | | 30 | U | 5000 | 103 | | P |
| Magnesium | ug/L | 75−125 | 8390 | | 3700 | | 5000 | 93.7 | | P |
| Manganese | ug/L | 75−125 | 492 | | 2 | U | 500 | 98.3 | | P |
| Potassium | ug/L | 75−125 | 5990 | | 1210 | | 5000 | 95.6 | | P |
| Silica | ug/L | | 81700 | | 74900 | | 10700 | 62.8 | N/A | P |
| Sodium | ug/L | 75−125 | 14200 | | 9930 | | 5000 | 85.2 | | P |
| Strontium | ug/L | 75−125 | 560 | | 58.8 | | 500 | 100 | | P |
| Tin | ug/L | 75−125 | 470 | | 2.5 | U | 500 | 94 | | P |
| Vanadium | ug/L | 75−125 | 507 | | 5.58 | | 500 | 100 | | P |
| Zinc | ug/L | 75−125 | 490 | | 3.3 | U | 500 | 97.4 | | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−868 **Client ID** CAMO−13−30594S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 325649002 **Spike ID:** 1202883957

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ug/L | 75−125 | 55 | | 1 | U | 50 | 110 | | MS |
| Arsenic | ug/L | 75−125 | 52.4 | | 1.7 | U | 50 | 102 | | MS |
| Cadmium | ug/L | 75−125 | 54.8 | | 0.11 | U | 50 | 110 | | MS |
| Chromium | ug/L | 75−125 | 68.1 | | 17.5 | | 50 | 101 | | MS |
| Lead | ug/L | 75−125 | 51.2 | | 0.5 | U | 50 | 102 | | MS |
| Molybdenum | ug/L | 75−125 | 51.8 | | 0.849 | | 50 | 102 | | MS |
| Nickel | ug/L | 75−125 | 53.4 | | 2.22 | | 50 | 102 | | MS |
| Selenium | ug/L | 75−125 | 59.2 | | 1.5 | U | 50 | 116 | | MS |
| Silver | ug/L | 75−125 | 54 | | 0.2 | U | 50 | 108 | | MS |
| Thallium | ug/L | 75−125 | 47.3 | | 0.45 | U | 50 | 94.6 | | MS |
| Uranium | ug/L | 75−125 | 51.9 | | 0.429 | | 50 | 103 | | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−868 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** WT_IPC−13−32171D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 326057001 **Duplicate ID:** 1202883735 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | ug/L | | 0.067 | U | 0.067 | U | | | AV |

***Analytical Methods:**

**AV EPA 245.1/245.2**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−868 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CAMO−13−30594D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325649002 **Duplicate ID:** 1202883951 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | ug/L | | 68 | U | 68 | U | | | P |
| Barium | ug/L | +/−5 | 21.9 | | 20.8 | | 5.14 | | P |
| Beryllium | ug/L | | 1 | U | 1 | U | | | P |
| Boron | ug/L | | 15 | U | 15 | U | | | P |
| Calcium | ug/L | +/−20% | 13300 | | 12900 | | 3.27 | | P |
| Cobalt | ug/L | | 1 | U | 1 | U | | | P |
| Copper | ug/L | | 3 | U | 3 | U | | | P |
| Iron | ug/L | | 30 | U | 30 | U | | | P |
| Magnesium | ug/L | +/−20% | 3700 | | 3510 | | 5.41 | | P |
| Manganese | ug/L | | 2 | U | 2 | U | | | P |
| Potassium | ug/L | +/−20% | 1210 | | 1170 | | 3.01 | | P |
| Silica | ug/L | +/−20% | 74900 | | 72500 | | 3.29 | | P |
| Sodium | ug/L | +/−20% | 9930 | | 9590 | | 3.45 | | P |
| Strontium | ug/L | +/−20% | 58.8 | | 56.4 | | 4.05 | | P |
| Tin | ug/L | | 2.5 | U | 2.5 | U | | | P |
| Vanadium | ug/L | +/−5 | 5.58 | | 4.98 | J | 11.3 | | P |
| Zinc | ug/L | | 3.3 | U | 3.3 | U | | | P |

***Analytical Methods:**

**P SW846 3005/6010B**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−868 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CAMO−13−30594D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325649002 **Duplicate ID:** 1202883956 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Antimony | ug/L | | 1 | U | 1 | U | | | MS |
| Arsenic | ug/L | | 1.7 | U | 1.7 | U | | | MS |
| Cadmium | ug/L | | 0.11 | U | 0.11 | U | | | MS |
| Chromium | ug/L | +/−10 | 17.5 | | 16 | | 9.39 | | MS |
| Lead | ug/L | | 0.5 | U | 0.5 | U | | | MS |
| Molybdenum | ug/L | +/−.5 | 0.849 | | 0.877 | | 3.24 | | MS |
| Nickel | ug/L | +/−2 | 2.22 | | 1.9 | J | 15.5 | | MS |
| Selenium | ug/L | | 1.5 | U | 1.5 | U | | | MS |
| Silver | ug/L | | 0.2 | U | 0.2 | U | | | MS |
| Thallium | ug/L | | 0.45 | U | 0.45 | U | | | MS |
| Uranium | ug/L | +/−.2 | 0.429 | | 0.42 | | 2.12 | | MS |

***Analytical Methods:**

**MS SW846 3005/6020 DOE−AL**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−868

**Contract:** ESHL00210

**Aqueous LCS Source:** GEL **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202883731 | | | | | | | | |
| | Mercury | ug/L | 2 | 2.05 | | 102 | 85−115 | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−868

**Contract:** ESHL00210

**Aqueous LCS Source:** OS2I **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202883950 | | | | | | | | |
| | Aluminum | ug/L | 5000 | 5200 | | 104 | 80−120 | P |
| | Barium | ug/L | 500 | 510 | | 102 | 80−120 | P |
| | Beryllium | ug/L | 500 | 508 | | 102 | 80−120 | P |
| | Boron | ug/L | 500 | 488 | | 97.7 | 80−120 | P |
| | Calcium | ug/L | 5000 | 5150 | | 103 | 80−120 | P |
| | Cobalt | ug/L | 500 | 508 | | 102 | 80−120 | P |
| | Copper | ug/L | 500 | 533 | | 107 | 80−120 | P |
| | Iron | ug/L | 5000 | 5300 | | 106 | 80−120 | P |
| | Magnesium | ug/L | 5000 | 5140 | | 103 | 80−120 | P |
| | Manganese | ug/L | 500 | 517 | | 103 | 80−120 | P |
| | Potassium | ug/L | 5000 | 5100 | | 102 | 80−120 | P |
| | Silica | ug/L | 10700 | 10800 | | 101 | 80−120 | P |
| | Sodium | ug/L | 5000 | 5040 | | 101 | 80−120 | P |
| | Strontium | ug/L | 500 | 527 | | 105 | 80−120 | P |
| | Tin | ug/L | 500 | 496 | | 99.2 | 80−120 | P |
| | Vanadium | ug/L | 500 | 517 | | 103 | 80−120 | P |
| | Zinc | ug/L | 500 | 493 | | 98.5 | 80−120 | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−868

**Contract:** ESHL00210

**Aqueous LCS Source:** O2Si **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202883955 | | | | | | | | |
| | Antimony | ug/L | 50 | 55.6 | | 111 | 80−120 | MS |
| | Arsenic | ug/L | 50 | 51.7 | | 103 | 80−120 | MS |
| | Cadmium | ug/L | 50 | 54.4 | | 109 | 80−120 | MS |
| | Chromium | ug/L | 50 | 52.9 | | 106 | 80−120 | MS |
| | Lead | ug/L | 50 | 51.4 | | 103 | 80−120 | MS |
| | Molybdenum | ug/L | 50 | 50.2 | | 100 | 80−120 | MS |
| | Nickel | ug/L | 50 | 52.7 | | 105 | 80−120 | MS |
| | Selenium | ug/L | 50 | 59.7 | | 119 | 80−120 | MS |
| | Silver | ug/L | 50 | 53.8 | | 108 | 80−120 | MS |
| | Thallium | ug/L | 50 | 46.7 | | 93.5 | 80−120 | MS |
| | Uranium | ug/L | 50 | 49.6 | | 99.3 | 80−120 | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−868 **Client ID:** WT_IPC−13−32171L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 326057001 **Serial Dilution ID:** 1202883737

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Mercury | .067 | U | .335 | U | | | | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−868 **Client ID** CAMO−13−30594L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325649002 **Serial Dilution ID:** 1202883953

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Aluminum | 68 | U | 340 | U | | | | P |
| Barium | 21.9 | | 25.2 | | 14.8 | | | P |
| Beryllium | 1 | U | 5 | U | | | | P |
| Boron | 15 | U | 75 | U | | | | P |
| Calcium | 13300 | | 13000 | | 2.28 | | 10 | P |
| Cobalt | 1 | U | 5 | U | | | | P |
| Copper | 3 | U | 15 | U | | | | P |
| Iron | 30 | U | 150 | U | | | | P |
| Magnesium | 3700 | | 3680 | | .612 | | | P |
| Manganese | 2 | U | 10 | U | | | | P |
| Potassium | 1210 | | 1320 | | 8.88 | | | P |
| Silica | 74900 | | 73100 | | 2.4 | | 10 | P |
| Sodium | 9930 | | 10500 | | 5.47 | | 10 | P |
| Strontium | 58.8 | | 56.9 | | 3.16 | | 10 | P |
| Tin | 2.5 | U | 12.5 | U | | | | P |
| Vanadium | 5.58 | | 6.2 | J | 11.1 | | | P |
| Zinc | 3.3 | U | 16.5 | U | | | | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−868 **Client ID** CAMO−13−30594L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325649002 **Serial Dilution ID:** 1202883958

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Antimony | 1 | U | 5 | U | | | | MS |
| Arsenic | 1.7 | U | 8.5 | U | | | | MS |
| Cadmium | .11 | U | .55 | U | | | | MS |
| Chromium | 17.5 | | 16.6 | J | 5.12 | | | MS |
| Lead | .5 | U | 2.5 | U | | | | MS |
| Molybdenum | .849 | | 1.15 | J | 35.5 | | | MS |
| Nickel | 2.22 | | 2.5 | U | 100 | | | MS |
| Selenium | 1.5 | U | 7.5 | U | | | | MS |
| Silver | .2 | U | 1 | U | | | | MS |
| Thallium | .45 | U | 2.25 | U | | | | MS |
| Uranium | .429 | | .53 | J | 23.5 | | | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

# General Chem Analysis

# Case Narrative

**General Chemistry Narrative**
**ARS International (ARSL)**
**SDG 2013-868**

## Method/Analysis Information

**Product:** **Carbon, Total Organic**

**Analytical Batch:** 1304466 **Method:** SW 9060 Total Organic Carbon

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9060:

| Sample ID | Client ID |
|---|---|
| 326056001 | CASA-13-30545 |
| 326056003 | CASA-13-30548 |
| 1202882946 | Method Blank (MB) |
| 1202882947 | 326056003(CASA-13-30548) Sample Duplicate (DUP) |
| 1202882948 | 326056003(CASA-13-30548) Post Spike (PS) |
| 1202882949 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-093 REV# 12.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Carbon analysis was performed on a O-I Analytical Model 1010 Total Organic Carbon Analyzer.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 326056003 (CASA-13-30548).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages

electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Specific Conductivity** | | |
| **Analytical Batch:** | 1305450 | **Method:** | EPA120.1 Specific Conductivity |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 120.1:

| Sample ID | Client ID |
|---|---|
| 326056002 | CASA-13-30553 |
| 326056004 | CASA-13-30556 |
| 1202885569 | 325847002(CASA-13-30555) Sample Duplicate (DUP) |
| 1202885571 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-009 REV# 11.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Conductivity analysis was performed on a Orion 160 Conductivity Meter.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**

The following sample was selected for QC analysis: 325847002 (CASA-13-30555).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

**Product:** **pH**

**Analytical Batch:** 1303375 **Method:** EPA 150.1 pH

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 150.1:

| Sample ID | Client ID |
|---|---|
| 326056002 | CASA-13-30553 |
| 326056004 | CASA-13-30556 |
| 1202880073 | 326056002(CASA-13-30553) Sample Duplicate (DUP) |
| 1202880074 | 326057001(WT_IPC-13-32171) Sample Duplicate (DUP) |
| 1202880075 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-008 REV# 21.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Electrode analysis was performed on a PerpHect pH Meter Orion 370.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following samples were selected for QC analysis: 326056002 (CASA-13-30553) and 326057001 (WT_IPC-13-32171).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
The following samples from this sample group were received by the lab outside of the method specified holding time: 326056002 (CASA-13-30553) and 326056004 (CASA-13-30556).

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1190569 326056002 (CASA-13-30553) and 326056004 (CASA-13-30556).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Ion Chromatography** | | |
| **Analytical Batch:** | 1303846 | **Method:** | EPA 300.0 Anions Liquid 28 day |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

| Sample ID | Client ID |
|---|---|
| 326056002 | CASA-13-30553 |
| 326056004 | CASA-13-30556 |
| 1202881256 | Method Blank (MB) |
| 1202881257 | 325847002(CASA-13-30555) Sample Duplicate (DUP) |
| 1202881258 | 325847002(CASA-13-30555) Post Spike (PS) |
| 1202881259 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 21.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-3000 Ion Chromatograph.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325847002 (CASA-13-30555).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The spike recovery falls outside of the established acceptance limits due to matrix interference: 1202881258 (CASA-13-30555).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The following sample in this sample group was diluted due to high concentration: 326056004 (CASA-13-30556).

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1193509 1202881258 (CASA-13-30555).

**Manual Integrations**
The following samples from this sample group had to be manually integrated due to errors in the instrument software peak integration: 1202881257 (CASA-13-30555), 1202881258 (CASA-13-30555), 326056002 (CASA-13-30553) and 326056004 (CASA-13-30556).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Ammonia Nitrogen** | | |
| **Analytical Batch:** | 1302909 | **Method:** | EPA 350.1 Nitrogen and Ammonia L |
| **Prep Batch :** | 1302908 | **Method:** | EEPA 350.2 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 350.1:

| Sample ID | Client ID |
|---|---|
| 326056002 | CASA-13-30553 |
| 326056004 | CASA-13-30556 |
| 1202878848 | Method Blank (MB) |
| 1202878849 | Laboratory Control Sample (LCS) |
| 1202880634 | 326056002(CASA-13-30553) Sample Duplicate (DUP) |
| 1202880635 | 326056002(CASA-13-30553) Matrix Spike (MS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-106 REV# 9.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 326056002 (CASA-13-30553).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
One or more of the values for the sample and/or duplicate are less than 5 times the Practical Quantitation Limit (PQL), and the difference is within one PQL value; therefore, the RPD is not applicable. 1202880634 (CASA-13-30553).

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Total Kjeldahl Nitrogen** | | |
| **Analytical Batch:** | 1302893 | **Method:** | Nitrogen and Total Kjeldahl (TKN) |
| **Prep Batch :** | 1302892 | **Method:** | EEPA 351.2 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 351.2:

| Sample ID | Client ID |
|---|---|
| 326056001 | CASA-13-30545 |
| 326056003 | CASA-13-30548 |
| 1202878782 | Method Blank (MB) |
| 1202878783 | 325733001(CAMO-13-31070) Sample Duplicate (DUP) |
| 1202878784 | 326427001(SWWS46-13-33497) Sample Duplicate (DUP) |
| 1202878785 | 325733001(CAMO-13-31070) Matrix Spike (MS) |
| 1202878786 | 326427001(SWWS46-13-33497) Matrix Spike (MS) |
| 1202878787 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-104 REV# 14.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following samples were selected for QC analysis: 325733001 (CAMO-13-31070) and 326427001 (SWWS46-13-33497).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The spike recovery falls outside of the GEL acceptance limits but within the client specified limits. 1202878786 (SWWS46-13-33497).

**Duplicate Relative Percent Difference (RPD) Statement**
The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample: 1202878783 (CAMO-13-31070).

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1190664 1202878783 (CAMO-13-31070) and 1202878786 (SWWS46-13-33497).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Nitrate Nitrite by Cadmium Reduction** | | |
| **Analytical Batch:** | 1303599 | **Method:** | EPA 353.2 Nitrogen and Nitrate/Nitrite |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 353.2:

| Sample ID | Client ID |
|---|---|
| 326056002 | CASA-13-30553 |
| 326056004 | CASA-13-30556 |
| 1202880650 | Method Blank (MB) |
| 1202880651 | 326056002(CASA-13-30553) Sample Duplicate (DUP) |
| 1202880654 | 326056002(CASA-13-30553) Post Spike (PS) |
| 1202880657 | 326070001(T-52) Post Spike Duplicate (PSD) |
| 1202880658 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-128 REV# 8.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following samples were selected for QC analysis: 326056002 (CASA-13-30553) and 326070001 (T-52).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recoveries for this sample set were within the required acceptance limits.

**Matrix Spike Duplicate (MSD) Recovery Statement**
The MSD recoveries for this sample set were within the required acceptance limits.

**MS/MSD Relative Percent Difference (RPD) Statement**
The RPDs between the spike and spike duplicate met the acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The following samples in this sample group were diluted due to high concentration: 1202880651 (CASA-13-30553), 1202880654 (CASA-13-30553), 1202880657 (T-52), 326056002 (CASA-13-30553) and 326056004 (CASA-13-30556).

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Method/Analysis Information**

| | | | |
|---|---|---|---|
| **Product:** | **Total Phosphorus** | | |
| **Analytical Batch:** | 1305420 | **Method:** | EPA 365.4 Phosphorus and Total in |
| **Prep Batch :** | 1305419 | **Method:** | EEPA 365.4 Prep |

**Sample Analysis**

The following samples were analyzed using the analytical protocol as established in EPA 365.4:

| Sample ID | Client ID |
|---|---|
| 326056002 | CASA-13-30553 |
| 326056004 | CASA-13-30556 |
| 1202885474 | Method Blank (MB) |
| 1202885475 | 326056002(CASA-13-30553) Sample Duplicate (DUP) |
| 1202885477 | 326056002(CASA-13-30553) Matrix Spike (MS) |
| 1202885479 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-103 REV# 10.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

**Calibration Information**

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**

The absolute value of the intercept is less than 3 times the MDL.

## Quality Control (QC) Information

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 326056002 (CASA-13-30553).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202885475 (CASA-13-30553).

## Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

## Miscellaneous Information

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Solids, Total Dissolved** | | |
| **Analytical Batch:** | 1303373 | **Method:** | EPA 160.1 Solids and Dissolved-F |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 160.1:

| Sample ID | Client ID |
|---|---|
| 326056002 | CASA-13-30553 |
| 326056004 | CASA-13-30556 |
| 1202880068 | Method Blank (MB) |
| 1202880070 | 326056004(CASA-13-30556) Sample Duplicate (DUP) |
| 1202880071 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-001 REV# 13.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Solids analysis was performed on a Sartorius Balance BAL216. Solids lab

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

## Quality Control (QC) Information

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 326056004 (CASA-13-30556).

**Duplicate Relative Percent Difference (RPD) Statement**
The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample: 1202880070 (CASA-13-30556).

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Sample Aliquot**
A sufficient amount of sample was provided by the client for analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1190030 1202880070 (CASA-13-30556).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

**Product:** **Alkalinity**

**Analytical Batch:** 1304792 **Method:** EPA 310.1 Total Alkalinity

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 310.1:

| Sample ID | Client ID |
|---|---|
| 326056002 | CASA-13-30553 |
| 326056004 | CASA-13-30556 |
| 1202883809 | Laboratory Control Sample (LCS) |
| 1202883815 | 326018002(CASA-13-30551) Sample Duplicate (DUP) |
| 1202883816 | 326018002(CASA-13-30551) Matrix Spike (MS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-033 REV# 10.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Titration analysis was performed on a Manually operated buret.

**Initial Standardization**
The titrant was properly standardized

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 326018002 (CASA-13-30551).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

**Review Validation:**

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

**The following data validator verified the information presented in this case narrative:**

**Reviewer:**_____ **Date:**_____17Jun13_____

# Sample Data Summary

# GEL LABORATORIES LLC

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## Certificate of Analysis Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-868  GEL Work Order: 326056

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

**  Analyte is a Tracer compound

**  Analyte is a surrogate compound

H  Analytical holding time was exceeded

J  Value is estimated

N  Metals--The Matrix spike sample recovery is not within specified control limits

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: June 17, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples

Client SDG: 2013-868

Client Sample ID: CASA-13-30545
Sample ID: 326056001
Matrix: W
Collect Date: 17-MAY-13 12:50
Receive Date: 21-MAY-13
Collector: Client

Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon Analysis | | | | | | | | | | | |
| SW 9060 Total Organic Carbon "As Received" | | | | | | | | | | | |
| Total Organic Carbon Average | J | 0.722 | 0.330 | 1.00 | mg/L | 1 | TSM | 05/31/13 | 1833 | 1304466 | 1 |
| Nutrient Analysis | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl (TKN) "As Received" | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | U | ND | 0.033 | 0.100 | mg/L | 1 | KLP1 | 05/30/13 | 1148 | 1302893 | 2 |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 351.2 Prep | EPA 351.2 Total Kjeldahl Nitrogen Prep | KLP1 | 05/29/13 | 1700 | 1302892 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | SW846 9060 | |
| 2 | EPA 351.2 | |

**Notes:**

# GEL LABORATORIES LLC

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## Certificate of Analysis

Report Date: June 17, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-868

Client Sample ID: CASA-13-30553
Sample ID: 326056002
Matrix: W
Collect Date: 17-MAY-13 12:50
Receive Date: 21-MAY-13
Collector: Client
Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Conductivity Analysis | | | | | | | | | | | |
| EPA120.1 Specific Conductivity "As Received" | | | | | | | | | | | |
| Conductivity | | 196 | 1.00 | 1.00 | umhos/cm | 1 | LXA1 | 06/03/13 | 1605 | 1305450 | 1 |
| Electrode Analysis | | | | | | | | | | | |
| EPA 150.1 pH "As Received" | | | | | | | | | | | |
| pH at Temp 10.2C | H | 7.41 | 0.010 | 0.100 | SU | 1 | LYG1 | 05/22/13 | 0800 | 1303375 | 2 |
| Ion Chromatography | | | | | | | | | | | |
| EPA 300.0 Anions Liquid 28 day "As Received" | | | | | | | | | | | |
| Bromide | J | 0.101 | 0.067 | 0.200 | mg/L | 1 | MAR1 | 06/09/13 | 1802 | 1303846 | 3 |
| Chloride | | 6.27 | 0.067 | 0.200 | mg/L | 1 | | | | | |
| Fluoride | | 0.542 | 0.033 | 0.100 | mg/L | 1 | | | | | |
| Sulfate | | 7.27 | 0.133 | 0.400 | mg/L | 1 | | | | | |
| Nutrient Analysis | | | | | | | | | | | |
| EPA 350.1 Nitrogen, Ammonia L "As Received" | | | | | | | | | | | |
| Nitrogen, Ammonia | | 0.0994 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/24/13 | 1326 | 1302909 | 4 |
| EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received" | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | 2.41 | 0.085 | 0.250 | mg/L | 5 | KLP1 | 06/13/13 | 1400 | 1303599 | 5 |
| EPA 365.4 Phosphorus, Total in "As Received" | | | | | | | | | | | |
| Phosphorus, Total as P | U | ND | 0.017 | 0.050 | mg/L | 1 | KLP1 | 06/05/13 | 1056 | 1305420 | 6 |
| Solids Analysis | | | | | | | | | | | |
| EPA 160.1 Solids, Dissolved-F "As Received" | | | | | | | | | | | |
| Total Dissolved Solids | | 149 | 3.40 | 14.3 | mg/L | | LYG1 | 05/22/13 | 0920 | 1303373 | 7 |
| Titration Analysis | | | | | | | | | | | |
| EPA 310.1 Total Alkalinity "As Received" | | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | 89.8 | 0.725 | 1.00 | mg/L | | LXA1 | 05/30/13 | 1736 | 1304792 | 8 |
| Carbonate alkalinity (CaCO3) | U | ND | 0.725 | 1.00 | mg/L | | | | | | |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 350.2 Prep | EPA 350.1 Ammonia Nitrogen Prep | KLP1 | 05/24/13 | 1230 | 1302908 |
| EPA 365.4 Prep | EPA 365.4 Phosphorus, Total in liquid PR | KLP1 | 06/04/13 | 1700 | 1305419 |

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## Certificate of Analysis

Report Date: June 17, 2013

| | | | |
|---|---|---|---|
| Company : | Los Alamos National Laboratory | | |
| Address : | PO Box 1663<br>TA-03, SM271, Drop Pt. 02U, Rm111<br>Los Alamos, New Mexico 87545 | | |
| Contact: | Keith Greene | Client SDG: | 2013-868 |
| Project: | LANL-WQH Water Samples | | |

| | | | |
|---|---|---|---|
| Client Sample ID: | CASA-13-30553 | Project: | ESHL00210 |
| Sample ID: | 326056002 | Client ID: | ARSL001 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | EPA 120.1 | |
| 2 | EPA 150.1 | |
| 3 | EPA 300.0 | |
| 4 | EPA 350.1 | |
| 5 | EPA 353.2 | |
| 6 | EPA 365.4 | |
| 7 | EPA 160.1 | |
| 8 | EPA 310.1 | |

**Notes:**

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## Certificate of Analysis

Report Date: June 17, 2013

| | |
|---|---|
| Company : | Los Alamos National Laboratory |
| Address : | PO Box 1663<br>TA-03, SM271, Drop Pt. 02U, Rm111<br>Los Alamos, New Mexico 87545 |
| Contact: | Keith Greene |
| Project: | LANL-WQH Water Samples |

Client SDG: 2013-868

| | | | |
|---|---|---|---|
| Client Sample ID: | CASA-13-30548 | Project: | ESHL00210 |
| Sample ID: | 326056003 | Client ID: | ARSL001 |
| Matrix: | W | | |
| Collect Date: | 17-MAY-13 11:13 | | |
| Receive Date: | 21-MAY-13 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon Analysis | | | | | | | | | | | |
| SW 9060 Total Organic Carbon "As Received" | | | | | | | | | | | |
| Total Organic Carbon Average | | 1.54 | 0.330 | 1.00 | mg/L | 1 | TSM | 05/31/13 | 1906 | 1304466 | 1 |
| Nutrient Analysis | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl (TKN) "As Received" | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | 0.123 | 0.033 | 0.100 | mg/L | 1 | KLP1 | 05/30/13 | 1149 | 1302893 | 2 |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 351.2 Prep | EPA 351.2 Total Kjeldahl Nitrogen Prep | KLP1 | 05/29/13 | 1700 | 1302892 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | SW846 9060 | |
| 2 | EPA 351.2 | |

**Notes:**

# GEL LABORATORIES LLC

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## Certificate of Analysis

Report Date: June 17, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-868

Client Sample ID: CASA-13-30556
Sample ID: 326056004
Matrix: W
Collect Date: 17-MAY-13 11:13
Receive Date: 21-MAY-13
Collector: Client
Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Conductivity Analysis | | | | | | | | | | | |
| EPA120.1 Specific Conductivity "As Received" | | | | | | | | | | | |
| Conductivity | | 724 | 1.00 | 1.00 | umhos/cm | 1 | LXA1 | 06/03/13 | 1605 | 1305450 | 1 |
| Electrode Analysis | | | | | | | | | | | |
| EPA 150.1 pH "As Received" | | | | | | | | | | | |
| pH at Temp 9.90C | H | 7.38 | 0.010 | 0.100 | SU | 1 | LYG1 | 05/22/13 | 0802 | 1303375 | 2 |
| Ion Chromatography | | | | | | | | | | | |
| EPA 300.0 Anions Liquid 28 day "As Received" | | | | | | | | | | | |
| Bromide | | 0.818 | 0.067 | 0.200 | mg/L | 1 | MAR1 | 06/09/13 | 1932 | 1303846 | 3 |
| Fluoride | | 0.174 | 0.033 | 0.100 | mg/L | 1 | | | | | |
| Chloride | | 124 | 1.34 | 4.00 | mg/L | 20 | MAR1 | 06/09/13 | 2002 | 1303846 | 4 |
| Sulfate | | 66.7 | 2.66 | 8.00 | mg/L | 20 | | | | | |
| Nutrient Analysis | | | | | | | | | | | |
| EPA 350.1 Nitrogen, Ammonia L "As Received" | | | | | | | | | | | |
| Nitrogen, Ammonia | | 0.127 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/24/13 | 1329 | 1302909 | 5 |
| EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received" | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | 2.09 | 0.085 | 0.250 | mg/L | 5 | KLP1 | 06/13/13 | 1403 | 1303599 | 6 |
| EPA 365.4 Phosphorus, Total in "As Received" | | | | | | | | | | | |
| Phosphorus, Total as P | | 0.775 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 06/05/13 | 1059 | 1305420 | 7 |
| Solids Analysis | | | | | | | | | | | |
| EPA 160.1 Solids, Dissolved-F "As Received" | | | | | | | | | | | |
| Total Dissolved Solids | | 357 | 3.40 | 14.3 | mg/L | | LYG1 | 05/22/13 | 0920 | 1303373 | 8 |
| Titration Analysis | | | | | | | | | | | |
| EPA 310.1 Total Alkalinity "As Received" | | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | 105 | 0.725 | 1.00 | mg/L | | LXA1 | 05/30/13 | 1738 | 1304792 | 9 |
| Carbonate alkalinity (CaCO3) | U | ND | 0.725 | 1.00 | mg/L | | | | | | |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 350.2 Prep | EPA 350.1 Ammonia Nitrogen Prep | KLP1 | 05/24/13 | 1230 | 1302908 |
| EPA 365.4 Prep | EPA 365.4 Phosphorus, Total in liquid PR | KLP1 | 06/04/13 | 1700 | 1305419 |

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## Certificate of Analysis

Report Date: June 17, 2013

| | | | |
|---|---|---|---|
| Company : | Los Alamos National Laboratory | | |
| Address : | PO Box 1663<br>TA-03, SM271, Drop Pt. 02U, Rm111<br>Los Alamos, New Mexico 87545 | | |
| Contact: | Keith Greene | Client SDG: | 2013-868 |
| Project: | LANL-WQH Water Samples | | |

| | | | |
|---|---|---|---|
| Client Sample ID: | CASA-13-30556 | Project: | ESHL00210 |
| Sample ID: | 326056004 | Client ID: | ARSL001 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | EPA 120.1 | |
| 2 | EPA 150.1 | |
| 3 | EPA 300.0 | |
| 4 | EPA 300.0 | |
| 5 | EPA 350.1 | |
| 6 | EPA 353.2 | |
| 7 | EPA 365.4 | |
| 8 | EPA 160.1 | |
| 9 | EPA 310.1 | |

**Notes:**

# Quality Control Summary

# GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

## QC Summary

**Report Date: June 17, 2013**


**Los Alamos National Laboratory**
**PO Box 1663**
**TA-03, SM271, Drop Pt. 02U, Rm111**
**Los Alamos, New Mexico**

**Contact:** **Keith Greene**

**Workorder:** **326056**

| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Carbon Analysis** | | | | | | | | | | | | |
| Batch 1304466 | | | | | | | | | | | | |
| QC1202882947 326056003 DUP | | | | | | | | | | | | |
| Total Organic Carbon Average | | | 1.54 | | 1.57 | mg/L | 2.12 | ^ | | (+/-1.00) | TSM | 05/31/13 19:40 |
| QC1202882949 LCS | | | | | | | | | | | | |
| Total Organic Carbon Average | 10.0 | | | | 10.0 | mg/L | | | 100 | (85%-115%) | | 05/31/13 18:24 |
| QC1202882946 MB | | | | | | | | | | | | |
| Total Organic Carbon Average | | | | U | ND | mg/L | | | | | | 05/31/13 18:15 |
| QC1202882948 326056003 PS | | | | | | | | | | | | |
| Total Organic Carbon Average | 10.0 | | 1.54 | | 11.0 | mg/L | | | 94.4 | (65%-120%) | | 05/31/13 20:00 |
| **Conductivity Analysis** | | | | | | | | | | | | |
| Batch 1305450 | | | | | | | | | | | | |
| QC1202885569 325847002 DUP | | | | | | | | | | | | |
| Conductivity | | | 192 | | 191 | umhos/cm | 0.575 | | | (0%-10%) | LXA1 | 06/03/13 16:03 |
| QC1202885571 LCS | | | | | | | | | | | | |
| Conductivity | 1410 | | | | 1450 | umhos/cm | | | 102 | (95%-105%) | | 06/03/13 15:57 |
| **Electrode Analysis** | | | | | | | | | | | | |
| Batch 1303375 | | | | | | | | | | | | |
| QC1202880073 326056002 DUP | | | | | | | | | | | | |
| pH | | H | 7.41 | H | 7.43 | SU | 0.270 | | | (0%-10%) | LYG1 | 05/22/13 08:00 |
| QC1202880074 326057001 DUP | | | | | | | | | | | | |
| pH | | H | 7.43 | H | 7.44 | SU | 0.134 | | | (0%-10%) | | 05/22/13 08:04 |
| QC1202880075 LCS | | | | | | | | | | | | |
| pH | 7.00 | | | | 7.00 | SU | | | 100 | (99%-101%) | | 05/22/13 07:50 |
| **Ion Chromatography** | | | | | | | | | | | | |
| Batch 1303846 | | | | | | | | | | | | |
| QC1202881257 325847002 DUP | | | | | | | | | | | | |
| Bromide | | J | 0.0687 | U | ND | mg/L | N/A | ^ | | | MAR1 | 06/09/13 15:03 |
| Chloride | | | 4.23 | | 4.18 | mg/L | 1.07 | | | (0%-20%) | | |
| Fluoride | | | 0.319 | | 0.306 | mg/L | 4.45 | ^ | | (+/-0.100) | | |
| Sulfate | | | 4.82 | | 4.95 | mg/L | 2.59 | | | (0%-20%) | | |

# GEL LABORATORIES LLC

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## QC Summary

**Workorder: 326056**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Ion Chromatography** | | | | | | | | | | | |
| Batch 1303846 | | | | | | | | | | | |
| QC1202881259 LCS | | | | | | | | | | | |
| Bromide | 1.25 | | | | 1.29 | mg/L | | 103 | (90%-110%) | MAR1 | 06/09/13 14:03 |
| Chloride | 5.00 | | | | 5.22 | mg/L | | 104 | (90%-110%) | | |
| Fluoride | 2.50 | | | | 2.66 | mg/L | | 106 | (90%-110%) | | |
| Sulfate | 10.0 | | | | 10.3 | mg/L | | 103 | (90%-110%) | | |
| QC1202881256 MB | | | | | | | | | | | |
| Bromide | | | | U | ND | mg/L | | | | | 06/09/13 13:33 |
| Chloride | | | | U | ND | mg/L | | | | | |
| Fluoride | | | | U | ND | mg/L | | | | | |
| Sulfate | | | | U | ND | mg/L | | | | | |
| QC1202881258 325847002 PS | | | | | | | | | | | |
| Bromide | 1.25 | J | 0.0687 | | 1.33 | mg/L | | 101 | (90%-110%) | | 06/09/13 15:33 |
| Chloride | 5.00 | | 4.23 | | 9.90 | mg/L | | 113* | (90%-110%) | | |
| Fluoride | 2.50 | | 0.319 | | 2.87 | mg/L | | 102 | (90%-110%) | | |
| Sulfate | 10.0 | | 4.82 | | 15.3 | mg/L | | 104 | (90%-110%) | | |
| **Nutrient Analysis** | | | | | | | | | | | |
| Batch 1302893 | | | | | | | | | | | |
| QC1202878783 325733001 DUP | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | | 0.183 | J | 0.081 | mg/L | 77.3*^ | | (+/-0.100) | KLP1 | 05/30/13 11:35 |
| QC1202878784 326427001 DUP | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | | 0.388 | | 0.373 | mg/L | 3.94 ^ | | (+/-0.100) | | 05/30/13 11:51 |
| QC1202878787 LCS | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | | | | 0.967 | mg/L | | 96.7 | (90%-110%) | | 05/30/13 11:33 |
| QC1202878782 MB | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | | | U | ND | mg/L | | | | | 05/30/13 11:32 |
| QC1202878785 325733001 MS | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | | 0.183 | | 1.17 | mg/L | | 98.7 | (90%-110%) | | 05/30/13 11:35 |

## QC Summary

**Workorder: 326056**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Nutrient Analysis** | | | | | | | | | | | |
| Batch 1302893 | | | | | | | | | | | |
| QC1202878786 326427001 MS | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | | 0.388 | | 1.54 | mg/L | | 115* | (90%-110%) | KLP1 | 05/30/13 11:52 |
| Batch 1302909 | | | | | | | | | | | |
| QC1202880634 326056002 DUP | | | | | | | | | | | |
| Nitrogen, Ammonia | | | 0.0994 | | 0.122 | mg/L | 20.4 ^ | | (+/-0.050) | KLP1 | 05/24/13 13:27 |
| QC1202878849 LCS | | | | | | | | | | | |
| Nitrogen, Ammonia | 1.00 | | | | 1.04 | mg/L | | 104 | (90%-110%) | | 05/24/13 13:10 |
| QC1202878848 MB | | | | | | | | | | | |
| Nitrogen, Ammonia | | | | U | ND | mg/L | | | | | 05/24/13 13:09 |
| QC1202880635 326056002 MS | | | | | | | | | | | |
| Nitrogen, Ammonia | 1.00 | | 0.0994 | | 1.07 | mg/L | | 97.1 | (90%-110%) | | 05/24/13 13:28 |
| Batch 1303599 | | | | | | | | | | | |
| QC1202880651 326056002 DUP | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | | 2.41 | | 2.39 | mg/L | 0.626 | | (0%-20%) | KLP1 | 06/13/13 14:01 |
| QC1202880658 LCS | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | 1.00 | | | | 0.956 | mg/L | | 95.6 | (90%-110%) | | 06/13/13 10:40 |
| QC1202880650 MB | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | | | U | ND | mg/L | | | | | 06/13/13 10:39 |
| QC1202880654 326056002 PS | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | 1.00 | | 0.481 | | 1.52 | mg/L | | 104 | (90%-110%) | | 06/13/13 14:02 |
| QC1202880657 326070001 PSD | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | 1.00 | | 0.766 | | 1.77 | mg/L | 2.23 | 100 | (0%-20%) | | 06/13/13 14:08 |
| Batch 1305420 | | | | | | | | | | | |
| QC1202885475 326056002 DUP | | | | | | | | | | | |
| Phosphorus, Total as P | | U | ND | U | ND | mg/L | N/A | | | KLP1 | 06/05/13 10:57 |
| QC1202885479 LCS | | | | | | | | | | | |
| Phosphorus, Total as P | 1.00 | | | | 0.919 | mg/L | | 91.9 | (76%-120%) | | 06/05/13 10:55 |
| QC1202885474 MB | | | | | | | | | | | |
| Phosphorus, Total as P | | | | U | ND | mg/L | | | | | 06/05/13 10:54 |
| QC1202885477 326056002 MS | | | | | | | | | | | |
| Phosphorus, Total as P | 1.00 | U | ND | | 0.975 | mg/L | | 96.3 | (62%-139%) | | 06/05/13 10:58 |
| **Solids Analysis** | | | | | | | | | | | |
| Batch 1303373 | | | | | | | | | | | |

## QC Summary

**Workorder: 326056**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Solids Analysis** | | | | | | | | | | | |
| Batch 1303373 | | | | | | | | | | | |
| QC1202880070 326056004 DUP | | | | | | | | | | | |
| Total Dissolved Solids | | | 357 | | 409 | mg/L | 13.4* | | (0%-10%) | LYG1 | 05/22/13 09:20 |
| QC1202880071 LCS | | | | | | | | | | | |
| Total Dissolved Solids | 300 | | | | 290 | mg/L | | 96.7 | (95%-105%) | | 05/22/13 09:20 |
| QC1202880068 MB | | | | | | | | | | | |
| Total Dissolved Solids | | | | U | ND | mg/L | | | | | 05/22/13 09:20 |
| **Titration Analysis** | | | | | | | | | | | |
| Batch 1304792 | | | | | | | | | | | |
| QC1202883815 326018002 DUP | | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | | 104 | | 104 | mg/L | 0.489 | | (0%-20%) | LXA1 | 05/30/13 17:28 |
| Carbonate alkalinity (CaCO3) | | U | ND | U | ND | mg/L | N/A | | | | |
| QC1202883809 LCS | | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | 50.0 | | | | 50.8 | mg/L | | 102 | (90%-110%) | | 05/30/13 11:10 |
| QC1202883816 326018002 MS | | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | 50.0 | | 104 | | 155 | mg/L | | 103 | (80%-120%) | | 05/30/13 17:29 |

**Notes:**

| | |
|---|---|
| ** | Analyte is a surrogate compound |
| < | Result is less than value reported |
| > | Result is greater than value reported |
| A | The TIC is a suspected aldol-condensation product |
| B | The target analyte was detected in the associated blank. |
| C | Analyte has been confirmed by GC/MS analysis |
| D | Results are reported from a diluted aliquot of the sample |
| E | %difference of sample and SD is >10%. Sample concentration must meet flagging criteria |
| E | Concentration of the target analyte exceeds the instrument calibration range |
| E | General Chemistry--Concentration of the target analyte exceeds the instrument calibration range |
| FB | Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies |
| H | Analytical holding time was exceeded |
| J | Value is estimated |
| JNX | Non Calibrated Compound |
| N | Metals--The Matrix spike sample recovery is not within specified control limits |
| N | Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |

## QC Summary

**Workorder:** **326056**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|

| | |
|---|---|
| N | Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N/A | RPD or %Recovery limits do not apply. |
| N1 | See case narrative |
| ND | Analyte concentration is not detected above the detection limit |
| NJ | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| P | Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70% |
| Q | One or more quality control criteria have not been met. Refer to the applicable narrative or DER. |
| R | Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes. |
| R | Sample results are rejected |
| U | Analyte was analyzed for, but not detected above the MDL, MDA, or LOD. |
| UJ | Compound cannot be extracted |
| X | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| Y | Other specific qualifiers were required to properly define the results. Consult case narrative. |
| Y | QC Samples were not spiked with this compound |
| Z | Paint Filter Test--Particulates passed through the filter, however no free liquids were observed. |
| ^ | RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry. |
| d | 5-day BOD--The 2:1 depletion requirement was not met for this sample |
| h | Preparation or preservation holding time was exceeded |

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

# Miscellaneous

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 29-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| BALANCE | EPA 160.1 | Liquid | ESHL, SUBR, UCOR |
| **Batch ID:** | **Sample Numbers:** | | |
| 1303373 | See below. | | |

**Potentially affected work order(s)(SDG): 325936,325982,326018(2013-865),326020(2013-866),326024,326056(2013-868)**

**Application Issues:**

Failed RPD for DUP

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed RPD for DUP:<br><br>QC 1202880070DUP<br><br>2. Consecutive weight check criteria not met:<br><br>325936009, 325982004, 325982005, 325982006, 325982010,<br><br>QC 1202880069, and QC 1202880070DUP | 1. The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample.<br><br>2. In order to meet consecutive weight check criteria, weight events must be within 0.0005g of each other. After initial weight checks failed this criteria, the analyst performed two additional weight events for Total Dissolved Solids. After four weight events, the analyst was unable to get the samples to conform to the criteria. The failure to meet weighback criteria is attributed to the matrix of the samples. |

**Originator's Name:**

Lisa Gregory 29-MAY-13

**Data Validator/Group Leader:**

Julia Hamilton 31-MAY-13

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 30-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| ELECTRODE | EPA 150.1 | Drinking Water | BNKS, ESHL, INPA, NEVA |
| **Batch ID:** | **Sample Numbers:** | | |
| 1303375 | See below. | | |

**Potentially affected work order(s)(SDG): 325892(V3857),326052,326056(2013-868),326057(2013-869),326058**

**Application Issues:**

Sample received out of holding

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Sample received out of holding:<br>325892 001,002,003<br>326052 002<br>326056 002,004<br>326057 001<br>326058 001,002,003,004,005,006,007,008 | 1. Samples were received out of holding. |

**Originator's Name:**

Lisa Gregory 30-MAY-13

**Data Validator/Group Leader:**

Julia Hamilton 31-MAY-13

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 30-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| LACHAT Flow Injection Analyzer | EPA 351.2 | Liquid | BETT, ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1302893 | See below. | | |

**Potentially affected work order(s)(SDG):** **325733(2013-838),325736(2013-840),325739(2013-841),325752,325847(2013-847),325922(2013-855),325923(2013-856),326018(2013-865),326056(2013-868),326427(2013-887)**

**Application Issues:**

Failed Recovery for MS/PS

Failed RPD for DUP

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed Recovery for MS:<br>QC 1202878786MS<br>2. Failed RPD for DUP:<br>QC 1202878783DUP | 1. The spike recovery falls outside of the GEL acceptance limits but within the client specified limits.<br>2. The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample. |

**Originator's Name:**

Kristen Parson 30-MAY-13

**Data Validator/Group Leader:**

Julia Hamilton 30-MAY-13

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 11-JUN-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| IC | EPA 300.0 | Liquid | ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1303846 | See Below | | |

**Potentially affected work order(s)(SDG):** **325847(2013-847),325922(2013-855),325923(2013-856),326018(2013-865),326020(2013-866),326056(2013-868),326057(2013-869),326213(2013-873),326214(2013-874),326426(2013-886)**

**Application Issues:**

Failed Recovery for MS/PS

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed Recovery for MS/PS:<br><br>QC 1202881258PS | 1. The MS/PS mixture contains seven anions of interest. Of those, all requested anions except chloride met normal acceptance criteria for recovery (90 - 110%). This failure is attributed to the matrix of the sample because the successful recovery of the other compounds indicate that the laboratory process was in control. This variance is judged to have no negative impact on the data. The deviation is noted in the Case Narrative and DER, and the data has been reported. |

**Originator's Name:**
Mary Sherwood 11-JUN-13

**Data Validator/Group Leader:**
Virginia Wininger 11-JUN-13

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

# Chain of Custody/Analysis Request

COC/Lab Request #: 2013-866



**Client Contact:**

**Lab Agreement # :** 126310011

**Project Number :**

**Analysis Turnaround Time:**

- 24 Hour - ☐ Other - ☐
- 7 Day - ☐
- 14 Day - ☐
- 21 Day - ☐
- 28 Day - ☒

**Site Name:** Los Alamos National Laboratory

**Rad Screening Info:**

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | WSP-8260B-VOA | WSP-8270C-SVOA | WSP-CL04 | WSP-GENINORG | WSP-GrossA/B | WSP-Met+B+SN+SR+U | WSP-NH3+NO3/NO2+PO4 | WSP-RAD | WSP-TKN+TOC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAMO-13-30584 | May 17 2013 | 12:52 | W | 2 | 3 | | | 1 | | | 1 | 1 |
| CAMO-13-30600 | May 17 2013 | 12:52 | W | | | 1 | 1 | | 1 | 1 | | |
| CAMO-13-30568 | May 17 2013 | 12:52 | W | 2 | | | | | | | | |

**Special Instructions:**

**Special Instructions:**

| Relinquished by: | | Date/Time: | Received by: | |
|---|---|---|---|---|
| Sherri Sherwood | S. Sherwood | 5/17/13 3pm | | |
| Relinquished by: | | Date/Time: | Received by: | |
| Relinquished by: | | Date/Time: | Received by: | |

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30568

**WORK ORDER:**

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | 05/16/2013 | FIELD MATRIX: | WG | OK |
| TIME COLLECTED (HH:MM): | | 1252 | MEDIA: | UA | ↓ |
| PRS ID: | | OK | SAMPLE TECH CODE: | UA | DC |
| LOCATION ID: | R-61 S1 | ↓ | FIELD PREP: | UF | OK |
| LOCATION TYPE: | | ↓ | FIELD QC TYPE: | FTB | ↓ |
| PORT: | P1A | ↓ | SAMPLE USAGE: | QC | ↓ |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-8260B-VOA | 40 ML SEPTUM AMBER GLASS | 2 / 1 | HCL DF 5/16/13 | Y | NA |

**SAMPLE COMMENTS:** NA

**LOCATION COMMENTS:** NA

**FIELD PARAMETERS:**

Dissolved Oxygen NA mg/L  Oxidation-Reduction Potential NA MV  pH NA SU

Specific Conductance NA uS/cm  Temperature NA deg C  Turbidity NA NTU

**COLLECTED BY (PRINT)** A. Stocker

| | | | |
|---|---|---|---|
| **RELINQUISHED BY** (Printed Name) David Fellenz (Signature) | **Date/Time** 5/16/13 1355 | **RECEIVED BY** (Printed Name) (Signature) | **Date/Time** 5/16/13 1355 |
| **RELINQUISHED BY** (Printed Name) (Signature) | **Date/Time** | **RECEIVED BY** (Printed Name) (Signature) | **Date/Time** |

Report Date 04/30/2013

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30584

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | 05/16/2013 | FIELD MATRIX: | WG | OK |
| TIME COLLECTED (HH:MM): | | 1252 | MEDIA: | UA | ↓ |
| PRS ID: | | OK | SAMPLE TECH CODE: | UA | GSP |
| LOCATION ID: | R-61 S1 | ↓ | FIELD PREP: | UF | OK |
| LOCATION TYPE: | MON | ↓ | FIELD QC TYPE: | REG | ↓ |
| PORT: | P1A | | SAMPLE USAGE: | INV | ↓ |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-8260B-VOA | 40 ML SEPTUM AMBER GLASS | 2 | HCL | Y | NA |
| ↓ | WSP-8270C-SVOA | 1 LITER AMBER GLASS | 3 | ICE | ↓ | ↓ |
| ↓ | WSP-GrossA/B | 1 LITER POLY | 1 | NONE | ↓ | ↓ |
| ↓ | WSP-LL-H-3 | 1 LITER POLY | 1 | NONE | ↓ | ↓ |
| ↓ | WSP-RAD | 1 GAL POLY | 1 | HNO3 | ↓ | ↓ |
| ↓ | WSP-TKN+TOC | 500 ML AMBER GLASS | 1 | H2SO4 | ↓ | ↓ |

**SAMPLE COMMENTS:** Sampled within 50' of running diesel generator

**LOCATION COMMENTS:** NA

**FIELD PARAMETERS:**

Dissolved Oxygen 5.97 mg/L  Oxidation-Reduction Potential 251.4 MV  pH 6.71 SU

Specific Conductance 155 uS/cm  Temperature 20.89 deg C  Turbidity 3.0 NTU

**COLLECTED BY (PRINT)** A. Stocker

| RELINQUISHED BY | Date/Time | RECEIVED BY | Date/Time |
|---|---|---|---|
| (Printed Name) David Fellenz<br>(Signature) | 5/16/13 1355 | (Printed Name) A. Montoya<br>(Signature) | 5/16/13 1355 |
| RELINQUISHED BY<br>(Printed Name)<br>(Signature) | Date/Time | RECEIVED BY<br>(Printed Name)<br>(Signature) | Date/Time |

Report Date 04/30/2013

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30600

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| **DATE COLLECTED (MM/DD/YYYY):** | | 05/16/2013 | **FIELD MATRIX:** WG | | OK |
| **TIME COLLECTED (HH:MM):** | | 1252 | **MEDIA:** UA | | ↓ |
| **PRS ID:** | | OK | **SAMPLE TECH CODE:** UA | | GSP |
| **LOCATION ID:** R-61 S1 | | ↓ | **FIELD PREP:** F | | OK |
| **LOCATION TYPE:** MON | | ↓ | **FIELD QC TYPE:** REG | | ↓ |
| **PORT:** P1A | | ↓ | **SAMPLE USAGE:** INV | | ↓ |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-CL04 | 250 ML POLY | 1 | ICE | Y | NA |
| ↓ | WSP-GENINORG | 1 LITER POLY | 1 | ICE | ↓ | ↓ |
| ↓ | WSP-Met+B+SN+SR+U | 1 LITER POLY | 1 | HNO3 | ↓ | ↓ |
| ↓ | WSP-NH3+NO3/NO2+PO4 | 500 ML AMBER GLASS | 1 | H2SO4 | ↓ | ↓ |

**SAMPLE COMMENTS:** NA

**LOCATION COMMENTS:** NA

**FIELD PARAMETERS:**

Dissolved Oxygen NA mg/L  Oxidation-Reduction Potential NA MV  pH NA SU

Specific Conductance NA uS/cm  Temperature NA deg C  Turbidity NA NTU

**COLLECTED BY (PRINT)** A. Stocker

| | | | |
|---|---|---|---|
| **RELINQUISHED BY** (Printed Name) David Fellenz (Signature) | **Date/Time** 5/16/13 1355 | **RECEIVED BY** (Printed Name) M. Montoya (Signature) | **Date/Time** 5/16/13 1355 |
| **RELINQUISHED BY** (Printed Name) (Signature) | **Date/Time** | **RECEIVED BY** (Printed Name) (Signature) | **Date/Time** |

Report Date 04/30/2013

Data Validation Report

Chain Of Custody No. 2013-866

**1. Distribution Of Samples In EDD.**

| SDG | Analytical Method | Regular Samples | Field Duplicates | Trip Blanks | Field Blanks | Equipment Blanks |
|---|---|---|---|---|---|---|
| 326020 | EPA:120.1 | 1 | | | | |
| 326020 | EPA:150.1 | 1 | | | | |
| 326020 | EPA:160.1 | 1 | | | | |
| 326020 | EPA:245.2 | 1 | | | | |
| 326020 | EPA:300.0 | 1 | | | | |
| 326020 | EPA:310.1 | 1 | | | | |
| 326020 | EPA:350.1 | 1 | | | | |
| 326020 | EPA:351.2 | 1 | | | | |
| 326020 | EPA:353.2 | 1 | | | | |
| 326020 | EPA:365.4 | 1 | | | | |
| 326020 | EPA:900 | 1 | | | | |
| 326020 | EPA:901.1 | 1 | | | | |
| 326020 | EPA:905.0 | 1 | | | | |
| 326020 | HASL-300:AM-241 | 1 | | | | |
| 326020 | HASL-300:ISOPU | 1 | | | | |
| 326020 | HASL-300:ISOU | 1 | | | | |
| 326020 | SM:A2340B | 1 | | | | |
| 326020 | SW-846:6010B | 1 | | | | |
| 326020 | SW-846:6020 | 1 | | | | |
| 326020 | SW-846:6850 | 1 | | | | |
| 326020 | SW-846:8260B | 1 | | 1 | | |
| 326020 | SW-846:8270C | 1 | | | | |
| 326020 | SW-846:9060 | 1 | | | | |

| SDG | Analytical Method | Analysis Lot ID | Prep Lot ID | Regular Samples | Field Duplicates | Trip Blanks | Field Blanks | Equipment Blanks | Method Blanks | Matrix Spikes | Matrix Spike Dups |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 326020 | EPA:120.1 | 1305450 | 1305450 | 1 | | | | | | | |
| 326020 | EPA:150.1 | 1302797 | 1302797 | 1 | | | | | | | |
| 326020 | EPA:160.1 | 1303373 | 1303373 | 1 | | | | | 1 | | |
| 326020 | EPA:245.2 | 1303940 | 1303939 | 1 | | | | | 1 | 1 | |
| 326020 | EPA:300.0 | 1303846 | 1303846 | 1 | | | | | 1 | | |
| 326020 | EPA:310.1 | 1304792 | 1304792 | 1 | | | | | 2 | 1 | |
| 326020 | EPA:350.1 | 1302881 | 1302880 | 1 | | | | | 1 | 1 | |
| 326020 | EPA:351.2 | 1303595 | 1303594 | 1 | | | | | 1 | 1 | |
| 326020 | EPA:353.2 | 1302905 | 1302905 | 1 | | | | | 1 | | |
| 326020 | EPA:365.4 | 1304213 | 1304212 | 1 | | | | | 1 | 1 | |
| 326020 | EPA:900 | 1304583 | 1304583 | 1 | | | | | 1 | 1 | 1 |
| 326020 | EPA:901.1 | 1302818 | 1302818 | 1 | | | | | 1 | | |
| 326020 | EPA:905.0 | 1303190 | 1303190 | 1 | | | | | 1 | 1 | |
| 326020 | HASL-300:AM-241 | 1302968 | 1302968 | 1 | | | | | 1 | | |
| 326020 | HASL-300:ISOPU | 1302970 | 1302970 | 1 | | | | | 1 | | |
| 326020 | HASL-300:ISOU | 1302971 | 1302971 | 1 | | | | | 1 | | |
| 326020 | SM:A2340B | 1306982 | 1306982 | 1 | | | | | | | |
| 326020 | SW-846:6010B | 1304837 | 1304836 | 1 | | | | | 1 | 1 | |
| 326020 | SW-846:6020 | 1304840 | 1304838 | 1 | | | | | 1 | 1 | |
| 326020 | SW-846:6850 | 1302799 | 1302798 | 1 | | | | | 1 | 2 | 2 |
| 326020 | SW-846:8260B | 1305188 | 1305188 | 1 | | 1 | | | 1 | | |

Data Validation Report for:

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| Analytical Spikes | Post-Digestion Spikes | Lab Control Samples | Lab Control Sample Dups | B'ank Spikes | Blank Spike Dups | Lab Duplicates | Storage Blanks | Preparation Blanks | Reagent Blanks |
|---|---|---|---|---|---|---|---|---|---|
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 2 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | | | | | | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | | | | |
| | | 2 | | | | | | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 326020 | SW-846:8270C | 1303788 | 1303786 | 1 | | | | | 1 | 1 | 1 |
| 326020 | SW-846:9060 | 1302796 | 1302796 | 1 | | | | | 1 | | |

**2. Distribution Of Analytes In EDD.**

| Analytical Method | Method Category | Field Sample ID | Lab Sample ID | Sample Purpose | Target Analytes | Surrogates | Spikes | TICS |
|---|---|---|---|---|---|---|---|---|
| EPA:120.1 | GENERAL CHEMISTRY | CAMO-13-30600 | 326020002 | REG | 1 | 0 | 0 | 0 |
| EPA:120.1 | GENERAL CHEMISTRY | CASA-13-30555 | 1202885569 | DUP | 1 | 0 | 0 | 0 |
| EPA:120.1 | GENERAL CHEMISTRY | LCS | 1202885571 | LCS | 0 | 0 | 1 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | CAMO-13-30600 | 326020002 | REG | 1 | 0 | 0 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | CASA-13-30550 | 1202878491 | DUP | 1 | 0 | 0 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | LCS | 1202878493 | LCS | 0 | 0 | 1 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | CAMO-13-30600 | 326020002 | REG | 1 | 0 | 0 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | CASA-13-30556 | 1202880070 | DUP | 1 | 0 | 0 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | LCS | 1202880071 | LCS | 0 | 0 | 1 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | MB | 1202880068 | MB | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30600 | 326020002 | REG | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CASA-13-30551 | 1202881481 | DUP | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CASA-13-30551 | 1202881485 | MS | 0 | 0 | 1 | 0 |
| EPA:245.2 | INORGANIC | LCS | 1202881487 | LCS | 0 | 0 | 1 | 0 |
| EPA:245.2 | INORGANIC | MB | 1202881480 | MB | 1 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | CAMO-13-30600 | 326020002 | REG | 4 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | CASA-13-30555 | 1202881257 | DUP | 4 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | LCS | 1202881259 | LCS | 0 | 0 | 4 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | MB | 1202881256 | MB | 4 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CAMO-13-30600 | 326020002 | REG | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CASA-13-30551 | 1202883815 | DUP | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CASA-13-30551 | 1202883816 | MS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | LCS | 1202883809 | LCS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | LCS | 1202884506 | LCS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | MB | 1202883808 | MB | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | MB | 1202884505 | MB | 2 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30600 | 326020002 | REG | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CASA-13-30555 | 1202878737 | DUP | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CASA-13-30555 | 1202878739 | MS | 0 | 0 | 1 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | LCS | 1202878741 | LCS | 0 | 0 | 1 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | MB | 1202878736 | MB | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30584 | 1202882338 | DUP | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30584 | 1202882339 | MS | 0 | 0 | 1 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30584 | 326020001 | REG | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | LCS | 1202880631 | LCS | 0 | 0 | 1 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | MB | 1202880630 | MB | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CAMO-13-30600 | 326020002 | REG | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CAMO-13-30618 | 1202878827 | DUP | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | LCS | 1202878832 | LCS | 0 | 0 | 1 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | MB | 1202878825 | MB | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CAMO-13-30600 | 1202882351 | DUP | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CAMO-13-30600 | 1202882353 | MS | 0 | 0 | 1 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CAMO-13-30600 | 326020002 | REG | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | LCS | 1202882355 | LCS | 0 | 0 | 1 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | MB | 1202882350 | MB | 1 | 0 | 0 | 0 |
| EPA:900 | RAD | CAMO-13-30584 | 326020001 | REG | 2 | 0 | 0 | 0 |
| EPA:900 | RAD | CAMO-13-30585 | 1202883283 | DUP | 2 | 0 | 0 | 0 |
| EPA:900 | RAD | CAMO-13-30585 | 1202883284 | MS | 0 | 0 | 2 | 0 |
| EPA:900 | RAD | CAMO-13-30585 | 1202883285 | MSD | 0 | 0 | 2 | 0 |
| EPA:900 | RAD | LCS | 1202883286 | LCS | 0 | 0 | 2 | 0 |
| EPA:900 | RAD | MB | 1202883282 | MB | 2 | 0 | 0 | 0 |

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 1 | | | | | | | |
| | | 1 | | | | 1 | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| EPA:901.1 | RAD | CAMO-13-30584 | 1202878534 | DUP | 5 | 0 | 0 | 0 |
| EPA:901.1 | RAD | CAMO-13-30584 | 326020001 | REG | 5 | 0 | 0 | 0 |
| EPA:901.1 | RAD | LCS | 1202878535 | LCS | 0 | 0 | 3 | 0 |
| EPA:901.1 | RAD | MB | 1202878533 | MB | 5 | 0 | 0 | 0 |
| EPA:905.0 | RAD | CAMO-13-30584 | 1202879646 | DUP | 1 | 0 | 0 | 0 |
| EPA:905.0 | RAD | CAMO-13-30584 | 1202879647 | MS | 0 | 0 | 1 | 0 |
| EPA:905.0 | RAD | CAMO-13-30584 | 326020001 | REG | 1 | 0 | 0 | 0 |
| EPA:905.0 | RAD | LCS | 1202879648 | LCS | 0 | 0 | 1 | 0 |
| EPA:905.0 | RAD | MB | 1202879645 | MB | 1 | 0 | 0 | 0 |
| HASL-300:AM-241 | RAD | CAMO-13-30584 | 1202879051 | DUP | 1 | 0 | 0 | 0 |
| HASL-300:AM-241 | RAD | CAMO-13-30584 | 326020001 | REG | 1 | 0 | 0 | 0 |
| HASL-300:AM-241 | RAD | LCS | 1202879052 | LCS | 0 | 0 | 1 | 0 |
| HASL-300:AM-241 | RAD | MB | 1202879050 | MB | 1 | 0 | 0 | 0 |
| HASL-300:ISOPU | RAD | CAMO-13-30584 | 1202879054 | DUP | 2 | 0 | 0 | 0 |
| HASL-300:ISOPU | RAD | CAMO-13-30584 | 326020001 | REG | 2 | 0 | 0 | 0 |
| HASL-300:ISOPU | RAD | LCS | 1202879055 | LCS | 0 | 0 | 1 | 0 |
| HASL-300:ISOPU | RAD | MB | 1202879053 | MB | 2 | 0 | 0 | 0 |
| HASL-300:ISOU | RAD | CAMO-13-30584 | 1202879061 | DUP | 3 | 0 | 0 | 0 |
| HASL-300:ISOU | RAD | CAMO-13-30584 | 326020001 | REG | 3 | 0 | 0 | 0 |
| HASL-300:ISOU | RAD | LCS | 1202879062 | LCS | 0 | 0 | 1 | 0 |
| HASL-300:ISOU | RAD | MB | 1202879060 | MB | 3 | 0 | 0 | 0 |
| SM:A2340B | INORGANIC | CAMO-13-30600 | 326020002 | REG | 1 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30594 | 1202883951 | DUP | 17 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30594 | 1202883952 | MS | 0 | 0 | 17 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30600 | 326020002 | REG | 17 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | LCS | 1202883950 | LCS | 0 | 0 | 17 | 0 |
| SW-846:6010B | INORGANIC | MB | 1202883949 | MB | 17 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30594 | 1202883956 | DUP | 11 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30594 | 1202883957 | MS | 0 | 0 | 11 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30600 | 326020002 | REG | 11 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | LCS | 1202883955 | LCS | 0 | 0 | 11 | 0 |
| SW-846:6020 | INORGANIC | MB | 1202883954 | MB | 11 | 0 | 0 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | CAMO-13-30600 | 1202878496 | MS | 0 | 0 | 1 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | CAMO-13-30600 | 1202878497 | MSD | 0 | 0 | 1 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | CAMO-13-30600 | 326020002 | REG | 1 | 0 | 0 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | LCS | 1202878495 | LCS | 0 | 0 | 1 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | MB | 1202878494 | MB | 1 | 0 | 0 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | SWWS46-13-33504 | 1202882336 | MS | 0 | 0 | 1 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | SWWS46-13-33504 | 1202882337 | MSD | 0 | 0 | 1 | 0 |
| SW-846:8260B | VOC | CAMO-13-30568 | 326020003 | FTB | 80 | 3 | 0 | 0 |
| SW-846:8260B | VOC | CAMO-13-30584 | 326020001 | REG | 80 | 3 | 0 | 0 |
| SW-846:8260B | VOC | LCS | 1202884926 | LCS | 0 | 3 | 70 | 0 |
| SW-846:8260B | VOC | LCS | 1202884927 | LCS | 0 | 3 | 10 | 0 |
| SW-846:8260B | VOC | MB | 1202884921 | MB | 80 | 3 | 0 | 0 |
| SW-846:8270C | SVOC | CAMO-13-30584 | 326020001 | REG | 80 | 6 | 0 | 0 |
| SW-846:8270C | SVOC | CAMO-13-30615 | 1202881121 | MS | 0 | 6 | 76 | 0 |
| SW-846:8270C | SVOC | CAMO-13-30615 | 1202881122 | MSD | 0 | 6 | 76 | 0 |
| SW-846:8270C | SVOC | LCS | 1202881120 | LCS | 0 | 6 | 76 | 0 |
| SW-846:8270C | SVOC | MB | 1202881119 | MB | 80 | 6 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | CAMO-13-30584 | 326020001 | REG | 1 | 0 | 0 | 0 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| SW-846:9060 | GENERAL CHEMISTRY | CASA-13-30547 | 1202878486 | DUP | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | LCS | 1202878490 | LCS | 0 | 0 | 1 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | MB | 1202878485 | MB | 1 | 0 | 0 | 0 |

**3. Are any analytes missing?**

No.

**4. Were any holding times exceeded?**

No.

**5. Any contaminants in blanks?**

| Field Sample ID | Lab Sample ID | Type Of Blank | Analytical Method | Sample Matrix | Parameter Name | Lab Result | Lab Qualifier | Units | Lab Detection Limit |
|---|---|---|---|---|---|---|---|---|---|
| MB | 1202878736 | METHOD BLANK | EPA:350.1 | W | Ammonia as Nitrogen | 0.0344 | J | mg/L | 0.05 |
| MB | 1202881480 | METHOD BLANK | EPA:245.2 | W | Mercury | -0.076 | J | ug/L | 0.2 |

**Any samples affected by the presence of contaminants in blanks?**

| Field Sample ID | Blank Field Sample ID | Blank Lab Sample ID | Blank Type | Analytical Method | Parameter Name | Units | Blank Result | Sample Result | Lab Qualifier | Detect Limit | Detected |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAMO-13-30600 | MB | 1202881480 | METHOD BLANK | EPA:245.2 | Mercury | ug/L | -0.076 | 0.2 | U | 0.2 | N |
| CAMO-13-30600 | MB | 1202878736 | METHOD BLANK | EPA:350.1 | Ammonia as Nitrogen | mg/L | 0.0344 | 0.0786 | | 0.05 | Y |

**6. Any surrogate recoveries outside the control limits?**

No.

**7. Any MS/MSD recoveries or RPDs outside the control limits?**

No.

**8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?**

No.

**9. Any Field Duplicate RPDs outside the desired limits?**

No.

**10. Any Lab Duplicate RPDs outside the desired limits?**

| Field Sample ID | Lab SampleID | Lab Duplicate Sample ID | Analytical Method | Parameter Name | Sample Matrix | Sample Result | Dup Sample Result | Units | Detected In Sample | Detected In Dup | RPD |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAMO-13-30584 | 326020001 | 1202879061 | HASL-300:ISOU | Uranium-234 | W | 0.113 | 0.166 | pCi/L | Y | Y | 38.3 |
| CAMO-13-30584 | 326020001 | 1202879061 | HASL-300:ISOU | Uranium-238 | W | 0.0796 | 0.0654 | pCi/L | Y | Y | 19.7 |

**11. Any required reporting limits exceeded?**

No.

**12. Additional Validator's Coments.**

| Correction Factor (ND) | Correction Factor (J) | Use Factors |
|---|---|---|
| 5 | | Y |
| 5 | | Y |

RPD
Limit

0.0625
0.0377

None.

**13. Display Flagged Data.**

| Location ID | Chain Of Custody No | Field Sample ID | Sample Purpose | Analysis Type Code | Analytical Suite | Analytical Method | Parameter Name | Lab Qualifier | Validation Qualifier | Validation Reason Codes | Detected |
|---|---|---|---|---|---|---|---|---|---|---|---|
| R-61 S1 | 2013-866 | CAMO-13-30584 | REG | INIT | RAD | HASL-300:AM-241 | Americium-241 | U | U | R5 | N |
| R-61 S1 | 2013-866 | CAMO-13-30584 | REG | INIT | RAD | EPA:901.1 | Cesium-137 | U | U | R5 | N |
| R-61 S1 | 2013-866 | CAMO-13-30584 | REG | INIT | RAD | EPA:901.1 | Cobalt-60 | U | U | R5 | N |
| R-61 S1 | 2013-866 | CAMO-13-30584 | REG | INIT | RAD | EPA:901.1 | Neptunium-237 | U | U | R5 | N |
| R-61 S1 | 2013-866 | CAMO-13-30584 | REG | INIT | RAD | HASL-300:ISOPU | Plutonium-238 | U | U | R5 | N |
| R-61 S1 | 2013-866 | CAMO-13-30584 | REG | INIT | RAD | HASL-300:ISOPU | Plutonium-239/240 | U | U | R5 | N |
| R-61 S1 | 2013-866 | CAMO-13-30584 | REG | INIT | RAD | EPA:901.1 | Potassium-40 | U | U | R5 | N |
| R-61 S1 | 2013-866 | CAMO-13-30584 | REG | INIT | RAD | EPA:901.1 | Sodium-22 | U | U | R5 | N |
| R-61 S1 | 2013-866 | CAMO-13-30584 | REG | INIT | RAD | EPA:905.0 | Strontium-90 | U | U | R5 | N |
| R-61 S1 | 2013-866 | CAMO-13-30584 | REG | INIT | RAD | HASL-300:ISOU | Uranium-234 | | J | R10 | Y |
| R-61 S1 | 2013-866 | CAMO-13-30584 | REG | INIT | RAD | HASL-300:ISOU | Uranium-235/236 | U | U | R5 | N |
| R-61 S1 | 2013-866 | CAMO-13-30584 | REG | INIT | RAD | HASL-300:ISOU | Uranium-238 | | J | R10 | Y |
| R-61 S1 | 2013-866 | CAMO-13-30600 | REG | INIT | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | | U | I4 | N |

| Reason Code | Description |
|---|---|
| I4 | the sample result is =<5x the concentration of related analyte in the method blank. |
| J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL |
| NQ | The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample. |
| R10 | Associated duplicate sample has DER or RER> the analytical laboratory's acceptance limits. |
| R5 | Analyte is not detected because the amount reported is less than the MDC. |
| U_LAB | The analytical laboratory qualified the analyte as not detected. |

**14. Useable Result Count.**

| Field Sample ID | Location ID | Sample Purpose | Analytical Method | No. Unuseable Records | Total No. Of Records |
|---|---|---|---|---|---|
| CAMO-13-30568 | R-61 S1 | FTB | SW-846:8260B | 0 | 80 |
| CAMO-13-30584 | R-61 S1 | REG | EPA:351.2 | 0 | 1 |
| CAMO-13-30584 | R-61 S1 | REG | EPA:900 | 0 | 2 |
| CAMO-13-30584 | R-61 S1 | REG | EPA:901.1 | 0 | 5 |
| CAMO-13-30584 | R-61 S1 | REG | EPA:905.0 | 0 | 1 |
| CAMO-13-30584 | R-61 S1 | REG | HASL-300:AM-241 | 0 | 1 |
| CAMO-13-30584 | R-61 S1 | REG | HASL-300:ISOPU | 0 | 2 |
| CAMO-13-30584 | R-61 S1 | REG | HASL-300:ISOU | 0 | 3 |
| CAMO-13-30584 | R-61 S1 | REG | SW-846:8260B | 0 | 80 |
| CAMO-13-30584 | R-61 S1 | REG | SW-846:8270C | 0 | 80 |
| CAMO-13-30584 | R-61 S1 | REG | SW-846:9060 | 0 | 1 |
| CAMO-13-30600 | R-61 S1 | REG | EPA:120.1 | 0 | 1 |
| CAMO-13-30600 | R-61 S1 | REG | EPA:150.1 | 0 | 1 |
| CAMO-13-30600 | R-61 S1 | REG | EPA:160.1 | 0 | 1 |
| CAMO-13-30600 | R-61 S1 | REG | EPA:245.2 | 0 | 1 |
| CAMO-13-30600 | R-61 S1 | REG | EPA:300.0 | 0 | 4 |
| CAMO-13-30600 | R-61 S1 | REG | EPA:310.1 | 0 | 2 |
| CAMO-13-30600 | R-61 S1 | REG | EPA:350.1 | 0 | 1 |
| CAMO-13-30600 | R-61 S1 | REG | EPA:353.2 | 0 | 1 |
| CAMO-13-30600 | R-61 S1 | REG | EPA:365.4 | 0 | 1 |

Data Validation Report for:

Chain Of Custody No. 2013-866

| Lab Result | Lab Units | Report Result | Report Units | Report MDA | Report Uncertainty | Lab Matrix | Sample Date | Percent Moisture | Analysis Lot ID | Validation Status Code | Use Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0023 | pCi/L | 0.0023 | pCi/L | 0.0445 | 0.00513 | W | 5/17/2013 | | 1302968 | VAL | Y |
| -2.71 | pCi/L | -2.71 | pCi/L | 5.53 | 2.04 | W | 5/17/2013 | | 1302818 | VAL | Y |
| 0.898 | pCi/L | 0.898 | pCi/L | 6.03 | 1.52 | W | 5/17/2013 | | 1302818 | VAL | Y |
| -1.95 | pCi/L | -1.95 | pCi/L | 11.8 | 3.36 | W | 5/17/2013 | | 1302818 | VAL | Y |
| 0.0189 | pCi/L | 0.0189 | pCi/L | 0.0281 | 0.00655 | W | 5/17/2013 | | 1302970 | VAL | Y |
| 0.0284 | pCi/L | 0.0284 | pCi/L | 0.0339 | 0.00779 | W | 5/17/2013 | | 1302970 | VAL | Y |
| 31.2 | pCi/L | 31.2 | pCi/L | 63.3 | 29.3 | W | 5/17/2013 | | 1302818 | VAL | Y |
| -1.32 | pCi/L | -1.32 | pCi/L | 5.92 | 1.7 | W | 5/17/2013 | | 1302818 | VAL | Y |
| 0.379 | pCi/L | 0.379 | pCi/L | 0.486 | 0.15 | W | 5/17/2013 | | 1303190 | VAL | Y |
| 0.113 | pCi/L | 0.113 | pCi/L | 0.0761 | 0.0215 | W | 5/17/2013 | | 1302971 | VAL | Y |
| 0.0041 | pCi/L | 0.0041 | pCi/L | 0.0353 | 0.0109 | W | 5/17/2013 | | 1302971 | VAL | Y |
| 0.0796 | pCi/L | 0.0796 | pCi/L | 0.046 | 0.0176 | W | 5/17/2013 | | 1302971 | VAL | Y |
| 0.0786 | mg/L | 0.0786 | mg/L | | | W | 5/17/2013 | | 1302881 | VAL | Y |

| | | | | | |
|---|---|---|---|---|---|
| CAMO-13-30600 | R-61 S1 | REG | SM:A2340B | 0 | 1 |
| CAMO-13-30600 | R-61 S1 | REG | SW-846:6010B | 0 | 17 |
| CAMO-13-30600 | R-61 S1 | REG | SW-846:6020 | 0 | 11 |
| CAMO-13-30600 | R-61 S1 | REG | SW-846:6850 | 0 | 1 |

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178
www.gel.com

June 13, 2013

Keith Greene
Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Re: LANL-WQH Water Samples
Work Order: 326020
SDG: 2013-866

Dear Keith Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on May 18, 2013, and analyzed for GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,

for

Valerie Davis
Project Manager

Purchase Order: 63641-10
Chain of Custody: 2013-866
Enclosures

**ARS International (63641-10)**
**LANL-WQH Water Samples**
**Work Order #: 326020**
**SDG: 2013-866**

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# Case Narrative

**Case Narrative for**
**ARS International (63641-10)**
**LANL-WQH Water Samples**
**Workorder #: 326020**
**SDG # : 2013-866**

**June 13, 2013**

**Laboratory Identification:**

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

**Summary**

**Sample receipt** The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on May 18, 2013 for analysis. Please see attached email for discrepancies. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. The containers for Gross A/B were preserved prior to analysis. Shipping container temperature was within specification (0 - 6C). The containers for radiochemistry were received at a temperature of 21C. There are no additional comments concerning sample receipt.

**Sample Identification** The laboratory received the following samples:

| Laboratory ID | Client ID |
|---|---|
| 326020001 | CAMO-13-30584 |
| 326020002 | CAMO-13-30600 |
| 326020003 | CAMO-13-30568 |

**Case Narrative**

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

**Data Package**

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.

for

Valerie Davis
Project Manager

**List of current GEL Certifications as of 13 June 2013**

| State | Certification |
|---|---|
| Alaska | UST−110 |
| Arkansas | 88−0651 |
| CLIA | 42D0904046 |
| California NELAP | 01151CA |
| Colorado | SC00012 |
| Connecticut | PH−0169 |
| Delaware | SC00012 |
| DoD ELAP A2LA ISO 17025 | 2567.01 |
| Florida NELAP | E87156 |
| Foreign Soils Permit | P330−12−00283, P330−12−00284 |
| Georgia | SC00012 |
| Georgia SDWA | 967 |
| Hawaii | SC00012 |
| Idaho | SC00012 |
| Illinois NELAP | 200029 |
| Indiana | C−SC−01 |
| Kansas NELAP | E−10332 |
| Kentucky | 90129 |
| Louisiana NELAP | 03046 (AI33904) |
| Louisiana SDWA | LA130005 |
| Maryland | 270 |
| Massachusetts | M−SC012 |
| Nevada | SC000122011−1 |
| New Hampshire NELAP | 2054 |
| New Jersey NELAP | SC002 |
| New Mexico | SC00012 |
| New York NELAP | 11501 |
| North Carolina | 233 |
| North Carolina SDWA | 45709 |
| Oklahoma | 9904 |
| Pennsylvania NELAP | 68−00485 |
| Plant Material Permit | PDEP−12−00260 |
| South Carolina Chemistry | 10120001 |
| South Carolina Radiochemi | 10120002 |
| Tennessee | TN 02934 |
| Texas NELAP | T104704235−13−8 |
| Utah NELAP | SC000122013−8 |
| Vermont | VT87156 |
| Virginia NELAP | 460202 |
| Washington | C780−12 |
| Wisconsin | 999887790 |

# Chain of Custody and Supporting Documentation

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

# Chain of Custody/Analysis Request

326020

COC/Lab Request #: 2013-866

Page 1 of 1

Client Contact:

Lab Agreement # : 126310011

Project Number :

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info:

Special Instructions:

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | WSP-8260B-VOA | WSP-8270C-SVOA | WSP-CL04 | WSP-GENINORG | WSP-GrossA/B | WSP-Met+B+SN+SR+U | WSP-NH3+NO3/NO2+PO4 | WSP-RAD | WSP-TKN+TOC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAMO-13-30584 | May 17 2013 | 12:52 | W | 2 | 3 | | | 1 | | | 1 | 1 |
| CAMO-13-30600 | May 17 2013 | 12:52 | W | | | 1 | 1 | | 1 | 1 | | |
| CAMO-13-30568 | May 17 2013 | 12:52 | W | 2 | | | | | | | | |

Special Instructions:

| | | | | |
|---|---|---|---|---|
| Relinquished by: Sherwood | S. Sherwood | Date/Time: 5/17/13 3pm | Received by: [illegible] | 5-18-13 0940 |
| Relinquished by: | | Date/Time: | Received by: | |
| Relinquished by: | | Date/Time: | Received by: | |

GEL Laboratories LLC

# SAMPLE RECEIPT & REVIEW FORM

| | |
|---|---|
| **Client:** LANL | **SDG/AR/COC/Work Order:** 2013-8660 |
| **Received By:** MK | **Date Received:** 5-10-13 |

| **Suspected Hazard Information** | **Yes** | **No** | *If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation. |
|---|---|---|---|
| COC/Samples marked as radioactive? | | ✓ | Maximum Net Counts Observed* (Observed Counts - Area Background Counts): cpm 0 |
| Classified Radioactive II or III by RSO? | | ✓ | If yes, Were swipes taken of sample contatiners < action levels? |
| COC/Samples marked containing PCBs? | | ✓ | |
| Package, COC, and/or Samples marked as beryllium or asbestos containing? | | ✓ | If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group. |
| Shipped as a DOT Hazardous? | | ✓ | Hazard Class Shipped: UN#: |
| Samples identified as Foreign Soil? | | ✓ | |

| | **Sample Receipt Criteria** | **Yes** | **NA** | **No** | **Comments/Qualifiers (Required for Non-Conforming Items)** |
|---|---|---|---|---|---|
| 1 | Shipping containers received intact and sealed? | ✓ | ✓ | | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 2 | Samples requiring cold preservation within (0 ≤ 6 deg. C)?* | ✓ | ✓ | | Preservation Method: Ice bags (Blue ice) Dry ice None Other (describe) *all temperatures are recorded in Celsius 4c |
| 2a | Daily check performed and passed on IR temperature gun? | ✓ | ✓ | | Temperature Device Serial #: 4150218L Secondary Temperature Device Serial # (If Applicable): |
| 3 | Chain of custody documents included with shipment? | ✓ | | ✓ | |
| 4 | Sample containers intact and sealed? | ✓ | | | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 5 | Samples requiring chemical preservation at proper pH? | ✓ | ✓ | | Sample ID's, containers affected and observed pH: If Preservation added, Lot#: |
| 6 | VOA vials free of headspace (defined as < 6mm bubble)? | ✓ | | | Sample ID's and containers affected: |
| 7 | Are Encore containers present? | | | ✓ | (If yes, immediately deliver to Volatiles laboratory) |
| 8 | Samples received within holding time? | ✓ | | | ID's and tests affected: |
| 9 | Sample ID's on COC match ID's on bottles? | ✓ | | | Sample ID's and containers affected: |
| 10 | Date & time on COC match date & time on bottles? | ✓ | | | Sample ID's affected: |
| 11 | Number of containers received match number indicated on COC? | | | ✓ | Sample ID's affected: * see Below |
| 12 | Are sample containers identifiable as GEL provided? | | | ✓ | |
| 13 | COC form is properly signed in relinquished/received sections? | ✓ | | | |
| 14 | Carrier and tracking number. | ✓ | | | Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other 5462 9833 0251 4c 0262 21c HNO3 |

Comments (Use Continuation Form if needed):

* ONLY RECEIVED 1 VIAL FOR CAMO-13-30568

PM (or PMA) review: Initials HH Date 052013 Page 1 of 1

**Subject:** Sample Receipt for 051813
**From:** Hope Taylor <Hope.Taylor@gel.com>
**Date:** 5/20/2013 8:18 AM
**To:** "Keith R. Greene" <kgreene@lanl.gov>
**CC:** LANL@amrad.com, "team.davis" <team.davis@gel.com>

The containers for Gross A/B were preserved prior to analysis.

RN 2013-866
ID CAMO-13-30568 the lab received 1 container for VOA, chain indicates 2.

Thanks

--
Hope Taylor
Project Manager Assistant
GEL Laboratories, LLC
2040 Savage Road
Charleston, SC 29407
Direct: 843.769.7376 ext. 4778
Main: 843.556.8171
Fax: 843.766.1178
E-mail: hop01200@gel.com
Web: www.gel.com

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 17MAY13
ACTWGT: 47.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWK0

50DC1/9983/10BC

FedEx Express

J111311060660125

1 of 2

TRK# 0201 5462 9833 0251

## MASTER ##

SATURDAY 12:00P
PRIORITY OVERNIGHT

X0 CHSA

29407
SC-US CHS

Part # 156149-434 RIT2 08/10 ©

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 17MAY13
ACTWGT: 16.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWK0

50DC1/9983/10BC

FedEx Express

J111311060660125

2 of 2

MPS# 0263 5462 9833 0262

Mstr# 5462 9833 0251 0201

SATURDAY 12:00P
PRIORITY OVERNIGHT

X0 CHSA

29407
SC-US CHS

Part # 156149-434 RIT2 08/10 ©

# Data Review Qualifier Flag Definition Sheet

## Data Review Qualifier Definitions

| Qualifier | Explanation |
|---|---|
| * | A quality control analyte recovery is outside of specified acceptance criteria |
| ** | Analyte is a surrogate compound |
| < | Result is less than value reported |
| > | Result is greater than value reported |
| ^ | RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL |
| A | The TIC is a suspected aldol-condensation product |
| B | Target analyte was detected in the associated blank |
| B | Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL |
| BD | Results are either below the MDC or tracer recovery is low |
| C | Analyte has been confirmed by GC/MS analysis |
| D | Results are reported from a diluted aliquot of the sample |
| d | 5-day BOD-The 2:1 depletion requirement was not met for this sample |
| E | Organics-Concentration of the target analyte exceeds the instrument calibration range |
| E | Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria |
| H | Analytical holding time was exceeded |
| h | Preparation or preservation holding time was exceeded |
| J | Value is estimated |
| N | Metals-The Matrix spike sample recovery is not within specified control limits |
| N | Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N/A | Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more |
| ND | Analyte concentration is not detected above the reporting limit |
| UI | Gamma Spectroscopy-Uncertain identification |
| X | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| Y | QC Samples were not spiked with this compound |
| Z | Paint Filter Test-Particulates passed through the filter, however no free liquids were observed. |

# Volatile Analysis

# Case Narrative

**ChemStation Case Narrative**
**ARS International (ARSL)**
**SDG 2013-866**

## Method/Analysis Information

| | |
|---|---|
| **Procedure:** | **Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer** |
| Analytical Method: | SW846 8260B DOE-AL |
| Analytical Batch Number: | 1305188 |

## Sample Analysis

The following client and quality control samples were analyzed to complete this SDG using the methods referenced in the Analysis Information section:

| Sample ID | Client ID |
|---|---|
| 326020001 | CAMO-13-30584 |
| 326020003 | CAMO-13-30568 |
| 1202884921 | Method Blank (MB) |
| 1202884922 | 326200001(WST59-13-34729) Post Spike (PS) |
| 1202884923 | 326200001(WST59-13-34729) Post Spike (PS) |
| 1202884924 | 326200001(WST59-13-34729) Post Spike Duplicate (PSD) |
| 1202884925 | 326200001(WST59-13-34729) Post Spike Duplicate (PSD) |
| 1202884926 | Laboratory Control Sample (LCS) |
| 1202884927 | Laboratory Control Sample (LCS) |

NOTE: For volatile organic analyses the matrix spike designations may be indicated as "PS" or "PSD". The "PS" designation (post spike) indicates that the matrix was fortified prior to analysis but after applying any prep factors, such as a dilution. The laboratory considers the MS/MSD and PS/PSD designations interchangeable.

The samples in this SDG were analyzed on an "as received" basis.

## Preparation/Analytical Method Verification

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-038 REV# 19.

Raw data reports are processed and reviewed by the analyst using the Chemstation software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP) section 19.1.2. False positive analytes are designated on the quantitation report with a ’d’ qualifier.

## Calibration Information

A complete list of the initial calibration data files with the correct dates and times of analysis are shown in the Calibration History report located in the Standard Data section of the data package.

The surrogate compounds were calibrated using a minimum five-point calibration curve. The surrogates were added by the auto sampler at a concentration of 50 ug/L or 20 ug/L for low level analyses. GEL Laboratories LLC will not have surrogate recoveries reported for Dibromofluoromethane. This is due to increased regulations for this analyte and an industry shortage.

**Initial Calibration**
At the request of the client, linear curve fits, for target analytes that did not meet the x-intercept criteria of less than or equal to 3 times the MDL and had %RSDs less than 60%, were set to use the average response factor to quantitate data in this SDG.

**Continuing Calibration Verification Requirements**
All associated calibration verification standard(s) (CCV) met the acceptance criteria.

**Quality Control (QC) Information**

**Blank (MB) Statement**
The blank analyzed with this SDG met the acceptance criteria.

**Surrogate Recoveries**
Surrogate recoveries in all client and quality control samples were within the acceptance limits.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recoveries met the acceptance limits.

**QC Sample Designation**
Sample 326200001 (WST59-13-34729) was designated for spike analysis.

**Matrix Spike (PS) Recovery Statement**
The spike recoveries were within the required acceptance limits.

**Matrix Spike Duplicate (PSD) Recovery Statement**
The spike duplicate recoveries were within the required acceptance limits.

**Relative Percent Difference (RPD) Statement**
The RPDs between the matrix spike pair met the acceptance limits.

**Internal Standard (ISTD) Acceptance**
The internal standard responses in all client and quality control samples met the required acceptance criteria.

**Technical Information**

**Holding Time Specifications**
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection or sample receipt. Those holding times expressed in hours are calculated in the ALPHALIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

**Sample Preservation and Integrity**
All samples met the sample preservation and integrity requirements.

**Sample Dilutions/Methanol Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-extraction/Re-analysis**
Re-analyses were not required for samples in this SDG.

## Miscellaneous Information

### Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

### Data Exception (DER) Documentation

Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

### Manual Integrations

Data files associated with the initial calibration, continuing calibration check, and samples did not require manual integrations.

### TIC Comment

Tentatively identified compounds (TIC) may be requested for this sample delivery group/work order. Please note that non-requested target analytes that are reported on the quantitation reports will be present on the Form I. These detected analytes are included in the calibrated method and as a result will be reported on the Sample Data Summary (Form I) or Certificate of Analysis (C of A). TIC data, if requested, are included on the Sample Data Summary (Form I) and are also included with the sample raw data.

### Additional Comments

Additional comments were not required for this SDG.

### Residual Chlorine

Residual Chlorine was not detected in any of the samples in this SDG.

## System Configuration

The Volatile-GC/MS analysis was performed on the following instrument configuration:

| Instrument ID | Instrument | System Configuration | Column ID | Column Description | P & T Trap |
|---|---|---|---|---|---|
| VOA9.I | Agilent 6890/5973 GC/MS w/ OI Eclipse/Archon Autosampler | HP6890/HP5973 | DB-624 | J&W, 60m x 0.25mm x 1.4um | Trap 10 |

## Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-866  GEL Work Order: 326020

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

**  Analyte is a surrogate compound

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL  Indicates that sample is diluted.
RA  Indicates that sample is re-analyzed without re-extraction.
RE  Indicates that sample is re-extracted.

**Review/Validation**

GEL requires all analytical data to be verified by a qualified data reviewer.  In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

**Signature:** Erin Haubert  **Name:** **Erin Haubert**

**Date:** **07 JUN 2013**  **Title:** **Data Validator**

# Sample Data Summary

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-866** | **Date Collected:** | **05/17/2013 12:52** | **Matrix:** | **W** |
| **Lab Sample ID:** | **326020001** | **Date Received:** | **05/18/2013 09:20** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30584** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305188** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/31/2013 13:38** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/31/2013 13:38** | | | | |
| **Data File:** | **053113V9\9O514.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 75-71-8 | Dichlorodifluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-01-4 | Vinyl chloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-83-9 | Bromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-64-1 | Acetone | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | U | 25.0 | ug/L | 8.00 | 25.0 |
| 75-35-4 | 1,1-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-15-0 | Carbon disulfide | U | 5.00 | ug/L | 1.50 | 5.00 |
| 1634-04-4 | tert-Butyl methyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-05-4 | Vinyl acetate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-34-3 | 1,1-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | U | 5.00 | ug/L | 2.00 | 5.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-36-3 | n-Butyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 56-23-5 | Carbon tetrachloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-43-2 | Benzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | U | 5.00 | ug/L | 2.20 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-866** | **Date Collected:** | **05/17/2013 12:52** | **Matrix:** | **W** |
| **Lab Sample ID:** | **326020001** | **Date Received:** | **05/18/2013 09:20** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30584** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305188** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/31/2013 13:38** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/31/2013 13:38** | | | | |
| **Data File:** | **053113V9\9O514.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 142-28-9 | 1,3-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-41-4 | Ethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | U | 2.00 | ug/L | 0.300 | 2.00 |
| 95-47-6 | o-Xylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-42-5 | Styrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-82-8 | Isopropylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-43-4 | 4-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 104-51-8 | n-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.400 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-866** | **Date Collected:** | **05/17/2013 12:52** | **Matrix:** | **W** |
| **Lab Sample ID:** | **326020001** | **Date Received:** | **05/18/2013 09:20** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30584** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305188** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/31/2013 13:38** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/31/2013 13:38** | | | | |
| **Data File:** | **053113V9\9O514.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 58.3 | 50.0 | ug/L | 117 | (78%-124%) |
| Bromofluorobenzene | 54.2 | 50.0 | ug/L | 108 | (80%-120%) |
| Toluene-d8 | 53.2 | 50.0 | ug/L | 106 | (80%-120%) |

**Tentatively Identified Compound Summary**

| CAS No. | Tentatively Identified Compound (TIC) | RT | Estimated | Units | Fit | Qual |
|---|---|---|---|---|---|---|
| | unknown hydrocarbon | 4.271 | 9.77 | ug/L | 0 | J |
| 000075-37-6 | Ethane, 1,1-difluoro- | 4.524 | 179 | ug/L | 91 | NJ |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-866** | **Date Collected:** | **05/17/2013 12:52** | **Matrix:** | **W** |
| **Lab Sample ID:** | **326020003** | **Date Received:** | **05/18/2013 09:20** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30568** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305188** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/31/2013 13:03** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/31/2013 13:03** | | | | |
| **Data File:** | **053113V9\9O513.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 75-71-8 | Dichlorodifluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-01-4 | Vinyl chloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-83-9 | Bromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-64-1 | Acetone | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | U | 25.0 | ug/L | 8.00 | 25.0 |
| 75-35-4 | 1,1-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-15-0 | Carbon disulfide | U | 5.00 | ug/L | 1.50 | 5.00 |
| 1634-04-4 | tert-Butyl methyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-05-4 | Vinyl acetate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-34-3 | 1,1-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | U | 5.00 | ug/L | 2.00 | 5.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-36-3 | n-Butyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 56-23-5 | Carbon tetrachloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-43-2 | Benzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | U | 5.00 | ug/L | 2.20 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-866** | **Date Collected:** | **05/17/2013 12:52** | **Matrix:** | **W** |
| **Lab Sample ID:** | **326020003** | **Date Received:** | **05/18/2013 09:20** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30568** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305188** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/31/2013 13:03** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/31/2013 13:03** | | | | |
| **Data File:** | **053113V9\9O513.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 142-28-9 | 1,3-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-41-4 | Ethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | U | 2.00 | ug/L | 0.300 | 2.00 |
| 95-47-6 | o-Xylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-42-5 | Styrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-82-8 | Isopropylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-43-4 | 4-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 104-51-8 | n-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.400 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-866** | **Date Collected:** | **05/17/2013 12:52** | **Matrix:** | **W** |
| **Lab Sample ID:** | **326020003** | **Date Received:** | **05/18/2013 09:20** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30568** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305188** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/31/2013 13:03** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/31/2013 13:03** | | | | |
| **Data File:** | **053113V9\9O513.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 54.4 | 50.0 | ug/L | 109 | (78%-124%) |
| Bromofluorobenzene | 51.7 | 50.0 | ug/L | 103 | (80%-120%) |
| Toluene-d8 | 51.7 | 50.0 | ug/L | 103 | (80%-120%) |

**Tentatively Identified Compound Summary**

| CAS No. | Tentatively Identified Compound (TIC) | RT | Estimated | Units | Fit | Qual |
|---|---|---|---|---|---|---|
| | unknown hydrocarbon | 4.286 | 7.2 | ug/L | 0 | J |
| 000075-37-6 | Ethane, 1,1-difluoro- | 4.509 | 178 | ug/L | 91 | NJ |

# Quality Control Summary

**Volatile**

## Surrogate Recovery Report

**SDG Number: 2013-866**

**Matrix Type: LIQUID**

| Sample ID | Client ID | DCED4 %REC | TOL %REC | BFB %REC |
|---|---|---|---|---|
| 1202884926 | LCS for batch 1305188 | 91 | 94 | 94 |
| 1202884927 | LCS for batch 1305188 | 98 | 102 | 100 |
| 1202884921 | MB for batch 1305188 | 103 | 102 | 101 |
| 326020003 | CAMO-13-30568 | 109 | 103 | 103 |
| 326020001 | CAMO-13-30584 | 117 | 106 | 108 |
| 1202884922 | WST59-13-34729PS | 103 | 103 | 104 |
| 1202884924 | WST59-13-34729PSD | 96 | 99 | 101 |
| 1202884923 | WST59-13-34729PS | 101 | 98 | 102 |
| 1202884925 | WST59-13-34729PSD | 99 | 102 | 101 |

| Surrogate | | Acceptance Limits |
|---|---|---|
| DCED4 | = 1,2-Dichloroethane-d4 | (78%-124%) |
| TOL | = Toluene-d8 | (80%-120%) |
| BFB | = Bromofluorobenzene | (80%-120%) |

* Recovery outside Acceptance Limits
\# Column to be used to flag recovery values
D Sample Diluted

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-866** **Sample Type:** **Post Spike**

**Client ID:** **WST59-13-34729PS** **Matrix:** **W**

**Lab Sample ID:** **1202884922**

**Instrument:** **VOA9.I** **Analysis Date:** **05/31/2013 15:53** **Dilution: 1**

**Analyst:** **RXY1**

**Purge Vol:** **5 mL** **Batch ID:** **1305188**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 179601-23-1 | PS | m,p-Xylenes | 100 | 0.00 | U | 93.2 | 93 | 56-134 |
| 75-05-8 | PS | Acetonitrile | 1250 | 0.00 | U | 1140 | 91 | 60-133 |
| 74-88-4 | PS | Iodomethane | 250 | 0.00 | U | 212 | 85 | 69-147 |
| 75-15-0 | PS | Carbon disulfide | 250 | 0.00 | U | 232 | 93 | 65-153 |
| 108-05-4 | PS | Vinyl acetate | 250 | 0.00 | U | 256 | 102 | 50-143 |
| 108-10-1 | PS | 4-Methyl-2-pentanone | 250 | 0.00 | U | 240 | 96 | 68-136 |
| 591-78-6 | PS | 2-Hexanone | 250 | 0.00 | U | 226 | 90 | 31-132 |
| 67-64-1 | PS | Acetone | 250 | 70.9 | | 289 | 87 | 30-143 |
| 78-93-3 | PS | 2-Butanone | 250 | 60.0 | | 283 | 89 | 30-140 |
| 75-71-8 | PS | Dichlorodifluoromethane | 50.0 | 0.00 | U | 47.3 | 95 | 36-123 |
| 74-87-3 | PS | Chloromethane | 50.0 | 0.00 | U | 51.9 | 104 | 47-134 |
| 75-01-4 | PS | Vinyl chloride | 50.0 | 0.00 | U | 50.7 | 101 | 49-129 |
| 74-83-9 | PS | Bromomethane | 50.0 | 0.00 | U | 52.5 | 105 | 56-127 |
| 75-00-3 | PS | Chloroethane | 50.0 | 0.00 | U | 48.8 | 98 | 67-122 |
| 75-69-4 | PS | Trichlorofluoromethane | 50.0 | 0.00 | U | 48.3 | 97 | 60-123 |
| 60-29-7 | PS | Ethyl ether | 50.0 | 0.00 | U | 44.5 | 89 | 69-121 |
| 75-35-4 | PS | 1,1-Dichloroethylene | 50.0 | 0.00 | U | 47.3 | 95 | 67-132 |
| 75-09-2 | PS | Methylene chloride | 50.0 | 0.00 | U | 43.7 | 87 | 56-135 |
| 1634-04-4 | PS | tert-Butyl methyl ether | 50.0 | 0.00 | U | 44.3 | 89 | 73-126 |
| 156-60-5 | PS | trans-1,2-Dichloroethylene | 50.0 | 0.00 | U | 45.8 | 92 | 69-128 |
| 75-34-3 | PS | 1,1-Dichloroethane | 50.0 | 0.00 | U | 46.5 | 93 | 75-124 |
| 156-59-2 | PS | cis-1,2-Dichloroethylene | 50.0 | 0.00 | U | 45.5 | 91 | 52-147 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-866** **Sample Type:** **Post Spike**
**Client ID:** **WST59-13-34729PS** **Matrix:** **W**
**Lab Sample ID:** **1202884922**
**Instrument:** **VOA9.I** **Analysis Date:** **05/31/2013 15:53** **Dilution: 1**
**Analyst:** **RXY1**
**Purge Vol:** **5 mL** **Batch ID:** **1305188**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 594-20-7 | PS | 2,2-Dichloropropane | 50.0 | 0.00 | U | 45.7 | 91 | 67-143 |
| 67-66-3 | PS | Chloroform | 50.0 | 0.00 | U | 45.6 | 91 | 75-125 |
| 74-97-5 | PS | Bromochloromethane | 50.0 | 0.00 | U | 45.0 | 90 | 80-120 |
| 71-55-6 | PS | 1,1,1-Trichloroethane | 50.0 | 0.00 | U | 47.5 | 95 | 69-140 |
| 563-58-6 | PS | 1,1-Dichloropropene | 50.0 | 0.00 | U | 46.4 | 93 | 71-130 |
| 56-23-5 | PS | Carbon tetrachloride | 50.0 | 0.00 | U | 47.5 | 95 | 69-142 |
| 107-06-2 | PS | 1,2-Dichloroethane | 50.0 | 0.00 | U | 45.8 | 92 | 72-126 |
| 71-43-2 | PS | Benzene | 50.0 | 0.00 | U | 45.2 | 90 | 73-119 |
| 79-01-6 | PS | Trichloroethylene | 50.0 | 0.00 | U | 45.7 | 91 | 54-147 |
| 78-87-5 | PS | 1,2-Dichloropropane | 50.0 | 0.00 | U | 46.0 | 92 | 78-123 |
| 75-27-4 | PS | Bromodichloromethane | 50.0 | 0.00 | U | 48.0 | 96 | 76-131 |
| 74-95-3 | PS | Dibromomethane | 50.0 | 0.00 | U | 47.0 | 94 | 79-120 |
| 10061-01-5 | PS | cis-1,3-Dichloropropylene | 50.0 | 0.00 | U | 47.7 | 95 | 72-134 |
| 108-88-3 | PS | Toluene | 50.0 | 0.00 | U | 45.2 | 90 | 62-126 |
| 10061-02-6 | PS | trans-1,3-Dichloropropylene | 50.0 | 0.00 | U | 47.5 | 95 | 72-133 |
| 79-00-5 | PS | 1,1,2-Trichloroethane | 50.0 | 0.00 | U | 45.6 | 91 | 74-120 |
| 142-28-9 | PS | 1,3-Dichloropropane | 50.0 | 0.00 | U | 45.3 | 91 | 73-121 |
| 127-18-4 | PS | Tetrachloroethylene | 50.0 | 0.00 | U | 44.3 | 89 | 54-139 |
| 124-48-1 | PS | Dibromochloromethane | 50.0 | 0.00 | U | 49.5 | 99 | 74-128 |
| 106-93-4 | PS | 1,2-Dibromoethane | 50.0 | 0.00 | U | 46.2 | 92 | 80-120 |
| 108-90-7 | PS | Chlorobenzene | 50.0 | 0.00 | U | 45.8 | 92 | 73-119 |
| 100-41-4 | PS | Ethylbenzene | 50.0 | 0.00 | U | 45.8 | 92 | 66-125 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-866** **Sample Type:** **Post Spike**
**Client ID:** **WST59-13-34729PS** **Matrix:** **W**
**Lab Sample ID:** **1202884922**
**Instrument:** **VOA9.I** **Analysis Date:** **05/31/2013 15:53** **Dilution: 1**
**Analyst:** **RXY1**
**Purge Vol:** **5 mL** **Batch ID:** **1305188**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 95-47-6 | PS | o-Xylene | 50.0 | 0.00 | U | 45.1 | 90 | 68-126 |
| 100-42-5 | PS | Styrene | 50.0 | 0.00 | U | 47.5 | 95 | 57-138 |
| 75-25-2 | PS | Bromoform | 50.0 | 0.00 | U | 50.2 | 100 | 66-129 |
| 79-34-5 | PS | 1,1,2,2-Tetrachloroethane | 50.0 | 0.00 | U | 47.5 | 95 | 44-146 |
| 96-18-4 | PS | 1,2,3-Trichloropropane | 50.0 | 0.00 | U | 46.6 | 93 | 68-129 |
| 108-86-1 | PS | Bromobenzene | 50.0 | 0.00 | U | 46.4 | 93 | 70-122 |
| 103-65-1 | PS | n-Propylbenzene | 50.0 | 0.00 | U | 45.0 | 90 | 61-131 |
| 95-49-8 | PS | 2-Chlorotoluene | 50.0 | 0.00 | U | 46.1 | 92 | 66-126 |
| 98-82-8 | PS | Isopropylbenzene | 50.0 | 0.00 | U | 45.6 | 91 | 65-130 |
| 108-67-8 | PS | 1,3,5-Trimethylbenzene | 50.0 | 0.00 | U | 45.3 | 91 | 58-134 |
| 106-43-4 | PS | 4-Chlorotoluene | 50.0 | 0.00 | U | 45.9 | 92 | 63-125 |
| 98-06-6 | PS | tert-Butylbenzene | 50.0 | 0.00 | U | 44.5 | 89 | 66-129 |
| 95-63-6 | PS | 1,2,4-Trimethylbenzene | 50.0 | 0.00 | U | 44.9 | 90 | 60-131 |
| 135-98-8 | PS | sec-Butylbenzene | 50.0 | 0.00 | U | 46.0 | 92 | 62-130 |
| 99-87-6 | PS | 4-Isopropyltoluene | 50.0 | 0.00 | U | 44.6 | 89 | 62-132 |
| 541-73-1 | PS | 1,3-Dichlorobenzene | 50.0 | 0.00 | U | 45.7 | 91 | 66-121 |
| 106-46-7 | PS | 1,4-Dichlorobenzene | 50.0 | 0.00 | U | 46.9 | 94 | 65-119 |
| 104-51-8 | PS | n-Butylbenzene | 50.0 | 0.00 | U | 47.2 | 94 | 55-134 |
| 96-12-8 | PS | 1,2-Dibromo-3-chloropropane | 50.0 | 0.00 | U | 49.9 | 100 | 58-137 |
| 87-68-3 | PS | Hexachlorobutadiene | 50.0 | 0.00 | U | 45.1 | 90 | 49-139 |
| 91-20-3 | PS | Naphthalene | 50.0 | 0.00 | U | 46.6 | 93 | 46-145 |
| 87-61-6 | PS | 1,2,3-Trichlorobenzene | 50.0 | 0.00 | U | 45.0 | 90 | 54-134 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-866**
**Sample Type:** **Post Spike**
**Client ID:** **WST59-13-34729PS**
**Matrix:** **W**
**Lab Sample ID:** **1202884922**
**Instrument:** **VOA9.I**
**Analysis Date:** **05/31/2013 15:53**
**Dilution: 1**
**Analyst:** **RXY1**
**Purge Vol:** **5 mL**
**Batch ID:** **1305188**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 120-82-1 | PS | 1,2,4-Trichlorobenzene | 50.0 | 0.00 | U | 44.5 | 89 | 55-128 |
| 630-20-6 | PS | 1,1,1,2-Tetrachloroethane | 50.0 | 0.00 | U | 47.6 | 95 | 79-128 |
| 95-50-1 | PS | 1,2-Dichlorobenzene | 50.0 | 0.00 | U | 45.7 | 91 | 68-121 |
| 71-36-3 | PS | n-Butyl alcohol | 5000 | 0.00 | U | 5490 | 110 | 53-150 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-866** **Sample Type:** **Post Spike Duplicate**

**Client ID:** **WST59-13-34729PSD** **Matrix:** **W**

**Lab Sample ID:** **1202884924**

**Instrument:** **VOA9.I** **Analysis Date:** **05/31/2013 16:20** **Dilution: 1**

**Analyst:** **RXY1**

**Purge Vol:** **5 mL** **Batch ID:** **1305188**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 179601-23-1 | PSD | m,p-Xylenes | 100 | 0.00 | U | 87.9 | 88 | 56-134 | 6 | 0-20 |
| 75-05-8 | PSD | Acetonitrile | 1250 | 0.00 | U | 986 | 79 | 60-133 | 14 | 0-20 |
| 74-88-4 | PSD | Iodomethane | 250 | 0.00 | U | 195 | 78 | 69-147 | 8 | 0-20 |
| 75-15-0 | PSD | Carbon disulfide | 250 | 0.00 | U | 214 | 86 | 65-153 | 8 | 0-20 |
| 108-05-4 | PSD | Vinyl acetate | 250 | 0.00 | U | 230 | 92 | 50-143 | 11 | 0-20 |
| 108-10-1 | PSD | 4-Methyl-2-pentanone | 250 | 0.00 | U | 214 | 86 | 68-136 | 11 | 0-20 |
| 591-78-6 | PSD | 2-Hexanone | 250 | 0.00 | U | 202 | 81 | 31-132 | 11 | 0-20 |
| 67-64-1 | PSD | Acetone | 250 | 70.9 | | 260 | 76 | 30-143 | 11 | 0-20 |
| 78-93-3 | PSD | 2-Butanone | 250 | 60.0 | | 250 | 76 | 30-140 | 12 | 0-20 |
| 75-71-8 | PSD | Dichlorodifluoromethane | 50.0 | 0.00 | U | 43.3 | 87 | 36-123 | 9 | 0-20 |
| 74-87-3 | PSD | Chloromethane | 50.0 | 0.00 | U | 45.6 | 91 | 47-134 | 13 | 0-20 |
| 75-01-4 | PSD | Vinyl chloride | 50.0 | 0.00 | U | 45.6 | 91 | 49-129 | 11 | 0-20 |
| 74-83-9 | PSD | Bromomethane | 50.0 | 0.00 | U | 46.4 | 93 | 56-127 | 12 | 0-20 |
| 75-00-3 | PSD | Chloroethane | 50.0 | 0.00 | U | 43.8 | 88 | 67-122 | 11 | 0-20 |
| 75-69-4 | PSD | Trichlorofluoromethane | 50.0 | 0.00 | U | 44.6 | 89 | 60-123 | 8 | 0-20 |
| 60-29-7 | PSD | Ethyl ether | 50.0 | 0.00 | U | 42.1 | 84 | 69-121 | 6 | 0-20 |
| 75-35-4 | PSD | 1,1-Dichloroethylene | 50.0 | 0.00 | U | 44.0 | 88 | 67-132 | 7 | 0-20 |
| 75-09-2 | PSD | Methylene chloride | 50.0 | 0.00 | U | 40.2 | 80 | 56-135 | 8 | 0-20 |
| 1634-04-4 | PSD | tert-Butyl methyl ether | 50.0 | 0.00 | U | 40.4 | 81 | 73-126 | 9 | 0-20 |
| 156-60-5 | PSD | trans-1,2-Dichloroethylene | 50.0 | 0.00 | U | 42.8 | 86 | 69-128 | 7 | 0-20 |
| 75-34-3 | PSD | 1,1-Dichloroethane | 50.0 | 0.00 | U | 43.0 | 86 | 75-124 | 8 | 0-20 |
| 156-59-2 | PSD | cis-1,2-Dichloroethylene | 50.0 | 0.00 | U | 42.4 | 85 | 52-147 | 7 | 0-20 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-866** **Sample Type:** **Post Spike Duplicate**

**Client ID:** **WST59-13-34729PSD** **Matrix:** **W**

**Lab Sample ID:** **1202884924**

**Instrument:** **VOA9.I** **Analysis Date:** **05/31/2013 16:20** **Dilution: 1**

**Analyst:** **RXY1**

**Purge Vol:** **5 mL** **Batch ID:** **1305188**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 594-20-7 | PSD | 2,2-Dichloropropane | 50.0 | 0.00 | U | 41.9 | 84 | 67-143 | 9 | 0-20 |
| 67-66-3 | PSD | Chloroform | 50.0 | 0.00 | U | 42.6 | 85 | 75-125 | 7 | 0-20 |
| 74-97-5 | PSD | Bromochloromethane | 50.0 | 0.00 | U | 41.5 | 83 | 80-120 | 8 | 0-20 |
| 71-55-6 | PSD | 1,1,1-Trichloroethane | 50.0 | 0.00 | U | 43.5 | 87 | 69-140 | 9 | 0-20 |
| 563-58-6 | PSD | 1,1-Dichloropropene | 50.0 | 0.00 | U | 43.0 | 86 | 71-130 | 8 | 0-20 |
| 56-23-5 | PSD | Carbon tetrachloride | 50.0 | 0.00 | U | 43.8 | 88 | 69-142 | 8 | 0-20 |
| 107-06-2 | PSD | 1,2-Dichloroethane | 50.0 | 0.00 | U | 42.4 | 85 | 72-126 | 8 | 0-20 |
| 71-43-2 | PSD | Benzene | 50.0 | 0.00 | U | 42.1 | 84 | 73-119 | 7 | 0-20 |
| 79-01-6 | PSD | Trichloroethylene | 50.0 | 0.00 | U | 42.8 | 86 | 54-147 | 7 | 0-20 |
| 78-87-5 | PSD | 1,2-Dichloropropane | 50.0 | 0.00 | U | 43.0 | 86 | 78-123 | 7 | 0-20 |
| 75-27-4 | PSD | Bromodichloromethane | 50.0 | 0.00 | U | 44.5 | 89 | 76-131 | 8 | 0-20 |
| 74-95-3 | PSD | Dibromomethane | 50.0 | 0.00 | U | 43.5 | 87 | 79-120 | 8 | 0-20 |
| 10061-01-5 | PSD | cis-1,3-Dichloropropylene | 50.0 | 0.00 | U | 43.6 | 87 | 72-134 | 9 | 0-20 |
| 108-88-3 | PSD | Toluene | 50.0 | 0.00 | U | 42.4 | 85 | 62-126 | 7 | 0-20 |
| 10061-02-6 | PSD | trans-1,3-Dichloropropylene | 50.0 | 0.00 | U | 44.7 | 89 | 72-133 | 6 | 0-20 |
| 79-00-5 | PSD | 1,1,2-Trichloroethane | 50.0 | 0.00 | U | 42.9 | 86 | 74-120 | 6 | 0-20 |
| 142-28-9 | PSD | 1,3-Dichloropropane | 50.0 | 0.00 | U | 42.1 | 84 | 73-121 | 7 | 0-20 |
| 127-18-4 | PSD | Tetrachloroethylene | 50.0 | 0.00 | U | 42.5 | 85 | 54-139 | 4 | 0-20 |
| 124-48-1 | PSD | Dibromochloromethane | 50.0 | 0.00 | U | 46.8 | 94 | 74-128 | 6 | 0-20 |
| 106-93-4 | PSD | 1,2-Dibromoethane | 50.0 | 0.00 | U | 42.6 | 85 | 80-120 | 8 | 0-20 |
| 108-90-7 | PSD | Chlorobenzene | 50.0 | 0.00 | U | 43.1 | 86 | 73-119 | 6 | 0-20 |
| 100-41-4 | PSD | Ethylbenzene | 50.0 | 0.00 | U | 42.9 | 86 | 66-125 | 7 | 0-20 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-866** **Sample Type:** **Post Spike Duplicate**

**Client ID:** **WST59-13-34729PSD** **Matrix:** **W**

**Lab Sample ID:** **1202884924**

**Instrument:** **VOA9.I** **Analysis Date:** **05/31/2013 16:20** **Dilution: 1**

**Analyst:** **RXY1**

**Purge Vol:** **5 mL** **Batch ID:** **1305188**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 95-47-6 | PSD | o-Xylene | 50.0 | 0.00 | U | 42.3 | 85 | 68-126 | 7 | 0-20 |
| 100-42-5 | PSD | Styrene | 50.0 | 0.00 | U | 44.1 | 88 | 57-138 | 7 | 0-20 |
| 75-25-2 | PSD | Bromoform | 50.0 | 0.00 | U | 47.1 | 94 | 66-129 | 6 | 0-20 |
| 79-34-5 | PSD | 1,1,2,2-Tetrachloroethane | 50.0 | 0.00 | U | 44.5 | 89 | 44-146 | 7 | 0-20 |
| 96-18-4 | PSD | 1,2,3-Trichloropropane | 50.0 | 0.00 | U | 43.0 | 86 | 68-129 | 8 | 0-20 |
| 108-86-1 | PSD | Bromobenzene | 50.0 | 0.00 | U | 43.7 | 87 | 70-122 | 6 | 0-20 |
| 103-65-1 | PSD | n-Propylbenzene | 50.0 | 0.00 | U | 43.2 | 86 | 61-131 | 4 | 0-20 |
| 95-49-8 | PSD | 2-Chlorotoluene | 50.0 | 0.00 | U | 43.8 | 88 | 66-126 | 5 | 0-20 |
| 98-82-8 | PSD | Isopropylbenzene | 50.0 | 0.00 | U | 44.3 | 89 | 65-130 | 3 | 0-20 |
| 108-67-8 | PSD | 1,3,5-Trimethylbenzene | 50.0 | 0.00 | U | 44.0 | 88 | 58-134 | 3 | 0-20 |
| 106-43-4 | PSD | 4-Chlorotoluene | 50.0 | 0.00 | U | 44.1 | 88 | 63-125 | 4 | 0-20 |
| 98-06-6 | PSD | tert-Butylbenzene | 50.0 | 0.00 | U | 43.9 | 88 | 66-129 | 2 | 0-20 |
| 95-63-6 | PSD | 1,2,4-Trimethylbenzene | 50.0 | 0.00 | U | 43.7 | 87 | 60-131 | 3 | 0-20 |
| 135-98-8 | PSD | sec-Butylbenzene | 50.0 | 0.00 | U | 44.6 | 89 | 62-130 | 3 | 0-20 |
| 99-87-6 | PSD | 4-Isopropyltoluene | 50.0 | 0.00 | U | 43.3 | 87 | 62-132 | 3 | 0-20 |
| 541-73-1 | PSD | 1,3-Dichlorobenzene | 50.0 | 0.00 | U | 43.3 | 87 | 66-121 | 5 | 0-20 |
| 106-46-7 | PSD | 1,4-Dichlorobenzene | 50.0 | 0.00 | U | 44.2 | 88 | 65-119 | 6 | 0-20 |
| 104-51-8 | PSD | n-Butylbenzene | 50.0 | 0.00 | U | 45.2 | 90 | 55-134 | 4 | 0-20 |
| 96-12-8 | PSD | 1,2-Dibromo-3-chloropropane | 50.0 | 0.00 | U | 47.1 | 94 | 58-137 | 6 | 0-20 |
| 87-68-3 | PSD | Hexachlorobutadiene | 50.0 | 0.00 | U | 42.7 | 85 | 49-139 | 5 | 0-20 |
| 91-20-3 | PSD | Naphthalene | 50.0 | 0.00 | U | 45.3 | 91 | 46-145 | 3 | 0-20 |
| 87-61-6 | PSD | 1,2,3-Trichlorobenzene | 50.0 | 0.00 | U | 44.3 | 89 | 54-134 | 2 | 0-20 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-866**
**Sample Type:** **Post Spike Duplicate**
**Client ID:** **WST59-13-34729PSD**
**Matrix:** **W**
**Lab Sample ID:** **1202884924**
**Instrument:** **VOA9.I**
**Analysis Date:** **05/31/2013 16:20**
**Dilution: 1**
**Analyst:** **RXY1**
**Purge Vol:** **5 mL**
**Batch ID:** **1305188**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 120-82-1 | PSD | 1,2,4-Trichlorobenzene | 50.0 | 0.00 | U | 43.2 | 86 | 55-128 | 3 | 0-20 |
| 630-20-6 | PSD | 1,1,1,2-Tetrachloroethane | 50.0 | 0.00 | U | 45.0 | 90 | 79-128 | 6 | 0-20 |
| 95-50-1 | PSD | 1,2-Dichlorobenzene | 50.0 | 0.00 | U | 43.9 | 88 | 68-121 | 4 | 0-20 |
| 71-36-3 | PSD | n-Butyl alcohol | 5000 | 0.00 | U | 4780 | 96 | 53-150 | 14 | 0-20 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-866**
**Sample Type:** **Post Spike**
**Client ID:** **WST59-13-34729PS**
**Matrix:** **W**
**Lab Sample ID:** **1202884923**
**Instrument:** **VOA9.I**
**Analysis Date:** **05/31/2013 16:47**
**Dilution: 1**
**Analyst:** **RXY1**
**Purge Vol:** **5 mL**
**Batch ID:** **1305188**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 107-02-8 | PS | Acrolein | 250 | 0.00 | U | 228 | 91 | 30-167 |
| 76-13-1 | PS | Trichlorotrifluoroethane | 250 | 0.00 | U | 247 | 99 | 58-169 |
| 107-05-1 | PS | Allyl chloride | 250 | 0.00 | U | 216 | 86 | 61-136 |
| 107-13-1 | PS | Acrylonitrile | 250 | 0.00 | U | 249 | 99 | 65-135 |
| 107-12-0 | PS | Propionitrile | 250 | 0.00 | U | 262 | 105 | 66-141 |
| 126-98-7 | PS | Methacrylonitrile | 250 | 0.00 | U | 238 | 95 | 63-141 |
| 80-62-6 | PS | Methyl methacrylate | 250 | 0.00 | U | 240 | 96 | 70-130 |
| 97-63-2 | PS | Ethyl methacrylate | 250 | 0.00 | U | 243 | 97 | 73-132 |
| 78-83-1 | PS | Isobutyl alcohol | 2500 | 0.00 | U | 2680 | 107 | 59-146 |
| 126-99-8 | PS | 2-Chloro-1,3-butadiene | 50.0 | 0.00 | U | 42.0 | 84 | 39-130 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-866**
**Sample Type:** **Post Spike Duplicate**
**Client ID:** **WST59-13-34729PSD**
**Matrix:** **W**
**Lab Sample ID:** **1202884925**
**Instrument:** **VOA9.I**
**Analysis Date:** **05/31/2013 17:14**
**Dilution: 1**
**Analyst:** **RXY1**
**Purge Vol:** **5 mL**
**Batch ID:** **1305188**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 107-02-8 | PSD | Acrolein | 250 | 0.00 | U | 201 | 80 | 30-167 | 13 | 0-20 |
| 76-13-1 | PSD | Trichlorotrifluoroethane | 250 | 0.00 | U | 245 | 98 | 58-169 | 1 | 0-20 |
| 107-05-1 | PSD | Allyl chloride | 250 | 0.00 | U | 217 | 87 | 61-136 | 1 | 0-20 |
| 107-13-1 | PSD | Acrylonitrile | 250 | 0.00 | U | 249 | 99 | 65-135 | 0 | 0-20 |
| 107-12-0 | PSD | Propionitrile | 250 | 0.00 | U | 261 | 104 | 66-141 | 0 | 0-20 |
| 126-98-7 | PSD | Methacrylonitrile | 250 | 0.00 | U | 238 | 95 | 63-141 | 0 | 0-20 |
| 80-62-6 | PSD | Methyl methacrylate | 250 | 0.00 | U | 239 | 96 | 70-130 | 0 | 0-20 |
| 97-63-2 | PSD | Ethyl methacrylate | 250 | 0.00 | U | 257 | 103 | 73-132 | 6 | 0-20 |
| 78-83-1 | PSD | Isobutyl alcohol | 2500 | 0.00 | U | 2730 | 109 | 59-146 | 2 | 0-20 |
| 126-99-8 | PSD | 2-Chloro-1,3-butadiene | 50.0 | 0.00 | U | 43.0 | 86 | 39-130 | 2 | 0-20 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-866**
**Client ID:** **LCS for batch 1305188**
**Lab Sample ID:** **1202884926**
**Instrument:** **VOA9.I**
**Analyst:** **RXY1**
**Purge Vol:** **5 mL**

**Sample Type:** **Laboratory Control Sample**
**Matrix:** **WATER**
**Analysis Date:** **05/31/2013 09:41**
**Dilution: 1**
**Batch ID:** **1305188**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 179601-23-1 | LCS | m,p-Xylenes | 100 | 0.0 | 93.6 | 94 | 79-120 |
| 75-05-8 | LCS | Acetonitrile | 1250 | 0.0 | 1060 | 85 | 64-127 |
| 67-64-1 | LCS | Acetone | 250 | 0.0 | 217 | 87 | 36-163 |
| 74-88-4 | LCS | Iodomethane | 250 | 0.0 | 210 | 84 | 80-134 |
| 75-15-0 | LCS | Carbon disulfide | 250 | 0.0 | 226 | 91 | 80-143 |
| 108-05-4 | LCS | Vinyl acetate | 250 | 0.0 | 261 | 105 | 75-144 |
| 78-93-3 | LCS | 2-Butanone | 250 | 0.0 | 225 | 90 | 46-158 |
| 108-10-1 | LCS | 4-Methyl-2-pentanone | 250 | 0.0 | 223 | 89 | 76-131 |
| 591-78-6 | LCS | 2-Hexanone | 250 | 0.0 | 239 | 96 | 53-158 |
| 75-71-8 | LCS | Dichlorodifluoromethane | 50.0 | 0.0 | 46.1 | 92 | 39-124 |
| 74-87-3 | LCS | Chloromethane | 50.0 | 0.0 | 47.3 | 95 | 57-126 |
| 75-01-4 | LCS | Vinyl chloride | 50.0 | 0.0 | 46.7 | 93 | 62-121 |
| 74-83-9 | LCS | Bromomethane | 50.0 | 0.0 | 48.7 | 97 | 68-120 |
| 75-00-3 | LCS | Chloroethane | 50.0 | 0.0 | 47.4 | 95 | 73-120 |
| 75-69-4 | LCS | Trichlorofluoromethane | 50.0 | 0.0 | 47.7 | 95 | 65-123 |
| 60-29-7 | LCS | Ethyl ether | 50.0 | 0.0 | 45.6 | 91 | 74-120 |
| 75-35-4 | LCS | 1,1-Dichloroethylene | 50.0 | 0.0 | 47.0 | 94 | 76-127 |
| 75-09-2 | LCS | Methylene chloride | 50.0 | 0.0 | 43.1 | 86 | 72-121 |
| 1634-04-4 | LCS | tert-Butyl methyl ether | 50.0 | 0.0 | 43.5 | 87 | 76-123 |
| 156-60-5 | LCS | trans-1,2-Dichloroethylene | 50.0 | 0.0 | 46.5 | 93 | 77-123 |
| 75-34-3 | LCS | 1,1-Dichloroethane | 50.0 | 0.0 | 46.1 | 92 | 79-120 |
| 156-59-2 | LCS | cis-1,2-Dichloroethylene | 50.0 | 0.0 | 45.8 | 92 | 80-122 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-866**
**Client ID:** **LCS for batch 1305188**
**Lab Sample ID:** **1202884926**
**Instrument:** **VOA9.I**
**Analyst:** **RXY1**
**Purge Vol:** **5 mL**

**Sample Type:** **Laboratory Control Sample**
**Matrix:** **WATER**
**Analysis Date:** **05/31/2013 09:41**
**Dilution: 1**
**Batch ID:** **1305188**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 594-20-7 | LCS | 2,2-Dichloropropane | 50.0 | 0.0 | 46.5 | 93 | 76-145 |
| 67-66-3 | LCS | Chloroform | 50.0 | 0.0 | 45.9 | 92 | 80-120 |
| 74-97-5 | LCS | Bromochloromethane | 50.0 | 0.0 | 45.1 | 90 | 83-120 |
| 71-55-6 | LCS | 1,1,1-Trichloroethane | 50.0 | 0.0 | 47.1 | 94 | 80-133 |
| 563-58-6 | LCS | 1,1-Dichloropropene | 50.0 | 0.0 | 46.5 | 93 | 80-127 |
| 56-23-5 | LCS | Carbon tetrachloride | 50.0 | 0.0 | 47.5 | 95 | 77-139 |
| 107-06-2 | LCS | 1,2-Dichloroethane | 50.0 | 0.0 | 45.2 | 90 | 75-121 |
| 71-43-2 | LCS | Benzene | 50.0 | 0.0 | 44.8 | 90 | 79-120 |
| 79-01-6 | LCS | Trichloroethylene | 50.0 | 0.0 | 46.3 | 93 | 80-121 |
| 78-87-5 | LCS | 1,2-Dichloropropane | 50.0 | 0.0 | 45.5 | 91 | 80-120 |
| 75-27-4 | LCS | Bromodichloromethane | 50.0 | 0.0 | 48.2 | 96 | 80-127 |
| 74-95-3 | LCS | Dibromomethane | 50.0 | 0.0 | 45.9 | 92 | 80-120 |
| 10061-01-5 | LCS | cis-1,3-Dichloropropylene | 50.0 | 0.0 | 47.0 | 94 | 80-127 |
| 108-88-3 | LCS | Toluene | 50.0 | 0.0 | 45.5 | 91 | 77-120 |
| 10061-02-6 | LCS | trans-1,3-Dichloropropylene | 50.0 | 0.0 | 48.0 | 96 | 80-128 |
| 79-00-5 | LCS | 1,1,2-Trichloroethane | 50.0 | 0.0 | 45.4 | 91 | 79-120 |
| 142-28-9 | LCS | 1,3-Dichloropropane | 50.0 | 0.0 | 45.1 | 90 | 77-120 |
| 127-18-4 | LCS | Tetrachloroethylene | 50.0 | 0.0 | 45.2 | 90 | 77-125 |
| 124-48-1 | LCS | Dibromochloromethane | 50.0 | 0.0 | 50.4 | 101 | 77-126 |
| 106-93-4 | LCS | 1,2-Dibromoethane | 50.0 | 0.0 | 45.8 | 92 | 80-120 |
| 108-90-7 | LCS | Chlorobenzene | 50.0 | 0.0 | 46.1 | 92 | 80-120 |
| 100-41-4 | LCS | Ethylbenzene | 50.0 | 0.0 | 45.3 | 91 | 78-120 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-866**
**Client ID:** **LCS for batch 1305188**
**Lab Sample ID:** **1202884926**
**Instrument:** **VOA9.I**
**Analyst:** **RXY1**
**Purge Vol:** **5 mL**

**Sample Type:** **Laboratory Control Sample**
**Matrix:** **WATER**
**Analysis Date:** **05/31/2013 09:41**
**Dilution: 1**
**Batch ID:** **1305188**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 95-47-6 | LCS | o-Xylene | 50.0 | 0.0 | 44.8 | 90 | 80-120 |
| 100-42-5 | LCS | Styrene | 50.0 | 0.0 | 46.5 | 93 | 80-121 |
| 75-25-2 | LCS | Bromoform | 50.0 | 0.0 | 51.2 | 102 | 72-125 |
| 79-34-5 | LCS | 1,1,2,2-Tetrachloroethane | 50.0 | 0.0 | 45.7 | 91 | 73-120 |
| 96-18-4 | LCS | 1,2,3-Trichloropropane | 50.0 | 0.0 | 44.5 | 89 | 74-121 |
| 108-86-1 | LCS | Bromobenzene | 50.0 | 0.0 | 45.6 | 91 | 79-120 |
| 103-65-1 | LCS | n-Propylbenzene | 50.0 | 0.0 | 44.0 | 88 | 75-125 |
| 95-49-8 | LCS | 2-Chlorotoluene | 50.0 | 0.0 | 45.1 | 90 | 77-121 |
| 98-82-8 | LCS | Isopropylbenzene | 50.0 | 0.0 | 45.7 | 91 | 76-125 |
| 108-67-8 | LCS | 1,3,5-Trimethylbenzene | 50.0 | 0.0 | 44.7 | 89 | 77-123 |
| 106-43-4 | LCS | 4-Chlorotoluene | 50.0 | 0.0 | 45.4 | 91 | 75-120 |
| 98-06-6 | LCS | tert-Butylbenzene | 50.0 | 0.0 | 45.7 | 91 | 79-123 |
| 95-63-6 | LCS | 1,2,4-Trimethylbenzene | 50.0 | 0.0 | 44.5 | 89 | 77-121 |
| 135-98-8 | LCS | sec-Butylbenzene | 50.0 | 0.0 | 44.8 | 90 | 76-124 |
| 99-87-6 | LCS | 4-Isopropyltoluene | 50.0 | 0.0 | 44.2 | 88 | 79-125 |
| 541-73-1 | LCS | 1,3-Dichlorobenzene | 50.0 | 0.0 | 45.4 | 91 | 78-120 |
| 106-46-7 | LCS | 1,4-Dichlorobenzene | 50.0 | 0.0 | 46.0 | 92 | 77-120 |
| 104-51-8 | LCS | n-Butylbenzene | 50.0 | 0.0 | 46.2 | 92 | 75-127 |
| 96-12-8 | LCS | 1,2-Dibromo-3-chloropropane | 50.0 | 0.0 | 49.4 | 99 | 69-128 |
| 87-68-3 | LCS | Hexachlorobutadiene | 50.0 | 0.0 | 45.4 | 91 | 75-128 |
| 91-20-3 | LCS | Naphthalene | 50.0 | 0.0 | 45.9 | 92 | 71-125 |
| 87-61-6 | LCS | 1,2,3-Trichlorobenzene | 50.0 | 0.0 | 45.6 | 91 | 73-125 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-866**
**Sample Type:** **Laboratory Control Sample**
**Client ID:** **LCS for batch 1305188**
**Matrix:** **WATER**
**Lab Sample ID:** **1202884926**
**Instrument:** **VOA9.I**
**Analysis Date:** **05/31/2013 09:41**
**Dilution: 1**
**Analyst:** **RXY1**
**Purge Vol:** **5 mL**
**Batch ID:** **1305188**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 120-82-1 | LCS | 1,2,4-Trichlorobenzene | 50.0 | 0.0 | 44.7 | 89 | 75-123 |
| 630-20-6 | LCS | 1,1,1,2-Tetrachloroethane | 50.0 | 0.0 | 47.9 | 96 | 80-124 |
| 95-50-1 | LCS | 1,2-Dichlorobenzene | 50.0 | 0.0 | 45.4 | 91 | 79-120 |
| 71-36-3 | LCS | n-Butyl alcohol | 5000 | 0.0 | 4820 | 96 | 66-138 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-866**
**Sample Type:** **Laboratory Control Sample**
**Client ID:** **LCS for batch 1305188**
**Matrix:** **WATER**
**Lab Sample ID:** **1202884927**
**Instrument:** **VOA9.I**
**Analysis Date:** **05/31/2013 11:11**
**Dilution: 1**
**Analyst:** **RXY1**
**Purge Vol:** **5 mL**
**Batch ID:** **1305188**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 107-02-8 | LCS | Acrolein | 250 | 0.0 | 219 | 88 | 28-152 |
| 76-13-1 | LCS | Trichlorotrifluoroethane | 250 | 0.0 | 245 | 98 | 65-157 |
| 107-05-1 | LCS | Allyl chloride | 250 | 0.0 | 215 | 86 | 60-135 |
| 107-13-1 | LCS | Acrylonitrile | 250 | 0.0 | 236 | 94 | 64-131 |
| 107-12-0 | LCS | Propionitrile | 250 | 0.0 | 239 | 96 | 67-135 |
| 126-98-7 | LCS | Methacrylonitrile | 250 | 0.0 | 224 | 90 | 64-132 |
| 80-62-6 | LCS | Methyl methacrylate | 250 | 0.0 | 225 | 90 | 66-129 |
| 97-63-2 | LCS | Ethyl methacrylate | 250 | 0.0 | 240 | 96 | 66-132 |
| 78-83-1 | LCS | Isobutyl alcohol | 2500 | 0.0 | 2370 | 95 | 60-136 |
| 126-99-8 | LCS | 2-Chloro-1,3-butadiene | 50.0 | 0.0 | 42.6 | 85 | 45-159 |

## Method Blank Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-866** | **Client:** | **ARSL001** | **Matrix:** | **WATER** |
| **Client ID:** | **MB for batch 1305188** | **Instrument ID:** | **VOA9.I** | **Data File:** | **053113V9\9O512B.D** |
| **Lab Sample ID:** | **1202884921** | **Prep Date:** | **05/31/2013 12:09** | **Analyzed:** | **05/31/13 12:09** |
| **Column:** | **DB-624** | | | | |

**This method blank applies to the following samples and quality control samples:**

| Client Sample ID | Lab Sample ID | File ID | Date Analyzed | Time Analyzed |
|---|---|---|---|---|
| 01 LCS for batch 1305188 | 1202884926 | 053113V9\9O507L.D | 05/31/13 | 0941 |
| 02 LCS for batch 1305188 | 1202884927 | 053113V9\9O510L.D | 05/31/13 | 1111 |
| 03 CAMO-13-30568 | 326020003 | 053113V9\9O513.D | 05/31/13 | 1303 |
| 04 CAMO-13-30584 | 326020001 | 053113V9\9O514.D | 05/31/13 | 1338 |
| 05 WST59-13-34729PS | 1202884922 | 053113V9\9O519.D | 05/31/13 | 1553 |
| 06 WST59-13-34729PSD | 1202884924 | 053113V9\9O520.D | 05/31/13 | 1620 |
| 07 WST59-13-34729PS | 1202884923 | 053113V9\9O521.D | 05/31/13 | 1647 |
| 08 WST59-13-34729PSD | 1202884925 | 053113V9\9O522.D | 05/31/13 | 1714 |

# Quality Control Data

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-866** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202884921** | | | | |
| **Client Sample:** | **QC for batch 1305188** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **MB for batch 1305188** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305188** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/31/2013 12:09** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/31/2013 12:09** | | | | |
| **Data File:** | **053113V9\9O512B.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 75-71-8 | Dichlorodifluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-01-4 | Vinyl chloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-83-9 | Bromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-64-1 | Acetone | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | U | 25.0 | ug/L | 8.00 | 25.0 |
| 75-35-4 | 1,1-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-15-0 | Carbon disulfide | U | 5.00 | ug/L | 1.50 | 5.00 |
| 1634-04-4 | tert-Butyl methyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-05-4 | Vinyl acetate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-34-3 | 1,1-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | U | 5.00 | ug/L | 2.00 | 5.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-36-3 | n-Butyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 56-23-5 | Carbon tetrachloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-43-2 | Benzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | U | 5.00 | ug/L | 2.20 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-866** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202884921** | | | | |
| **Client Sample:** | **QC for batch 1305188** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **MB for batch 1305188** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305188** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/31/2013 12:09** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/31/2013 12:09** | | | | |
| **Data File:** | **053113V9\9O512B.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 142-28-9 | 1,3-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-41-4 | Ethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | U | 2.00 | ug/L | 0.300 | 2.00 |
| 95-47-6 | o-Xylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-42-5 | Styrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-82-8 | Isopropylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-43-4 | 4-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 104-51-8 | n-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.400 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-866** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202884921** | | | | |
| **Client Sample:** | **QC for batch 1305188** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **MB for batch 1305188** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305188** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/31/2013 12:09** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/31/2013 12:09** | | | | |
| **Data File:** | **053113V9\9O512B.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 51.7 | 50.0 | ug/L | 103 | (78%-124%) |
| Bromofluorobenzene | 50.6 | 50.0 | ug/L | 101 | (80%-120%) |
| Toluene-d8 | 51.0 | 50.0 | ug/L | 102 | (80%-120%) |

**Tentatively Identified Compound Summary**

| CAS No. | Tentatively Identified Compound (TIC) | RT | Estimated | Units | Fit | Qual |
|---|---|---|---|---|---|---|
| | unknown hydrocarbon | 4.197 | 5.04 | ug/L | 0 | J |
| | unknown | 5.271 | 5.63 | ug/L | 0 | J |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-866** | **Date Collected:** | **05/20/2013 13:30** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202884922** | **Date Received:** | **05/22/2013 09:35** | | |
| **Client Sample:** | **QC for batch 1305188** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **WST59-13-34729PS** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305188** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/31/2013 15:53** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/31/2013 15:53** | | | | |
| **Data File:** | **053113V9\9O519.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 75-71-8 | Dichlorodifluoromethane | | 47.3 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | | 51.9 | ug/L | 0.300 | 1.00 |
| 75-01-4 | Vinyl chloride | | 50.7 | ug/L | 0.300 | 1.00 |
| 74-83-9 | Bromomethane | | 52.5 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | | 48.8 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | | 48.3 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | | 44.5 | ug/L | 0.300 | 1.00 |
| 67-64-1 | Acetone | | 289 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | | 1140 | ug/L | 8.00 | 25.0 |
| 75-35-4 | 1,1-Dichloroethylene | | 47.3 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | | 212 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | | 43.7 | ug/L | 3.00 | 10.0 |
| 75-15-0 | Carbon disulfide | | 232 | ug/L | 1.50 | 5.00 |
| 1634-04-4 | tert-Butyl methyl ether | | 44.3 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | | 45.8 | ug/L | 0.300 | 1.00 |
| 108-05-4 | Vinyl acetate | | 256 | ug/L | 1.50 | 5.00 |
| 75-34-3 | 1,1-Dichloroethane | | 46.5 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | | 283 | ug/L | 2.00 | 5.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | | 45.5 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | | 45.7 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | | 45.6 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | | 45.0 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | | 47.5 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | | 46.4 | ug/L | 0.300 | 1.00 |
| 71-36-3 | n-Butyl alcohol | | 5490 | ug/L | 15.0 | 50.0 |
| 56-23-5 | Carbon tetrachloride | | 47.5 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | | 45.8 | ug/L | 0.300 | 1.00 |
| 71-43-2 | Benzene | | 45.2 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | | 45.7 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | | 46.0 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | | 48.0 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | | 47.0 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | | 240 | ug/L | 1.50 | 5.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | | 47.7 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | | 45.2 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | | 47.5 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | | 45.6 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | | 226 | ug/L | 2.20 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-866** | **Date Collected:** | **05/20/2013 13:30** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202884922** | **Date Received:** | **05/22/2013 09:35** | | |
| **Client Sample:** | **QC for batch 1305188** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **WST59-13-34729PS** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305188** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/31/2013 15:53** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/31/2013 15:53** | | | | |
| **Data File:** | **053113V9\9O519.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 142-28-9 | 1,3-Dichloropropane | | 45.3 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | | 44.3 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | | 49.5 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | | 46.2 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | | 45.8 | ug/L | 0.300 | 1.00 |
| 100-41-4 | Ethylbenzene | | 45.8 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | | 93.2 | ug/L | 0.300 | 2.00 |
| 95-47-6 | o-Xylene | | 45.1 | ug/L | 0.300 | 1.00 |
| 100-42-5 | Styrene | | 47.5 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | | 50.2 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | | 47.5 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | | 46.6 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | | 46.4 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | | 45.0 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | | 46.1 | ug/L | 0.300 | 1.00 |
| 98-82-8 | Isopropylbenzene | | 45.6 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | | 45.3 | ug/L | 0.300 | 1.00 |
| 106-43-4 | 4-Chlorotoluene | | 45.9 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | | 44.5 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | | 44.9 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | | 46.0 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | | 44.6 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | | 45.7 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | | 46.9 | ug/L | 0.300 | 1.00 |
| 104-51-8 | n-Butylbenzene | | 47.2 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | | 49.9 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | | 45.1 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | | 46.6 | ug/L | 0.400 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | | 45.0 | ug/L | 0.300 | 1.00 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-866** | **Date Collected:** | **05/20/2013 13:30** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202884922** | **Date Received:** | **05/22/2013 09:35** | | |
| **Client Sample:** | **QC for batch 1305188** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **WST59-13-34729PS** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305188** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/31/2013 15:53** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/31/2013 15:53** | | | | |
| **Data File:** | **053113V9\9O519.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | | 47.6 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | | 44.5 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | | 45.7 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 51.5 | 50.0 | ug/L | 103 | (78%-124%) |
| Bromofluorobenzene | 52.0 | 50.0 | ug/L | 104 | (80%-120%) |
| Toluene-d8 | 51.6 | 50.0 | ug/L | 103 | (80%-120%) |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-866** | **Date Collected:** | **05/20/2013 13:30** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202884923** | **Date Received:** | **05/22/2013 09:35** | | |
| **Client Sample:** | **QC for batch 1305188** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **WST59-13-34729PS** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305188** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/31/2013 16:47** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/31/2013 16:47** | | | | |
| **Data File:** | **053113V9\9O521.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 75-71-8 | Dichlorodifluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-01-4 | Vinyl chloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-83-9 | Bromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-64-1 | Acetone | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | U | 25.0 | ug/L | 8.00 | 25.0 |
| 75-35-4 | 1,1-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-15-0 | Carbon disulfide | U | 5.00 | ug/L | 1.50 | 5.00 |
| 1634-04-4 | tert-Butyl methyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-05-4 | Vinyl acetate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-34-3 | 1,1-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | U | 5.00 | ug/L | 2.00 | 5.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-36-3 | n-Butyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 56-23-5 | Carbon tetrachloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-43-2 | Benzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | U | 5.00 | ug/L | 2.20 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-866** | **Date Collected:** | **05/20/2013 13:30** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202884923** | **Date Received:** | **05/22/2013 09:35** | | |
| **Client Sample:** | **QC for batch 1305188** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **WST59-13-34729PS** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305188** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/31/2013 16:47** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/31/2013 16:47** | | | | |
| **Data File:** | **053113V9\9O521.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 142-28-9 | 1,3-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-41-4 | Ethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | U | 2.00 | ug/L | 0.300 | 2.00 |
| 95-47-6 | o-Xylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-42-5 | Styrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-82-8 | Isopropylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-43-4 | 4-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 104-51-8 | n-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.400 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-02-8 | Acrolein | | 228 | ug/L | 1.50 | 5.00 |
| 76-13-1 | Trichlorotrifluoroethane | | 247 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | | 216 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | | 249 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | | 42.0 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | | 262 | ug/L | 1.50 | 5.00 |
| 126-98-7 | Methacrylonitrile | | 238 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | | 2680 | ug/L | 15.0 | 50.0 |
| 80-62-6 | Methyl methacrylate | | 240 | ug/L | 1.50 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-866** | **Date Collected:** | **05/20/2013 13:30** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202884923** | **Date Received:** | **05/22/2013 09:35** | | |
| **Client Sample:** | **QC for batch 1305188** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **WST59-13-34729PS** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305188** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/31/2013 16:47** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/31/2013 16:47** | | | | |
| **Data File:** | **053113V9\9O521.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 97-63-2 | Ethyl methacrylate | | 243 | ug/L | 1.50 | 5.00 |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 50.3 | 50.0 | ug/L | 101 | (78%-124%) |
| Bromofluorobenzene | 50.8 | 50.0 | ug/L | 102 | (80%-120%) |
| Toluene-d8 | 49.1 | 50.0 | ug/L | 98.2 | (80%-120%) |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-866** | **Date Collected:** | **05/20/2013 13:30** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202884924** | **Date Received:** | **05/22/2013 09:35** | | |
| **Client Sample:** | **QC for batch 1305188** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **WST59-13-34729PSD** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305188** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/31/2013 16:20** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/31/2013 16:20** | | | | |
| **Data File:** | **053113V9\9O520.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 75-71-8 | Dichlorodifluoromethane | | 43.3 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | | 45.6 | ug/L | 0.300 | 1.00 |
| 75-01-4 | Vinyl chloride | | 45.6 | ug/L | 0.300 | 1.00 |
| 74-83-9 | Bromomethane | | 46.4 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | | 43.8 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | | 44.6 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | | 42.1 | ug/L | 0.300 | 1.00 |
| 67-64-1 | Acetone | | 260 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | | 986 | ug/L | 8.00 | 25.0 |
| 75-35-4 | 1,1-Dichloroethylene | | 44.0 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | | 195 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | | 40.2 | ug/L | 3.00 | 10.0 |
| 75-15-0 | Carbon disulfide | | 214 | ug/L | 1.50 | 5.00 |
| 1634-04-4 | tert-Butyl methyl ether | | 40.4 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | | 42.8 | ug/L | 0.300 | 1.00 |
| 108-05-4 | Vinyl acetate | | 230 | ug/L | 1.50 | 5.00 |
| 75-34-3 | 1,1-Dichloroethane | | 43.0 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | | 250 | ug/L | 2.00 | 5.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | | 42.4 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | | 41.9 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | | 42.6 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | | 41.5 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | | 43.5 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | | 43.0 | ug/L | 0.300 | 1.00 |
| 71-36-3 | n-Butyl alcohol | | 4780 | ug/L | 15.0 | 50.0 |
| 56-23-5 | Carbon tetrachloride | | 43.8 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | | 42.4 | ug/L | 0.300 | 1.00 |
| 71-43-2 | Benzene | | 42.1 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | | 42.8 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | | 43.0 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | | 44.5 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | | 43.5 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | | 214 | ug/L | 1.50 | 5.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | | 43.6 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | | 42.4 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | | 44.7 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | | 42.9 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | | 202 | ug/L | 2.20 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-866** | **Date Collected:** | **05/20/2013 13:30** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202884924** | **Date Received:** | **05/22/2013 09:35** | | |
| **Client Sample:** | **QC for batch 1305188** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **WST59-13-34729PSD** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305188** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/31/2013 16:20** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/31/2013 16:20** | | | | |
| **Data File:** | **053113V9\9O520.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 142-28-9 | 1,3-Dichloropropane | | 42.1 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | | 42.5 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | | 46.8 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | | 42.6 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | | 43.1 | ug/L | 0.300 | 1.00 |
| 100-41-4 | Ethylbenzene | | 42.9 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | | 87.9 | ug/L | 0.300 | 2.00 |
| 95-47-6 | o-Xylene | | 42.3 | ug/L | 0.300 | 1.00 |
| 100-42-5 | Styrene | | 44.1 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | | 47.1 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | | 44.5 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | | 43.0 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | | 43.7 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | | 43.2 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | | 43.8 | ug/L | 0.300 | 1.00 |
| 98-82-8 | Isopropylbenzene | | 44.3 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | | 44.0 | ug/L | 0.300 | 1.00 |
| 106-43-4 | 4-Chlorotoluene | | 44.1 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | | 43.9 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | | 43.7 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | | 44.6 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | | 43.3 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | | 43.3 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | | 44.2 | ug/L | 0.300 | 1.00 |
| 104-51-8 | n-Butylbenzene | | 45.2 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | | 47.1 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | | 42.7 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | | 45.3 | ug/L | 0.400 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | | 44.3 | ug/L | 0.300 | 1.00 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-866** | **Date Collected:** | **05/20/2013 13:30** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202884924** | **Date Received:** | **05/22/2013 09:35** | | |
| **Client Sample:** | **QC for batch 1305188** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **WST59-13-34729PSD** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305188** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/31/2013 16:20** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/31/2013 16:20** | | | | |
| **Data File:** | **053113V9\9O520.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | | 45.0 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | | 43.2 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | | 43.9 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 48.1 | 50.0 | ug/L | 96.3 | (78%-124%) |
| Bromofluorobenzene | 50.6 | 50.0 | ug/L | 101 | (80%-120%) |
| Toluene-d8 | 49.6 | 50.0 | ug/L | 99.3 | (80%-120%) |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-866** | **Date Collected:** | **05/20/2013 13:30** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202884925** | **Date Received:** | **05/22/2013 09:35** | | |
| **Client Sample:** | **QC for batch 1305188** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **WST59-13-34729PSD** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305188** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/31/2013 17:14** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/31/2013 17:14** | | | | |
| **Data File:** | **053113V9\9O522.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 75-71-8 | Dichlorodifluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-01-4 | Vinyl chloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-83-9 | Bromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-64-1 | Acetone | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | U | 25.0 | ug/L | 8.00 | 25.0 |
| 75-35-4 | 1,1-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-15-0 | Carbon disulfide | U | 5.00 | ug/L | 1.50 | 5.00 |
| 1634-04-4 | tert-Butyl methyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-05-4 | Vinyl acetate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-34-3 | 1,1-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | U | 5.00 | ug/L | 2.00 | 5.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-36-3 | n-Butyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 56-23-5 | Carbon tetrachloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-43-2 | Benzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | U | 5.00 | ug/L | 2.20 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-866** | **Date Collected:** | **05/20/2013 13:30** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202884925** | **Date Received:** | **05/22/2013 09:35** | | |
| **Client Sample:** | **QC for batch 1305188** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **WST59-13-34729PSD** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305188** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/31/2013 17:14** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/31/2013 17:14** | | | | |
| **Data File:** | **053113V9\9O522.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 142-28-9 | 1,3-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-41-4 | Ethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | U | 2.00 | ug/L | 0.300 | 2.00 |
| 95-47-6 | o-Xylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-42-5 | Styrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-82-8 | Isopropylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-43-4 | 4-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 104-51-8 | n-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.400 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-02-8 | Acrolein | | 201 | ug/L | 1.50 | 5.00 |
| 76-13-1 | Trichlorotrifluoroethane | | 245 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | | 217 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | | 249 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | | 43.0 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | | 261 | ug/L | 1.50 | 5.00 |
| 126-98-7 | Methacrylonitrile | | 238 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | | 2730 | ug/L | 15.0 | 50.0 |
| 80-62-6 | Methyl methacrylate | | 239 | ug/L | 1.50 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-866** | **Date Collected:** | **05/20/2013 13:30** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202884925** | **Date Received:** | **05/22/2013 09:35** | | |
| **Client Sample:** | **QC for batch 1305188** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **WST59-13-34729PSD** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305188** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/31/2013 17:14** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/31/2013 17:14** | | | | |
| **Data File:** | **053113V9\9O522.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 97-63-2 | Ethyl methacrylate | | 257 | ug/L | 1.50 | 5.00 |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 49.3 | 50.0 | ug/L | 98.6 | (78%-124%) |
| Bromofluorobenzene | 50.3 | 50.0 | ug/L | 101 | (80%-120%) |
| Toluene-d8 | 50.9 | 50.0 | ug/L | 102 | (80%-120%) |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-866** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202884926** | | | | |
| **Client Sample:** | **QC for batch 1305188** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1305188** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305188** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/31/2013 09:41** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/31/2013 09:41** | | | | |
| **Data File:** | **053113V9\9O507L.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 75-71-8 | Dichlorodifluoromethane | | 46.1 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | | 47.3 | ug/L | 0.300 | 1.00 |
| 75-01-4 | Vinyl chloride | | 46.7 | ug/L | 0.300 | 1.00 |
| 74-83-9 | Bromomethane | | 48.7 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | | 47.4 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | | 47.7 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | | 45.6 | ug/L | 0.300 | 1.00 |
| 67-64-1 | Acetone | | 217 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | | 1060 | ug/L | 8.00 | 25.0 |
| 75-35-4 | 1,1-Dichloroethylene | | 47.0 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | | 210 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | | 43.1 | ug/L | 3.00 | 10.0 |
| 75-15-0 | Carbon disulfide | | 226 | ug/L | 1.50 | 5.00 |
| 1634-04-4 | tert-Butyl methyl ether | | 43.5 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | | 46.5 | ug/L | 0.300 | 1.00 |
| 108-05-4 | Vinyl acetate | | 261 | ug/L | 1.50 | 5.00 |
| 75-34-3 | 1,1-Dichloroethane | | 46.1 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | | 225 | ug/L | 2.00 | 5.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | | 45.8 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | | 46.5 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | | 45.9 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | | 45.1 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | | 47.1 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | | 46.5 | ug/L | 0.300 | 1.00 |
| 71-36-3 | n-Butyl alcohol | | 4820 | ug/L | 15.0 | 50.0 |
| 56-23-5 | Carbon tetrachloride | | 47.5 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | | 45.2 | ug/L | 0.300 | 1.00 |
| 71-43-2 | Benzene | | 44.8 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | | 46.3 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | | 45.5 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | | 48.2 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | | 45.9 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | | 223 | ug/L | 1.50 | 5.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | | 47.0 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | | 45.5 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | | 48.0 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | | 45.4 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | | 239 | ug/L | 2.20 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-866** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202884926** | | | | |
| **Client Sample:** | **QC for batch 1305188** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1305188** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305188** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/31/2013 09:41** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/31/2013 09:41** | | | | |
| **Data File:** | **053113V9\9O507L.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 142-28-9 | 1,3-Dichloropropane | | 45.1 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | | 45.2 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | | 50.4 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | | 45.8 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | | 46.1 | ug/L | 0.300 | 1.00 |
| 100-41-4 | Ethylbenzene | | 45.3 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | | 93.6 | ug/L | 0.300 | 2.00 |
| 95-47-6 | o-Xylene | | 44.8 | ug/L | 0.300 | 1.00 |
| 100-42-5 | Styrene | | 46.5 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | | 51.2 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | | 45.7 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | | 44.5 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | | 45.6 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | | 44.0 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | | 45.1 | ug/L | 0.300 | 1.00 |
| 98-82-8 | Isopropylbenzene | | 45.7 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | | 44.7 | ug/L | 0.300 | 1.00 |
| 106-43-4 | 4-Chlorotoluene | | 45.4 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | | 45.7 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | | 44.5 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | | 44.8 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | | 44.2 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | | 45.4 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | | 46.0 | ug/L | 0.300 | 1.00 |
| 104-51-8 | n-Butylbenzene | | 46.2 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | | 49.4 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | | 45.4 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | | 45.9 | ug/L | 0.400 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | | 45.6 | ug/L | 0.300 | 1.00 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-866** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202884926** | | | | |
| **Client Sample:** | **QC for batch 1305188** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1305188** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305188** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/31/2013 09:41** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/31/2013 09:41** | | | | |
| **Data File:** | **053113V9\9O507L.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | | 47.9 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | | 44.7 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | | 45.4 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 45.4 | 50.0 | ug/L | 90.7 | (78%-124%) |
| Bromofluorobenzene | 46.9 | 50.0 | ug/L | 93.8 | (80%-120%) |
| Toluene-d8 | 47.0 | 50.0 | ug/L | 94.1 | (80%-120%) |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-866** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202884927** | | | | |
| **Client Sample:** | **QC for batch 1305188** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1305188** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305188** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/31/2013 11:11** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/31/2013 11:11** | | | | |
| **Data File:** | **053113V9\9O510L.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 75-71-8 | Dichlorodifluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-01-4 | Vinyl chloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-83-9 | Bromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-64-1 | Acetone | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | U | 25.0 | ug/L | 8.00 | 25.0 |
| 75-35-4 | 1,1-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-15-0 | Carbon disulfide | U | 5.00 | ug/L | 1.50 | 5.00 |
| 1634-04-4 | tert-Butyl methyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-05-4 | Vinyl acetate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-34-3 | 1,1-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | U | 5.00 | ug/L | 2.00 | 5.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-36-3 | n-Butyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 56-23-5 | Carbon tetrachloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-43-2 | Benzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | U | 5.00 | ug/L | 2.20 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-866** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202884927** | | | | |
| **Client Sample:** | **QC for batch 1305188** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1305188** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305188** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/31/2013 11:11** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/31/2013 11:11** | | | | |
| **Data File:** | **053113V9\9O510L.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 142-28-9 | 1,3-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-41-4 | Ethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | U | 2.00 | ug/L | 0.300 | 2.00 |
| 95-47-6 | o-Xylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-42-5 | Styrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-82-8 | Isopropylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-43-4 | 4-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 104-51-8 | n-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.400 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-02-8 | Acrolein | | 219 | ug/L | 1.50 | 5.00 |
| 76-13-1 | Trichlorotrifluoroethane | | 245 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | | 215 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | | 236 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | | 42.6 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | | 239 | ug/L | 1.50 | 5.00 |
| 126-98-7 | Methacrylonitrile | | 224 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | | 2370 | ug/L | 15.0 | 50.0 |
| 80-62-6 | Methyl methacrylate | | 225 | ug/L | 1.50 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-866** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202884927** | | | | |
| **Client Sample:** | **QC for batch 1305188** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1305188** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1305188** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/31/2013 11:11** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/31/2013 11:11** | | | | |
| **Data File:** | **053113V9\9O510L.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 97-63-2 | Ethyl methacrylate | | 240 | ug/L | 1.50 | 5.00 |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 49.1 | 50.0 | ug/L | 98.2 | (78%-124%) |
| Bromofluorobenzene | 49.9 | 50.0 | ug/L | 99.9 | (80%-120%) |
| Toluene-d8 | 50.8 | 50.0 | ug/L | 102 | (80%-120%) |

# Semi-Volatile Analysis

# Case Narrative

**Semi-Volatile Case Narrative**
**ARS International (ARSL)**
**SDG 2013-866**

## Method/Analysis Information

| | |
|---|---|
| **Procedure:** | **Analysis of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry** |
| Analytical Method: | SW846 8270C |
| Prep Method: | SW846 3510C |
| Analytical Batch Number: | 1303788 |
| Prep Batch Number: | 1303786 |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 8270C:

| Sample ID | Client ID |
|---|---|
| 326020001 | CAMO-13-30584 |
| 1202881119 | Method Blank (MB) |
| 1202881120 | Laboratory Control Sample (LCS) |
| 1202881121 | 326213001(CAMO-13-30615) Matrix Spike (MS) |
| 1202881122 | 326213001(CAMO-13-30615) Matrix Spike Duplicate (MSD) |

The samples in this SDG were analyzed on an "as received" basis.

## Preparation/Analytical Method Verification

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-009 REV# 30.

Raw data reports are processed and reviewed by the analyst using the data analysis software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP).

## Calibration Information

A complete list of the initial calibration data files are shown in the Calibration History report located in the Standard Data section of the data package. The various calibration mixes may not be calibrated using all of the calibration levels. In addition, not all of the mixes are calibrated using the same levels.

Diphenylamine has now superseded N-Nitroso-diphenylamine on Quantitation Reports, Initial Calibration Reports, Calibration Check Standard Reports, etc. Previous versions of EPA Methodologies referenced N-Nitroso-diphenylamine. However, as stated in EPA Methodology, "N-Nitroso-diphenylamine decomposes in the gas chromatographic inlet and cannot be separated from Diphenylamine." Studies of these two compounds at

GEL, both independent of each other and together, showed that they not only co-elute, but also have similar mass spectra. N-Nitroso-diphenylamine and Diphenylamine will be reported as Diphenylamine on all reports and forms.

**Initial Calibration**
All initial calibration requirements have been met for this sample delivery group (SDG) in this batch. A second source initial calibration verification (ICV) was included in the standard section directly behind the initial calibration.

**CCV Requirements**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG in this batch met the acceptance criteria.

**Surrogate Recoveries**
All the surrogate recoveries were within the established acceptance criteria for this SDG in this batch.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recoveries met the acceptance limits.

**QC Sample Designation**
Sample 326213001 (CAMO-13-30615) was selected for analysis as the matrix spike and matrix spike duplicate.

**Matrix Spike (MS) Recovery Statement**
The MS, 1202881121 (CAMO-13-30615), recovered p-Nitroaniline at 154%. The limits are 25%-133%. Since the analyte was not detected in the parent sample, the high recoveries do not have any adverse impact on the data. The data results have been reported.

**Matrix Spike Duplicate (MSD) Recovery Statement**
The MSD, 1202881122 (CAMO-13-30615), recovered p-Nitroaniline at 147%. The limits are 25%-133%. Since the analyte was not detected in the parent sample, the high recoveries do not have any adverse impact on the data. The data results have been reported.

**MS/MSD Relative Percent Difference (RPD) Statement**
The MS and MSD, 1202881121 (CAMO-13-30615) and 1202881122 (CAMO-13-30615), RPD value for Benzidine was 48%. The limit is 30%. Higher recovery in the MS caused the RPD failure. Individually, the analyte recovered within acceptance limits in the MS and MSD and it was not detected in the parent sample. The data results have been reported.

**Internal Standard (ISTD) Acceptance**
The internal standard responses used to quantitate the requested target analytes were within the required acceptance criteria for the SDG associated samples in this batch.

**Technical Information:**

**Holding Time Specifications**
All samples in this SDG in this batch met the specified holding time. GEL assigns holding times based on the associated methodology that assigns the date and time from sample collection or sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

**Preparation/Analytical Method Verification**
All procedures were performed as stated in the SOP. All reported compound mass spectra met the detection

specifications in the method.

**Sample Dilutions**
The LCS(1202881120) was analyzed at a dilution due to the presence of over range target analyte. The re-analysis data were reported for the over range analyte only and the original analysis data were reported for all other analytes.

**Sample Re-extraction/Re-analysis**
The LCS(1202881120) was re-analyzed at a dilution due to the presence of over range target analyte.

**Miscellaneous Information:**

**Data Exception (DER) Documentation**
Data exception report 1189983 was generated for the samples in this batch for this SDG.

**Manual Integrations**
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations. Manual integrations, if any, are included with the raw data.

**TIC Comment**
Tentatively identified compounds (TIC) may be requested for samples 1202881119 (MB) and 326020001 (CAMO-13-30584) in this delivery group/work order. Please note that non-requested calibrated analytes detected in a client sample may be reported on the Form 1/Certificate of Analysis as TICs. TIC data, if requested, are included on the Sample Data Summary (Form 1) and are also included with the sample raw data.

**Additional Comments**
The additional comments field is used to address special issues associated with each analysis, clarify method/contractual issues pertaining to the analysis, and to list any report documents generated as a result of sample analysis or review. The following additional comments were required:

Due to rounding differences in the calculation, the data reported in the Surrogate Recovery Report may differ slightly from the raw data. Due to software issue, the raw data may not correctly display the updated SPC limits. Please see Sample Data Summary Report and Surrogate Recovery Report for the correct surrogate acceptance limits.

**Electronic Package Comment**

The following package was generated using an electronic data processing program referred to as "virtual packaging". In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from "traditional" packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative of each electronic package will indicate the reviewer name associated with the generation of the data and package. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**System Configuration**

The Semi-Volatile-GC/MS analysis was performed on the following instrument configuration:

| Instrument ID | Instrument | System Configuration | Column ID | Column Description |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| MSD8.I | Agilent 6890/5973 GC/MS w/ 7683 Autosampler | HP6890/HP5973 | DB-5MS | 25m x 0.2mm, 0.33um (5% Phenylmethylpolysiloxane) |

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-866  GEL Work Order: 326020

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

**  Analyte is a surrogate compound

E  Concentration of the target analyte exceeds the instrument calibration range

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL  Indicates that sample is diluted.
RA  Indicates that sample is re-analyzed without re-extraction.
RE  Indicates that sample is re-extracted.

**Review/Validation**

GEL requires all analytical data to be verified by a qualified data reviewer.  In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

**Signature:** Barbara Bailey  **Name: Barbara Bailey**

**Date: 13 JUN 2013**  **Title: Data Validator**

# Sample Data Summary

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-866** | **Date Collected:** | **05/17/2013 12:52** | **Matrix:** | **W** |
| **Lab Sample ID:** | **326020001** | **Date Received:** | **05/18/2013 09:20** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30584** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1303788** | **Inst:** | **MSD8.I** | **Dilution:** | **1** |
| **Run Date:** | **05/24/2013 20:15** | **Analyst:** | **AGS1** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/24/2013 08:25** | **Aliquot:** | **960 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s052413.B\s8E2410.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 62-75-9 | N-Methyl-N-nitrosomethylamine | U | 10.4 | ug/L | 3.13 | 10.4 |
| 110-86-1 | Pyridine | U | 10.4 | ug/L | 3.13 | 10.4 |
| 62-53-3 | Aniline | U | 10.4 | ug/L | 3.13 | 10.4 |
| 108-95-2 | Phenol | U | 10.4 | ug/L | 3.13 | 10.4 |
| 111-44-4 | bis(2-Chloroethyl) ether | U | 10.4 | ug/L | 3.13 | 10.4 |
| 95-57-8 | 2-Chlorophenol | U | 10.4 | ug/L | 3.13 | 10.4 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 10.4 | ug/L | 3.13 | 10.4 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 10.4 | ug/L | 3.13 | 10.4 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 10.4 | ug/L | 3.13 | 10.4 |
| 39638-32-9 | bis(2-Chloroisopropyl)ether | U | 10.4 | ug/L | 3.13 | 10.4 |
| 100-51-6 | Benzyl alcohol | U | 10.4 | ug/L | 3.13 | 10.4 |
| 95-48-7 | o-Cresol | U | 10.4 | ug/L | 3.13 | 10.4 |
| 65794-96-9 | m,p-Cresols | U | 10.4 | ug/L | 3.13 | 10.4 |
| 621-64-7 | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | U | 10.4 | ug/L | 3.13 | 10.4 |
| 67-72-1 | Hexachloroethane | U | 10.4 | ug/L | 3.13 | 10.4 |
| 98-95-3 | Nitrobenzene | U | 10.4 | ug/L | 3.13 | 10.4 |
| 78-59-1 | Isophorone | U | 10.4 | ug/L | 3.13 | 10.4 |
| 88-75-5 | 2-Nitrophenol | U | 10.4 | ug/L | 3.13 | 10.4 |
| 105-67-9 | 2,4-Dimethylphenol | U | 10.4 | ug/L | 3.13 | 10.4 |
| 111-91-1 | bis(2-Chloroethoxy)methane | U | 10.4 | ug/L | 3.13 | 10.4 |
| 120-83-2 | 2,4-Dichlorophenol | U | 10.4 | ug/L | 3.13 | 10.4 |
| 65-85-0 | Benzoic acid | U | 20.8 | ug/L | 6.25 | 20.8 |
| 106-47-8 | 4-Chloroaniline | U | 10.4 | ug/L | 3.44 | 10.4 |
| 87-68-3 | Hexachlorobutadiene | U | 10.4 | ug/L | 3.13 | 10.4 |
| 59-50-7 | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | U | 10.4 | ug/L | 3.13 | 10.4 |
| 91-57-6 | 2-Methylnaphthalene | U | 1.04 | ug/L | 0.313 | 1.04 |
| 91-20-3 | Naphthalene | U | 1.04 | ug/L | 0.313 | 1.04 |
| 90-12-0 | 1-Methylnaphthalene | U | 1.04 | ug/L | 0.313 | 1.04 |
| 77-47-4 | Hexachlorocyclopentadiene | U | 10.4 | ug/L | 3.13 | 10.4 |
| 88-06-2 | 2,4,6-Trichlorophenol | U | 10.4 | ug/L | 3.13 | 10.4 |
| 95-95-4 | 2,4,5-Trichlorophenol | U | 10.4 | ug/L | 3.13 | 10.4 |
| 91-58-7 | 2-Chloronaphthalene | U | 1.04 | ug/L | 0.313 | 1.04 |
| 88-74-4 | 2-Nitroaniline<br>*o-Nitroaniline* | U | 10.4 | ug/L | 3.13 | 10.4 |
| 99-09-2 | 3-Nitroaniline<br>*m-Nitroaniline* | U | 10.4 | ug/L | 3.13 | 10.4 |
| 131-11-3 | Dimethylphthalate | U | 10.4 | ug/L | 3.13 | 10.4 |
| 606-20-2 | 2,6-Dinitrotoluene | U | 10.4 | ug/L | 3.13 | 10.4 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-866** | **Date Collected:** | **05/17/2013 12:52** | **Matrix:** | **W** |
| **Lab Sample ID:** | **326020001** | **Date Received:** | **05/18/2013 09:20** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30584** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1303788** | **Inst:** | **MSD8.I** | **Dilution:** | **1** |
| **Run Date:** | **05/24/2013 20:15** | **Analyst:** | **AGS1** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/24/2013 08:25** | **Aliquot:** | **960 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s052413.B\s8E2410.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 121-14-2 | 2,4-Dinitrotoluene | U | 10.4 | ug/L | 3.13 | 10.4 |
| 208-96-8 | Acenaphthylene | U | 1.04 | ug/L | 0.313 | 1.04 |
| 83-32-9 | Acenaphthene | U | 1.04 | ug/L | 0.313 | 1.04 |
| 51-28-5 | 2,4-Dinitrophenol | U | 20.8 | ug/L | 5.21 | 20.8 |
| 132-64-9 | Dibenzofuran | U | 10.4 | ug/L | 3.13 | 10.4 |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | U | 10.4 | ug/L | 3.13 | 10.4 |
| 84-66-2 | Diethylphthalate | U | 10.4 | ug/L | 3.13 | 10.4 |
| 100-02-7 | 4-Nitrophenol | U | 10.4 | ug/L | 3.13 | 10.4 |
| 86-73-7 | Fluorene | U | 1.04 | ug/L | 0.313 | 1.04 |
| 7005-72-3 | 4-Chlorophenylphenylether | U | 10.4 | ug/L | 3.13 | 10.4 |
| 100-01-6 | 4-Nitroaniline | U | 10.4 | ug/L | 3.13 | 10.4 |
| | *p-Nitroaniline* | | | | | |
| 534-52-1 | 2-Methyl-4,6-dinitrophenol | U | 10.4 | ug/L | 3.13 | 10.4 |
| 122-39-4 | Diphenylamine | U | 10.4 | ug/L | 3.13 | 10.4 |
| 122-66-7 | Azobenzene | U | 10.4 | ug/L | 3.13 | 10.4 |
| | *1,2-Diphenylhydrazine* | | | | | |
| 101-55-3 | 4-Bromophenylphenylether | U | 10.4 | ug/L | 3.13 | 10.4 |
| 118-74-1 | Hexachlorobenzene | U | 10.4 | ug/L | 3.13 | 10.4 |
| 87-86-5 | Pentachlorophenol | U | 10.4 | ug/L | 3.13 | 10.4 |
| 88-85-7 | Dinoseb | U | 10.4 | ug/L | 3.13 | 10.4 |
| 85-01-8 | Phenanthrene | U | 1.04 | ug/L | 0.313 | 1.04 |
| 120-12-7 | Anthracene | U | 1.04 | ug/L | 0.313 | 1.04 |
| 84-74-2 | Di-n-butylphthalate | U | 10.4 | ug/L | 3.13 | 10.4 |
| 206-44-0 | Fluoranthene | U | 1.04 | ug/L | 0.313 | 1.04 |
| 129-00-0 | Pyrene | U | 1.04 | ug/L | 0.313 | 1.04 |
| 85-68-7 | Butylbenzylphthalate | U | 10.4 | ug/L | 3.13 | 10.4 |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | U | 10.4 | ug/L | 3.13 | 10.4 |
| 56-55-3 | Benzo(a)anthracene | U | 1.04 | ug/L | 0.313 | 1.04 |
| 218-01-9 | Chrysene | U | 1.04 | ug/L | 0.313 | 1.04 |
| 117-84-0 | Di-n-octylphthalate | U | 10.4 | ug/L | 3.13 | 10.4 |
| 205-99-2 | Benzo(b)fluoranthene | U | 1.04 | ug/L | 0.313 | 1.04 |
| 207-08-9 | Benzo(k)fluoranthene | U | 1.04 | ug/L | 0.313 | 1.04 |
| 50-32-8 | Benzo(a)pyrene | U | 1.04 | ug/L | 0.458 | 1.04 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | U | 1.04 | ug/L | 0.313 | 1.04 |
| 53-70-3 | Dibenzo(a,h)anthracene | U | 1.04 | ug/L | 0.313 | 1.04 |
| 191-24-2 | Benzo(ghi)perylene | U | 1.04 | ug/L | 0.313 | 1.04 |
| 123-91-1 | 1,4-Dioxane | U | 10.4 | ug/L | 3.13 | 10.4 |
| 55-18-5 | N-Nitrosodiethylamine | U | 10.4 | ug/L | 3.13 | 10.4 |
| 930-55-2 | N-Nitrosopyrrolidine | U | 10.4 | ug/L | 3.13 | 10.4 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-866** | **Date Collected:** | **05/17/2013 12:52** | **Matrix:** | **W** |
| **Lab Sample ID:** | **326020001** | **Date Received:** | **05/18/2013 09:20** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30584** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1303788** | **Inst:** | **MSD8.I** | **Dilution:** | **1** |
| **Run Date:** | **05/24/2013 20:15** | **Analyst:** | **AGS1** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/24/2013 08:25** | **Aliquot:** | **960 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s052413.B\s8E2410.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 924-16-3 | N-Nitrosodi-n-butylamine | U | 10.4 | ug/L | 3.13 | 10.4 |
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | U | 10.4 | ug/L | 3.13 | 10.4 |
| 608-93-5 | Pentachlorobenzene | U | 10.4 | ug/L | 3.13 | 10.4 |
| 1912-24-9 | Atrazine | U | 10.4 | ug/L | 3.13 | 10.4 |
| 92-87-5 | Benzidine | U | 10.4 | ug/L | 3.13 | 10.4 |
| 91-94-1 | 3,3'-Dichlorobenzidine | U | 10.4 | ug/L | 3.13 | 10.4 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 10.4 | ug/L | 3.13 | 10.4 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 2,4,6-Tribromophenol | 62.6 | 104 | ug/L | 60.1 | (26%-129%) |
| 2-Fluorobiphenyl | 28.8 | 52.1 | ug/L | 55.2 | (32%-102%) |
| 2-Fluorophenol | 39.1 | 104 | ug/L | 37.6 | (10%-78%) |
| Nitrobenzene-d5 | 32.0 | 52.1 | ug/L | 61.4 | (36%-125%) |
| Phenol-d5 | 27.5 | 104 | ug/L | 26.4 | (10%-104%) |
| p-Terphenyl-d14 | 33.1 | 52.1 | ug/L | 63.5 | (34%-135%) |

**Tentatively Identified Compound Summary**

| CAS No. | Tentatively Identified Compound (TIC) | RT | Estimated | Units | Fit | Qual |
|---|---|---|---|---|---|---|
| | unknown | 1.989 | 5.19 | ug/L | 0 | J |
| 000067-66-3 | Trichloromethane | 2.069 | 43.8 | ug/L | 94 | NJ |
| | unknown | 2.325 | 41.3 | ug/L | 0 | J |
| | unknown | 2.358 | 23.5 | ug/L | 0 | J |
| | unknown | 2.427 | 238 | ug/L | 0 | J |
| | unknown | 3.55 | 6.04 | ug/L | 0 | J |
| | unknown | 3.962 | 6.4 | ug/L | 0 | J |
| | unknown | 4.46 | 4.3 | ug/L | 0 | J |
| | unknown | 4.861 | 5.83 | ug/L | 0 | J |
| | unknown | 5.021 | 6.59 | ug/L | 0 | J |
| 004291-79-6 | Cyclohexane, 1-methyl-2-propyl- | 5.224 | 5.76 | ug/L | 86 | NJ |

# Quality Control Summary

**Semi-Volatile**

## Surrogate Recovery Report

**SDG Number: 2013-866**

**Matrix Type: LIQUID**

| Sample ID | Client ID | 2FP %REC | PHL %REC | NBZ %REC | FBP %REC | TBP %REC | TPH %REC |
|---|---|---|---|---|---|---|---|
| 1202881119 | MB for batch 1303786 | 57 | 39 | 97 | 94 | 99 | 105 |
| 1202881120 | LCS for batch 1303786 | 53 | 36 | 85 | 72 | 98 | 89 |
| 326020001 | CAMO-13-30584 | 38 | 26 | 61 | 55 | 60 | 63 |
| 1202881121 | CAMO-13-30615MS | 70 | 61 | 85 | 73 | 98 | 81 |
| 1202881122 | CAMO-13-30615MSD | 67 | 60 | 85 | 72 | 95 | 91 |
| 1202881120 | LCS for batch 1303786DL | 44 D | 30 D | 72 D | 67 D | 83 D | 85 D |

| Surrogate | | | Acceptance Limits |
|---|---|---|---|
| 2FP | = | 2-Fluorophenol | (10%-78%) |
| PHL | = | Phenol-d5 | (10%-104%) |
| NBZ | = | Nitrobenzene-d5 | (36%-125%) |
| FBP | = | 2-Fluorobiphenyl | (32%-102%) |
| TBP | = | 2,4,6-Tribromophenol | (26%-129%) |
| TPH | = | p-Terphenyl-d14 | (34%-135%) |

* Recovery outside Acceptance Limits

\# Column to be used to flag recovery values

D Sample Diluted

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-866**
**Client ID:** **LCS for batch 1303786**
**Lab Sample ID:** **1202881120**
**Instrument:** **MSD8.I**
**Analyst:** **AGS1**
**Inj. Vol:** **1 uL**

**Sample Type:** **Laboratory Control Sample**
**Matrix:** **WATER**
**Analysis Date:** **05/24/2013 18:06**
**Prep Batch ID:** **1303786**
**Batch ID:** **1303788**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 62-75-9 | LCS | N-Methyl-N-nitrosomethylam | 50.0 | 0.0 | 23.9 | 48 | 18-75 |
| 110-86-1 | LCS | Pyridine | 50.0 | 0.0 | 36.0 | 72 | 11-88 |
| 62-53-3 | LCS | Aniline | 50.0 | 0.0 | 43.6 | 87 | 35-107 |
| 108-95-2 | LCS | Phenol | 50.0 | 0.0 | 17.7 | 35 | 13-77 |
| 111-44-4 | LCS | bis(2-Chloroethyl) ether | 50.0 | 0.0 | 39.0 | 78 | 35-111 |
| 95-57-8 | LCS | 2-Chlorophenol | 50.0 | 0.0 | 41.3 | 83 | 39-99 |
| 541-73-1 | LCS | 1,3-Dichlorobenzene | 50.0 | 0.0 | 30.5 | 61 | 25-100 |
| 106-46-7 | LCS | 1,4-Dichlorobenzene | 50.0 | 0.0 | 30.7 | 61 | 24-88 |
| 95-50-1 | LCS | 1,2-Dichlorobenzene | 50.0 | 0.0 | 30.6 | 61 | 27-87 |
| 39638-32-9 | LCS | bis(2-Chloroisopropyl)ether | 50.0 | 0.0 | 33.0 | 66 | 23-120 |
| 100-51-6 | LCS | Benzyl alcohol | 50.0 | 0.0 | 26.4 | 53 | 33-90 |
| 95-48-7 | LCS | o-Cresol | 50.0 | 0.0 | 34.5 | 69 | 32-90 |
| 65794-96-9 | LCS | m,p-Cresols | 50.0 | 0.0 | 38.2 | 76 | 28-100 |
| 621-64-7 | LCS | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | 50.0 | 0.0 | 41.3 | 83 | 39-113 |
| 67-72-1 | LCS | Hexachloroethane | 50.0 | 0.0 | 31.2 | 62 | 20-85 |
| 98-95-3 | LCS | Nitrobenzene | 50.0 | 0.0 | 41.3 | 83 | 41-119 |
| 78-59-1 | LCS | Isophorone | 50.0 | 0.0 | 46.5 | 93 | 49-133 |
| 88-75-5 | LCS | 2-Nitrophenol | 50.0 | 0.0 | 42.6 | 85 | 42-111 |
| 105-67-9 | LCS | 2,4-Dimethylphenol | 50.0 | 0.0 | 38.1 | 76 | 43-99 |
| 111-91-1 | LCS | bis(2-Chloroethoxy)methane | 50.0 | 0.0 | 47.7 | 95 | 44-109 |
| 120-83-2 | LCS | 2,4-Dichlorophenol | 50.0 | 0.0 | 44.0 | 88 | 45-106 |
| 65-85-0 | LCS | Benzoic acid | 100 | 0.0 | 23.4 | 23 | 10-81 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-866**
**Client ID:** **LCS for batch 1303786**
**Lab Sample ID:** **1202881120**
**Instrument:** **MSD8.I**
**Analyst:** **AGS1**
**Inj. Vol:** **1 uL**

**Sample Type:** **Laboratory Control Sample**
**Matrix:** **WATER**
**Analysis Date:** **05/24/2013 18:06**
**Prep Batch ID:** **1303786**
**Batch ID:** **1303788**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 106-47-8 | LCS | 4-Chloroaniline | 50.0 | 0.0 | 55.7 | 111 | 50-122 |
| 87-68-3 | LCS | Hexachlorobutadiene | 50.0 | 0.0 | 33.1 | 66 | 19-92 |
| 59-50-7 | LCS | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | 50.0 | 0.0 | 44.4 | 89 | 46-111 |
| 91-57-6 | LCS | 2-Methylnaphthalene | 50.0 | 0.0 | 33.9 | 68 | 33-102 |
| 91-20-3 | LCS | Naphthalene | 50.0 | 0.0 | 36.0 | 72 | 31-98 |
| 90-12-0 | LCS | 1-Methylnaphthalene | 50.0 | 0.0 | 36.6 | 73 | 35-106 |
| 77-47-4 | LCS | Hexachlorocyclopentadiene | 50.0 | 0.0 | 22.5 | 45 | 15-72 |
| 88-06-2 | LCS | 2,4,6-Trichlorophenol | 50.0 | 0.0 | 42.5 | 85 | 41-109 |
| 95-95-4 | LCS | 2,4,5-Trichlorophenol | 50.0 | 0.0 | 44.4 | 89 | 41-111 |
| 91-58-7 | LCS | 2-Chloronaphthalene | 50.0 | 0.0 | 35.5 | 71 | 36-98 |
| 88-74-4 | LCS | 2-Nitroaniline<br>*o-Nitroaniline* | 50.0 | 0.0 | 43.1 | 86 | 44-117 |
| 99-09-2 | LCS | 3-Nitroaniline<br>*m-Nitroaniline* | 50.0 | 0.0 | 55.8 | 112 | 45-124 |
| 131-11-3 | LCS | Dimethylphthalate | 50.0 | 0.0 | 47.1 | 94 | 53-112 |
| 606-20-2 | LCS | 2,6-Dinitrotoluene | 50.0 | 0.0 | 43.7 | 87 | 52-117 |
| 121-14-2 | LCS | 2,4-Dinitrotoluene | 50.0 | 0.0 | 43.1 | 86 | 45-124 |
| 208-96-8 | LCS | Acenaphthylene | 50.0 | 0.0 | 38.8 | 78 | 37-107 |
| 83-32-9 | LCS | Acenaphthene | 50.0 | 0.0 | 36.9 | 74 | 40-104 |
| 51-28-5 | LCS | 2,4-Dinitrophenol | 50.0 | 0.0 | 28.3 | 57 | 19-110 |
| 132-64-9 | LCS | Dibenzofuran | 50.0 | 0.0 | 39.9 | 80 | 45-107 |
| 58-90-2 | LCS | 2,3,4,6-Tetrachlorophenol | 50.0 | 0.0 | 45.6 | 91 | 45-120 |
| 84-66-2 | LCS | Diethylphthalate | 50.0 | 0.0 | 47.8 | 96 | 51-116 |
| 100-02-7 | LCS | 4-Nitrophenol | 50.0 | 0.0 | 18.2 | 36 | 16-77 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-866**
**Client ID:** **LCS for batch 1303786**
**Lab Sample ID:** **1202881120**
**Instrument:** **MSD8.I**
**Analyst:** **AGS1**
**Inj. Vol:** **1 uL**

**Sample Type:** **Laboratory Control Sample**
**Matrix:** **WATER**
**Analysis Date:** **05/24/2013 18:06**
**Prep Batch ID:** **1303786**
**Batch ID:** **1303788**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 86-73-7 | LCS | Fluorene | 50.0 | 0.0 | 40.9 | 82 | 43-110 |
| 7005-72-3 | LCS | 4-Chlorophenylphenylether | 50.0 | 0.0 | 43.0 | 86 | 40-114 |
| 100-01-6 | LCS | 4-Nitroaniline<br>*p-Nitroaniline* | 50.0 | 0.0 | 63.4 | 127 | 38-133 |
| 534-52-1 | LCS | 2-Methyl-4,6-dinitrophenol | 50.0 | 0.0 | 47.3 | 95 | 34-114 |
| 122-39-4 | LCS | Diphenylamine | 50.0 | 0.0 | 43.4 | 87 | 47-111 |
| 122-66-7 | LCS | Azobenzene<br>*1,2-Diphenylhydrazine* | 50.0 | 0.0 | 41.4 | 83 | 40-112 |
| 101-55-3 | LCS | 4-Bromophenylphenylether | 50.0 | 0.0 | 46.6 | 93 | 41-113 |
| 118-74-1 | LCS | Hexachlorobenzene | 50.0 | 0.0 | 46.6 | 93 | 43-116 |
| 87-86-5 | LCS | Pentachlorophenol | 50.0 | 0.0 | 33.8 | 68 | 27-102 |
| 85-01-8 | LCS | Phenanthrene | 50.0 | 0.0 | 41.8 | 84 | 47-111 |
| 120-12-7 | LCS | Anthracene | 50.0 | 0.0 | 41.6 | 83 | 46-110 |
| 84-74-2 | LCS | Di-n-butylphthalate | 50.0 | 0.0 | 46.5 | 93 | 49-116 |
| 206-44-0 | LCS | Fluoranthene | 50.0 | 0.0 | 41.1 | 82 | 45-118 |
| 129-00-0 | LCS | Pyrene | 50.0 | 0.0 | 38.8 | 78 | 38-127 |
| 85-68-7 | LCS | Butylbenzylphthalate | 50.0 | 0.0 | 40.1 | 80 | 40-122 |
| 117-81-7 | LCS | bis(2-Ethylhexyl)phthalate | 50.0 | 0.0 | 41.5 | 83 | 37-124 |
| 56-55-3 | LCS | Benzo(a)anthracene | 50.0 | 0.0 | 42.0 | 84 | 49-111 |
| 218-01-9 | LCS | Chrysene | 50.0 | 0.0 | 43.4 | 87 | 44-117 |
| 117-84-0 | LCS | Di-n-octylphthalate | 50.0 | 0.0 | 41.6 | 83 | 33-122 |
| 205-99-2 | LCS | Benzo(b)fluoranthene | 50.0 | 0.0 | 43.6 | 87 | 47-117 |
| 207-08-9 | LCS | Benzo(k)fluoranthene | 50.0 | 0.0 | 45.7 | 91 | 46-119 |
| 50-32-8 | LCS | Benzo(a)pyrene | 50.0 | 0.0 | 41.5 | 83 | 47-110 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-866**
**Client ID:** **LCS for batch 1303786**
**Lab Sample ID:** **1202881120**
**Instrument:** **MSD8.I**
**Analyst:** **AGS1**
**Inj. Vol:** **1 uL**

**Sample Type:** **Laboratory Control Sample**
**Matrix:** **WATER**
**Analysis Date:** **05/24/2013 18:06**
**Prep Batch ID:** **1303786**
**Batch ID:** **1303788**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 193-39-5 | LCS | Indeno(1,2,3-cd)pyrene | 50.0 | 0.0 | 42.6 | 85 | 37-125 |
| 53-70-3 | LCS | Dibenzo(a,h)anthracene | 50.0 | 0.0 | 44.6 | 89 | 36-125 |
| 191-24-2 | LCS | Benzo(ghi)perylene | 50.0 | 0.0 | 39.6 | 79 | 33-126 |
| 123-91-1 | LCS | 1,4-Dioxane | 50.0 | 0.0 | 26.0 | 52 | 26-73 |
| 930-55-2 | LCS | N-Nitrosopyrrolidine | 50.0 | 0.0 | 38.3 | 77 | 42-106 |
| 95-94-3 | LCS | 1,2,4,5-Tetrachlorobenzene | 50.0 | 0.0 | 34.4 | 69 | 36-95 |
| 1912-24-9 | LCS | Atrazine | 50.0 | 0.0 | 36.0 | 72 | 47-115 |
| 91-94-1 | LCS | 3,3'-Dichlorobenzidine | 50.0 | 0.0 | 47.8 | 96 | 31-113 |
| 120-82-1 | LCS | 1,2,4-Trichlorobenzene | 50.0 | 0.0 | 32.9 | 66 | 26-92 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-866**
**Client ID:** **LCS for batch 1303786DL**
**Lab Sample ID:** **1202881120**
**Instrument:** **MSD8.I**
**Analyst:** **RMB**
**Inj. Vol:** **1 uL**

**Sample Type:** **Laboratory Control Sample**
**Matrix:** **WATER**
**Analysis Date:** **05/28/2013 12:55**
**Prep Batch ID:** **1303786**
**Batch ID:** **1303788**
**Dilution: 2**

| CAS No | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|
| 92-87-5 | LCS Benzidine | 100 | 0.0 | 87.2 | 87 | 10-124 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-866**
**Client ID:** **CAMO-13-30615MS**
**Lab Sample ID:** **1202881121**
**Instrument:** **MSD8.I**
**Analyst:** **AGS1**
**Inj. Vol:** **1 uL**

**Sample Type:** **Matrix Spike**
**Matrix:** **W**
**Analysis Date:** **05/24/2013 21:50**
**Prep Batch ID:** **1303786**
**Batch ID:** **1303788**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 62-75-9 | MS | N-Methyl-N-nitrosomethylam | 112 | 0.00 | U | 72.6 | 65 | 21-88 |
| 110-86-1 | MS | Pyridine | 112 | 0.00 | U | 82.3 | 73 | 14-94 |
| 62-53-3 | MS | Aniline | 112 | 0.00 | U | 106 | 94 | 24-109 |
| 108-95-2 | MS | Phenol | 112 | 0.00 | U | 69.7 | 62 | 10-88 |
| 111-44-4 | MS | bis(2-Chloroethyl) ether | 112 | 0.00 | U | 92.9 | 83 | 25-114 |
| 95-57-8 | MS | 2-Chlorophenol | 112 | 0.00 | U | 97.3 | 87 | 31-103 |
| 541-73-1 | MS | 1,3-Dichlorobenzene | 112 | 0.00 | U | 70.0 | 62 | 18-83 |
| 106-46-7 | MS | 1,4-Dichlorobenzene | 112 | 0.00 | U | 72.6 | 65 | 20-86 |
| 95-50-1 | MS | 1,2-Dichlorobenzene | 112 | 0.00 | U | 72.7 | 65 | 21-85 |
| 39638-32-9 | MS | bis(2-Chloroisopropyl)ether | 112 | 0.00 | U | 80.8 | 72 | 16-121 |
| 100-51-6 | MS | Benzyl alcohol | 112 | 0.00 | U | 72.0 | 64 | 31-100 |
| 95-48-7 | MS | o-Cresol | 112 | 0.00 | U | 89.4 | 80 | 26-97 |
| 65794-96-9 | MS | m,p-Cresols | 112 | 0.00 | U | 110 | 98 | 24-110 |
| 621-64-7 | MS | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | 112 | 0.00 | U | 97.2 | 87 | 29-116 |
| 67-72-1 | MS | Hexachloroethane | 112 | 0.00 | U | 71.8 | 64 | 17-82 |
| 98-95-3 | MS | Nitrobenzene | 112 | 0.00 | U | 97.0 | 86 | 32-126 |
| 78-59-1 | MS | Isophorone | 112 | 0.00 | U | 104 | 93 | 36-139 |
| 88-75-5 | MS | 2-Nitrophenol | 112 | 0.00 | U | 95.4 | 85 | 29-117 |
| 105-67-9 | MS | 2,4-Dimethylphenol | 112 | 0.00 | U | 89.5 | 80 | 28-107 |
| 111-91-1 | MS | bis(2-Chloroethoxy)methane | 112 | 0.00 | U | 108 | 96 | 34-112 |
| 120-83-2 | MS | 2,4-Dichlorophenol | 112 | 0.00 | U | 102 | 90 | 34-111 |
| 65-85-0 | MS | Benzoic acid | 225 | 0.00 | U | 98.8 | 44 | 10-105 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-866** **Sample Type:** **Matrix Spike**

**Client ID:** **CAMO-13-30615MS** **Matrix:** **W**

**Lab Sample ID:** **1202881121**

**Instrument:** **MSD8.I** **Analysis Date:** **05/24/2013 21:50** **Dilution: 1**

**Analyst:** **AGS1** **Prep Batch ID:** **1303786**

**Inj. Vol:** **1 uL** **Batch ID:** **1303788**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 106-47-8 | MS | 4-Chloroaniline | 112 | 0.00 | U | 133 | 118 | 28-123 |
| 87-68-3 | MS | Hexachlorobutadiene | 112 | 0.00 | U | 73.7 | 66 | 11-97 |
| 59-50-7 | MS | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | 112 | 0.00 | U | 105 | 93 | 31-119 |
| 91-57-6 | MS | 2-Methylnaphthalene | 112 | 0.00 | U | 80.8 | 72 | 26-103 |
| 91-20-3 | MS | Naphthalene | 112 | 0.00 | U | 86.1 | 77 | 25-100 |
| 90-12-0 | MS | 1-Methylnaphthalene | 112 | 0.00 | U | 87.7 | 78 | 27-107 |
| 77-47-4 | MS | Hexachlorocyclopentadiene | 112 | 0.00 | U | 45.2 | 40 | 14-73 |
| 88-06-2 | MS | 2,4,6-Trichlorophenol | 112 | 0.00 | U | 96.9 | 86 | 31-113 |
| 95-95-4 | MS | 2,4,5-Trichlorophenol | 112 | 0.00 | U | 103 | 92 | 30-117 |
| 91-58-7 | MS | 2-Chloronaphthalene | 112 | 0.00 | U | 81.1 | 72 | 30-97 |
| 88-74-4 | MS | 2-Nitroaniline<br>*o-Nitroaniline* | 112 | 0.00 | U | 104 | 93 | 28-122 |
| 99-09-2 | MS | 3-Nitroaniline<br>*m-Nitroaniline* | 112 | 0.00 | U | 141 | 125 | 29-125 |
| 131-11-3 | MS | Dimethylphthalate | 112 | 0.00 | U | 105 | 94 | 41-116 |
| 606-20-2 | MS | 2,6-Dinitrotoluene | 112 | 0.00 | U | 98.7 | 88 | 40-123 |
| 121-14-2 | MS | 2,4-Dinitrotoluene | 112 | 0.00 | U | 104 | 93 | 34-126 |
| 208-96-8 | MS | Acenaphthylene | 112 | 0.00 | U | 88.7 | 79 | 33-104 |
| 83-32-9 | MS | Acenaphthene | 112 | 0.00 | U | 82.9 | 74 | 31-103 |
| 51-28-5 | MS | 2,4-Dinitrophenol | 112 | 0.00 | U | 69.0 | 61 | 17-110 |
| 132-64-9 | MS | Dibenzofuran | 112 | 0.00 | U | 93.0 | 83 | 36-107 |
| 58-90-2 | MS | 2,3,4,6-Tetrachlorophenol | 112 | 0.00 | U | 107 | 95 | 29-126 |
| 84-66-2 | MS | Diethylphthalate | 112 | 0.00 | U | 108 | 96 | 41-117 |
| 100-02-7 | MS | 4-Nitrophenol | 112 | 0.00 | U | 73.6 | 66 | 16-71 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-866** **Sample Type:** **Matrix Spike**

**Client ID:** **CAMO-13-30615MS** **Matrix:** **W**

**Lab Sample ID:** **1202881121**

**Instrument:** **MSD8.I** **Analysis Date:** **05/24/2013 21:50** **Dilution: 1**

**Analyst:** **AGS1** **Prep Batch ID:** **1303786**

**Inj. Vol:** **1 uL** **Batch ID:** **1303788**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 86-73-7 | MS | Fluorene | 112 | 0.00 | U | 96.1 | 86 | 32-111 |
| 7005-72-3 | MS | 4-Chlorophenylphenylether | 112 | 0.00 | U | 99.7 | 89 | 30-112 |
| 100-01-6 | MS | 4-Nitroaniline<br>*p-Nitroaniline* | 112 | 0.00 | U | 173 | 154 * | 25-133 |
| 534-52-1 | MS | 2-Methyl-4,6-dinitrophenol | 112 | 0.00 | U | 105 | 93 | 22-118 |
| 122-39-4 | MS | Diphenylamine | 112 | 0.00 | U | 94.4 | 84 | 34-111 |
| 122-66-7 | MS | Azobenzene<br>*1,2-Diphenylhydrazine* | 112 | 0.00 | U | 91.8 | 82 | 30-112 |
| 101-55-3 | MS | 4-Bromophenylphenylether | 112 | 0.00 | U | 103 | 92 | 32-111 |
| 118-74-1 | MS | Hexachlorobenzene | 112 | 0.00 | U | 100 | 89 | 33-115 |
| 87-86-5 | MS | Pentachlorophenol | 112 | 0.00 | U | 81.1 | 72 | 19-112 |
| 85-01-8 | MS | Phenanthrene | 112 | 0.00 | U | 96.0 | 85 | 34-112 |
| 120-12-7 | MS | Anthracene | 112 | 0.00 | U | 95.8 | 85 | 33-108 |
| 84-74-2 | MS | Di-n-butylphthalate | 112 | 0.00 | U | 101 | 90 | 35-118 |
| 206-44-0 | MS | Fluoranthene | 112 | 0.00 | U | 99.6 | 89 | 31-118 |
| 129-00-0 | MS | Pyrene | 112 | 0.00 | U | 83.6 | 74 | 27-126 |
| 85-68-7 | MS | Butylbenzylphthalate | 112 | 0.00 | U | 85.8 | 76 | 29-121 |
| 117-81-7 | MS | bis(2-Ethylhexyl)phthalate | 112 | 0.00 | U | 92.9 | 83 | 29-120 |
| 56-55-3 | MS | Benzo(a)anthracene | 112 | 0.00 | U | 96.7 | 86 | 35-112 |
| 218-01-9 | MS | Chrysene | 112 | 0.00 | U | 100 | 89 | 32-116 |
| 117-84-0 | MS | Di-n-octylphthalate | 112 | 0.00 | U | 96.6 | 86 | 25-118 |
| 205-99-2 | MS | Benzo(b)fluoranthene | 112 | 0.00 | U | 100 | 89 | 34-116 |
| 207-08-9 | MS | Benzo(k)fluoranthene | 112 | 0.00 | U | 106 | 94 | 34-119 |
| 50-32-8 | MS | Benzo(a)pyrene | 112 | 0.00 | U | 96.1 | 86 | 34-110 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-866**
**Client ID:** **CAMO-13-30615MS**
**Lab Sample ID:** **1202881121**
**Instrument:** **MSD8.I**
**Analyst:** **AGS1**
**Inj. Vol:** **1 uL**

**Sample Type:** **Matrix Spike**
**Matrix:** **W**
**Analysis Date:** **05/24/2013 21:50**
**Prep Batch ID:** **1303786**
**Batch ID:** **1303788**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 193-39-5 | MS | Indeno(1,2,3-cd)pyrene | 112 | 0.00 | U | 92.4 | 82 | 25-122 |
| 53-70-3 | MS | Dibenzo(a,h)anthracene | 112 | 0.00 | U | 97.2 | 87 | 24-123 |
| 191-24-2 | MS | Benzo(ghi)perylene | 112 | 0.00 | U | 86.9 | 77 | 22-122 |
| 123-91-1 | MS | 1,4-Dioxane | 112 | 0.00 | U | 79.2 | 71 | 26-88 |
| 930-55-2 | MS | N-Nitrosopyrrolidine | 112 | 0.00 | U | 95.0 | 85 | 42-110 |
| 95-94-3 | MS | 1,2,4,5-Tetrachlorobenzene | 112 | 0.00 | U | 76.5 | 68 | 29-96 |
| 1912-24-9 | MS | Atrazine | 112 | 0.00 | U | 72.2 | 64 | 33-121 |
| 92-87-5 | MS | Benzidine | 225 | 0.00 | U | 242 | 108 | 10-117 |
| 91-94-1 | MS | 3,3'-Dichlorobenzidine | 112 | 0.00 | U | 110 | 98 | 22-111 |
| 120-82-1 | MS | 1,2,4-Trichlorobenzene | 112 | 0.00 | U | 75.0 | 67 | 20-90 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-866**
**Client ID:** **CAMO-13-30615MSD**
**Lab Sample ID:** **1202881122**
**Instrument:** **MSD8.I**
**Analyst:** **AGS1**
**Inj. Vol:** **1 uL**

**Sample Type:** **Matrix Spike Duplicate**
**Matrix:** **W**
**Analysis Date:** **05/24/2013 22:22**
**Prep Batch ID:** **1303786**
**Batch ID:** **1303788**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 62-75-9 | MSD | N-Methyl-N-nitrosomethylam | 112 | 0.00 | U | 74.3 | 66 | 21-88 | 2 | 0-30 |
| 110-86-1 | MSD | Pyridine | 112 | 0.00 | U | 87.6 | 78 | 14-94 | 6 | 0-30 |
| 62-53-3 | MSD | Aniline | 112 | 0.00 | U | 109 | 97 | 24-109 | 3 | 0-30 |
| 108-95-2 | MSD | Phenol | 112 | 0.00 | U | 68.9 | 61 | 10-88 | 1 | 0-30 |
| 111-44-4 | MSD | bis(2-Chloroethyl) ether | 112 | 0.00 | U | 93.6 | 83 | 25-114 | 1 | 0-30 |
| 95-57-8 | MSD | 2-Chlorophenol | 112 | 0.00 | U | 98.7 | 88 | 31-103 | 1 | 0-30 |
| 541-73-1 | MSD | 1,3-Dichlorobenzene | 112 | 0.00 | U | 71.8 | 64 | 18-83 | 3 | 0-30 |
| 106-46-7 | MSD | 1,4-Dichlorobenzene | 112 | 0.00 | U | 74.8 | 67 | 20-86 | 3 | 0-30 |
| 95-50-1 | MSD | 1,2-Dichlorobenzene | 112 | 0.00 | U | 74.9 | 67 | 21-85 | 3 | 0-30 |
| 39638-32-9 | MSD | bis(2-Chloroisopropyl)ether | 112 | 0.00 | U | 81.9 | 73 | 16-121 | 1 | 0-30 |
| 100-51-6 | MSD | Benzyl alcohol | 112 | 0.00 | U | 73.5 | 65 | 31-100 | 2 | 0-30 |
| 95-48-7 | MSD | o-Cresol | 112 | 0.00 | U | 92.5 | 82 | 26-97 | 3 | 0-30 |
| 65794-96-9 | MSD | m,p-Cresols | 112 | 0.00 | U | 109 | 97 | 24-110 | 1 | 0-30 |
| 621-64-7 | MSD | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | 112 | 0.00 | U | 99.2 | 88 | 29-116 | 2 | 0-30 |
| 67-72-1 | MSD | Hexachloroethane | 112 | 0.00 | U | 73.6 | 66 | 17-82 | 2 | 0-30 |
| 98-95-3 | MSD | Nitrobenzene | 112 | 0.00 | U | 99.8 | 89 | 32-126 | 3 | 0-30 |
| 78-59-1 | MSD | Isophorone | 112 | 0.00 | U | 106 | 94 | 36-139 | 2 | 0-30 |
| 88-75-5 | MSD | 2-Nitrophenol | 112 | 0.00 | U | 98.8 | 88 | 29-117 | 4 | 0-30 |
| 105-67-9 | MSD | 2,4-Dimethylphenol | 112 | 0.00 | U | 92.0 | 82 | 28-107 | 3 | 0-30 |
| 111-91-1 | MSD | bis(2-Chloroethoxy)methane | 112 | 0.00 | U | 111 | 99 | 34-112 | 2 | 0-30 |
| 120-83-2 | MSD | 2,4-Dichlorophenol | 112 | 0.00 | U | 103 | 91 | 34-111 | 1 | 0-30 |
| 65-85-0 | MSD | Benzoic acid | 225 | 0.00 | U | 128 | 57 | 10-105 | 26 | 0-30 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-866**
**Client ID:** **CAMO-13-30615MSD**
**Lab Sample ID:** **1202881122**
**Instrument:** **MSD8.I**
**Analyst:** **AGS1**
**Inj. Vol:** **1 uL**

**Sample Type:** **Matrix Spike Duplicate**
**Matrix:** **W**
**Analysis Date:** **05/24/2013 22:22**
**Prep Batch ID:** **1303786**
**Batch ID:** **1303788**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 106-47-8 | MSD | 4-Chloroaniline | 112 | 0.00 | U | 133 | 118 | 28-123 | 0 | 0-30 |
| 87-68-3 | MSD | Hexachlorobutadiene | 112 | 0.00 | U | 75.3 | 67 | 11-97 | 2 | 0-30 |
| 59-50-7 | MSD | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | 112 | 0.00 | U | 108 | 96 | 31-119 | 3 | 0-30 |
| 91-57-6 | MSD | 2-Methylnaphthalene | 112 | 0.00 | U | 83.5 | 74 | 26-103 | 3 | 0-30 |
| 91-20-3 | MSD | Naphthalene | 112 | 0.00 | U | 88.5 | 79 | 25-100 | 3 | 0-30 |
| 90-12-0 | MSD | 1-Methylnaphthalene | 112 | 0.00 | U | 88.9 | 79 | 27-107 | 1 | 0-30 |
| 77-47-4 | MSD | Hexachlorocyclopentadiene | 112 | 0.00 | U | 47.8 | 43 | 14-73 | 6 | 0-30 |
| 88-06-2 | MSD | 2,4,6-Trichlorophenol | 112 | 0.00 | U | 94.7 | 84 | 31-113 | 2 | 0-30 |
| 95-95-4 | MSD | 2,4,5-Trichlorophenol | 112 | 0.00 | U | 101 | 90 | 30-117 | 2 | 0-30 |
| 91-58-7 | MSD | 2-Chloronaphthalene | 112 | 0.00 | U | 81.6 | 73 | 30-97 | 1 | 0-30 |
| 88-74-4 | MSD | 2-Nitroaniline<br>*o-Nitroaniline* | 112 | 0.00 | U | 101 | 90 | 28-122 | 3 | 0-30 |
| 99-09-2 | MSD | 3-Nitroaniline<br>*m-Nitroaniline* | 112 | 0.00 | U | 138 | 123 | 29-125 | 2 | 0-30 |
| 131-11-3 | MSD | Dimethylphthalate | 112 | 0.00 | U | 103 | 92 | 41-116 | 2 | 0-30 |
| 606-20-2 | MSD | 2,6-Dinitrotoluene | 112 | 0.00 | U | 97.2 | 86 | 40-123 | 2 | 0-30 |
| 121-14-2 | MSD | 2,4-Dinitrotoluene | 112 | 0.00 | U | 99.7 | 89 | 34-126 | 4 | 0-30 |
| 208-96-8 | MSD | Acenaphthylene | 112 | 0.00 | U | 88.5 | 79 | 33-104 | 0 | 0-30 |
| 83-32-9 | MSD | Acenaphthene | 112 | 0.00 | U | 84.1 | 75 | 31-103 | 1 | 0-30 |
| 51-28-5 | MSD | 2,4-Dinitrophenol | 112 | 0.00 | U | 72.3 | 64 | 17-110 | 5 | 0-30 |
| 132-64-9 | MSD | Dibenzofuran | 112 | 0.00 | U | 93.3 | 83 | 36-107 | 0 | 0-30 |
| 58-90-2 | MSD | 2,3,4,6-Tetrachlorophenol | 112 | 0.00 | U | 105 | 94 | 29-126 | 2 | 0-30 |
| 84-66-2 | MSD | Diethylphthalate | 112 | 0.00 | U | 103 | 92 | 41-117 | 4 | 0-30 |
| 100-02-7 | MSD | 4-Nitrophenol | 112 | 0.00 | U | 70.4 | 63 | 16-71 | 5 | 0-30 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-866** **Sample Type:** **Matrix Spike Duplicate**

**Client ID:** **CAMO-13-30615MSD** **Matrix:** **W**

**Lab Sample ID:** **1202881122**

**Instrument:** **MSD8.I** **Analysis Date:** **05/24/2013 22:22** **Dilution: 1**

**Analyst:** **AGS1** **Prep Batch ID:** **1303786**

**Inj. Vol:** **1 uL** **Batch ID:** **1303788**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 86-73-7 | MSD | Fluorene | 112 | 0.00 | U | 94.2 | 84 | 32-111 | 2 | 0-30 |
| 7005-72-3 | MSD | 4-Chlorophenylphenylether | 112 | 0.00 | U | 97.2 | 87 | 30-112 | 3 | 0-30 |
| 100-01-6 | MSD | 4-Nitroaniline<br>*p-Nitroaniline* | 112 | 0.00 | U | 165 | 147 * | 25-133 | 5 | 0-30 |
| 534-52-1 | MSD | 2-Methyl-4,6-dinitrophenol | 112 | 0.00 | U | 105 | 94 | 22-118 | 1 | 0-30 |
| 122-39-4 | MSD | Diphenylamine | 112 | 0.00 | U | 93.5 | 83 | 34-111 | 1 | 0-30 |
| 122-66-7 | MSD | Azobenzene<br>*1,2-Diphenylhydrazine* | 112 | 0.00 | U | 91.8 | 82 | 30-112 | 0 | 0-30 |
| 101-55-3 | MSD | 4-Bromophenylphenylether | 112 | 0.00 | U | 103 | 91 | 32-111 | 1 | 0-30 |
| 118-74-1 | MSD | Hexachlorobenzene | 112 | 0.00 | U | 99.2 | 88 | 33-115 | 1 | 0-30 |
| 87-86-5 | MSD | Pentachlorophenol | 112 | 0.00 | U | 81.3 | 72 | 19-112 | 0 | 0-30 |
| 85-01-8 | MSD | Phenanthrene | 112 | 0.00 | U | 93.1 | 83 | 34-112 | 3 | 0-30 |
| 120-12-7 | MSD | Anthracene | 112 | 0.00 | U | 93.4 | 83 | 33-108 | 3 | 0-30 |
| 84-74-2 | MSD | Di-n-butylphthalate | 112 | 0.00 | U | 93.5 | 83 | 35-118 | 7 | 0-30 |
| 206-44-0 | MSD | Fluoranthene | 112 | 0.00 | U | 90.9 | 81 | 31-118 | 9 | 0-30 |
| 129-00-0 | MSD | Pyrene | 112 | 0.00 | U | 96.4 | 86 | 27-126 | 14 | 0-30 |
| 85-68-7 | MSD | Butylbenzylphthalate | 112 | 0.00 | U | 90.4 | 80 | 29-121 | 5 | 0-30 |
| 117-81-7 | MSD | bis(2-Ethylhexyl)phthalate | 112 | 0.00 | U | 93.1 | 83 | 29-120 | 0 | 0-30 |
| 56-55-3 | MSD | Benzo(a)anthracene | 112 | 0.00 | U | 91.9 | 82 | 35-112 | 5 | 0-30 |
| 218-01-9 | MSD | Chrysene | 112 | 0.00 | U | 93.4 | 83 | 32-116 | 7 | 0-30 |
| 117-84-0 | MSD | Di-n-octylphthalate | 112 | 0.00 | U | 85.9 | 76 | 25-118 | 12 | 0-30 |
| 205-99-2 | MSD | Benzo(b)fluoranthene | 112 | 0.00 | U | 96.8 | 86 | 34-116 | 3 | 0-30 |
| 207-08-9 | MSD | Benzo(k)fluoranthene | 112 | 0.00 | U | 100 | 89 | 34-119 | 5 | 0-30 |
| 50-32-8 | MSD | Benzo(a)pyrene | 112 | 0.00 | U | 88.9 | 79 | 34-110 | 8 | 0-30 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-866**
**Client ID:** **CAMO-13-30615MSD**
**Lab Sample ID:** **1202881122**
**Instrument:** **MSD8.I**
**Analyst:** **AGS1**
**Inj. Vol:** **1 uL**

**Sample Type:** **Matrix Spike Duplicate**
**Matrix:** **W**
**Analysis Date:** **05/24/2013 22:22**
**Prep Batch ID:** **1303786**
**Batch ID:** **1303788**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 193-39-5 | MSD | Indeno(1,2,3-cd)pyrene | 112 | 0.00 | U | 93.0 | 83 | 25-122 | 1 | 0-30 |
| 53-70-3 | MSD | Dibenzo(a,h)anthracene | 112 | 0.00 | U | 101 | 89 | 24-123 | 3 | 0-30 |
| 191-24-2 | MSD | Benzo(ghi)perylene | 112 | 0.00 | U | 89.7 | 80 | 22-122 | 3 | 0-30 |
| 123-91-1 | MSD | 1,4-Dioxane | 112 | 0.00 | U | 76.5 | 68 | 26-88 | 3 | 0-30 |
| 930-55-2 | MSD | N-Nitrosopyrrolidine | 112 | 0.00 | U | 101 | 90 | 42-110 | 6 | 0-30 |
| 95-94-3 | MSD | 1,2,4,5-Tetrachlorobenzene | 112 | 0.00 | U | 77.8 | 69 | 29-96 | 2 | 0-30 |
| 1912-24-9 | MSD | Atrazine | 112 | 0.00 | U | 69.4 | 62 | 33-121 | 4 | 0-30 |
| 92-87-5 | MSD | Benzidine | 225 | 0.00 | U | 148 | 66 | 10-117 | 48 * | 0-30 |
| 91-94-1 | MSD | 3,3'-Dichlorobenzidine | 112 | 0.00 | U | 96.5 | 86 | 22-111 | 13 | 0-30 |
| 120-82-1 | MSD | 1,2,4-Trichlorobenzene | 112 | 0.00 | U | 77.7 | 69 | 20-90 | 4 | 0-30 |

# Method Blank Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-866** | **Client:** | **ARSL001** | **Matrix:** | **WATER** |
| **Client ID:** | **MB for batch 1303786** | **Instrument ID:** | **MSD8.I** | **Data File:** | **s052413.B\s8E2405.D** |
| **Lab Sample ID:** | **1202881119** | **Prep Date:** | **05/24/2013 08:25** | **Analyzed:** | **05/24/13 17:34** |
| **Column:** | **DB-5ms** | | | | |

**This method blank applies to the following samples and quality control samples:**

| Client Sample ID | Lab Sample ID | File ID | Date Analyzed | Time Analyzed |
|---|---|---|---|---|
| 01 LCS for batch 1303786 | 1202881120 | s052413.B\s8E2406.D | 05/24/13 | 1806 |
| 02 CAMO-13-30584 | 326020001 | s052413.B\s8E2410.D | 05/24/13 | 2015 |
| 03 CAMO-13-30615MS | 1202881121 | s052413.B\s8E2413.D | 05/24/13 | 2150 |
| 04 CAMO-13-30615MSD | 1202881122 | s052413.B\s8E2414.D | 05/24/13 | 2222 |
| 05 LCS for batch 1303786DL | 1202881120 | s052813.B\s8E2807.D | 05/28/13 | 1255 |

# Quality Control Data

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-866** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202881119** | | | | |
| **Client Sample:** | **QC for batch 1303786** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **MB for batch 1303786** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1303788** | **Inst:** | **MSD8.I** | **Dilution:** | **1** |
| **Run Date:** | **05/24/2013 17:34** | **Analyst:** | **AGS1** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/24/2013 08:25** | **Aliquot:** | **1000 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s052413.B\s8E2405.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 62-75-9 | N-Methyl-N-nitrosomethylamine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 110-86-1 | Pyridine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 62-53-3 | Aniline | U | 10.0 | ug/L | 3.00 | 10.0 |
| 108-95-2 | Phenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 111-44-4 | bis(2-Chloroethyl) ether | U | 10.0 | ug/L | 3.00 | 10.0 |
| 95-57-8 | 2-Chlorophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 39638-32-9 | bis(2-Chloroisopropyl)ether | U | 10.0 | ug/L | 3.00 | 10.0 |
| 100-51-6 | Benzyl alcohol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 95-48-7 | o-Cresol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 65794-96-9 | m,p-Cresols | U | 10.0 | ug/L | 3.00 | 10.0 |
| 621-64-7 | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | U | 10.0 | ug/L | 3.00 | 10.0 |
| 67-72-1 | Hexachloroethane | U | 10.0 | ug/L | 3.00 | 10.0 |
| 98-95-3 | Nitrobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 78-59-1 | Isophorone | U | 10.0 | ug/L | 3.00 | 10.0 |
| 88-75-5 | 2-Nitrophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 105-67-9 | 2,4-Dimethylphenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 111-91-1 | bis(2-Chloroethoxy)methane | U | 10.0 | ug/L | 3.00 | 10.0 |
| 120-83-2 | 2,4-Dichlorophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 65-85-0 | Benzoic acid | U | 20.0 | ug/L | 6.00 | 20.0 |
| 106-47-8 | 4-Chloroaniline | U | 10.0 | ug/L | 3.30 | 10.0 |
| 87-68-3 | Hexachlorobutadiene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 59-50-7 | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | U | 10.0 | ug/L | 3.00 | 10.0 |
| 91-57-6 | 2-Methylnaphthalene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 90-12-0 | 1-Methylnaphthalene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 77-47-4 | Hexachlorocyclopentadiene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 88-06-2 | 2,4,6-Trichlorophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 95-95-4 | 2,4,5-Trichlorophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 91-58-7 | 2-Chloronaphthalene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 88-74-4 | 2-Nitroaniline<br>*o-Nitroaniline* | U | 10.0 | ug/L | 3.00 | 10.0 |
| 99-09-2 | 3-Nitroaniline<br>*m-Nitroaniline* | U | 10.0 | ug/L | 3.00 | 10.0 |
| 131-11-3 | Dimethylphthalate | U | 10.0 | ug/L | 3.00 | 10.0 |
| 606-20-2 | 2,6-Dinitrotoluene | U | 10.0 | ug/L | 3.00 | 10.0 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-866** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202881119** | | | | |
| **Client Sample:** | **QC for batch 1303786** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **MB for batch 1303786** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1303788** | **Inst:** | **MSD8.I** | **Dilution:** | **1** |
| **Run Date:** | **05/24/2013 17:34** | **Analyst:** | **AGS1** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/24/2013 08:25** | **Aliquot:** | **1000 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s052413.B\s8E2405.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 121-14-2 | 2,4-Dinitrotoluene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 208-96-8 | Acenaphthylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 83-32-9 | Acenaphthene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 51-28-5 | 2,4-Dinitrophenol | U | 20.0 | ug/L | 5.00 | 20.0 |
| 132-64-9 | Dibenzofuran | U | 10.0 | ug/L | 3.00 | 10.0 |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 84-66-2 | Diethylphthalate | U | 10.0 | ug/L | 3.00 | 10.0 |
| 100-02-7 | 4-Nitrophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 86-73-7 | Fluorene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 7005-72-3 | 4-Chlorophenylphenylether | U | 10.0 | ug/L | 3.00 | 10.0 |
| 100-01-6 | 4-Nitroaniline | U | 10.0 | ug/L | 3.00 | 10.0 |
| | *p-Nitroaniline* | | | | | |
| 534-52-1 | 2-Methyl-4,6-dinitrophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 122-39-4 | Diphenylamine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 122-66-7 | Azobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| | *1,2-Diphenylhydrazine* | | | | | |
| 101-55-3 | 4-Bromophenylphenylether | U | 10.0 | ug/L | 3.00 | 10.0 |
| 118-74-1 | Hexachlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 87-86-5 | Pentachlorophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 88-85-7 | Dinoseb | U | 10.0 | ug/L | 3.00 | 10.0 |
| 85-01-8 | Phenanthrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 120-12-7 | Anthracene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 84-74-2 | Di-n-butylphthalate | U | 10.0 | ug/L | 3.00 | 10.0 |
| 206-44-0 | Fluoranthene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 129-00-0 | Pyrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 85-68-7 | Butylbenzylphthalate | U | 10.0 | ug/L | 3.00 | 10.0 |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | U | 10.0 | ug/L | 3.00 | 10.0 |
| 56-55-3 | Benzo(a)anthracene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 218-01-9 | Chrysene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 117-84-0 | Di-n-octylphthalate | U | 10.0 | ug/L | 3.00 | 10.0 |
| 205-99-2 | Benzo(b)fluoranthene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 207-08-9 | Benzo(k)fluoranthene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 50-32-8 | Benzo(a)pyrene | U | 1.00 | ug/L | 0.440 | 1.00 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 53-70-3 | Dibenzo(a,h)anthracene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 191-24-2 | Benzo(ghi)perylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 123-91-1 | 1,4-Dioxane | U | 10.0 | ug/L | 3.00 | 10.0 |
| 55-18-5 | N-Nitrosodiethylamine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 930-55-2 | N-Nitrosopyrrolidine | U | 10.0 | ug/L | 3.00 | 10.0 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-866** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202881119** | | | | |
| **Client Sample:** | **QC for batch 1303786** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **MB for batch 1303786** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1303788** | **Inst:** | **MSD8.I** | **Dilution:** | **1** |
| **Run Date:** | **05/24/2013 17:34** | **Analyst:** | **AGS1** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/24/2013 08:25** | **Aliquot:** | **1000 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s052413.B\s8E2405.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 924-16-3 | N-Nitrosodi-n-butylamine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 608-93-5 | Pentachlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 1912-24-9 | Atrazine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 92-87-5 | Benzidine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 91-94-1 | 3,3'-Dichlorobenzidine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 2,4,6-Tribromophenol | 99.3 | 100 | ug/L | 99.3 | (26%-129%) |
| 2-Fluorobiphenyl | 46.9 | 50.0 | ug/L | 93.9 | (32%-102%) |
| 2-Fluorophenol | 56.6 | 100 | ug/L | 56.6 | (10%-78%) |
| Nitrobenzene-d5 | 48.5 | 50.0 | ug/L | 97.1 | (36%-125%) |
| Phenol-d5 | 39.1 | 100 | ug/L | 39.1 | (10%-104%) |
| p-Terphenyl-d14 | 52.6 | 50.0 | ug/L | 105 | (34%-135%) |

**Tentatively Identified Compound Summary**

| CAS No. | Tentatively Identified Compound (TIC) | RT | Estimated | Units | Fit | Qual |
|---|---|---|---|---|---|---|
| | unknown | 1.989 | 6.21 | ug/L | 0 | J |
| 000067-66-3 | Trichloromethane | 2.069 | 51.8 | ug/L | 94 | NJ |
| | unknown | 2.326 | 55.2 | ug/L | 0 | J |
| | unknown | 2.427 | 334 | ug/L | 0 | J |
| | unknown | 3.55 | 7.49 | ug/L | 0 | J |
| | unknown | 3.962 | 8.77 | ug/L | 0 | J |
| | unknown | 4.465 | 5.56 | ug/L | 0 | J |
| | unknown | 4.861 | 8.59 | ug/L | 0 | J |
| | unknown | 5.021 | 8.99 | ug/L | 0 | J |
| | unknown | 5.192 | 4.61 | ug/L | 0 | J |
| | unknown | 5.224 | 7.93 | ug/L | 0 | J |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-866** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202881120** | | | | |
| **Client Sample:** | **QC for batch 1303786** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1303786** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1303788** | **Inst:** | **MSD8.I** | **Dilution:** | **1** |
| **Run Date:** | **05/24/2013 18:06** | **Analyst:** | **AGS1** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/24/2013 08:25** | **Aliquot:** | **1000 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s052413.B\s8E2406.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 62-75-9 | N-Methyl-N-nitrosomethylamine | | 23.9 | ug/L | 3.00 | 10.0 |
| 110-86-1 | Pyridine | | 36.0 | ug/L | 3.00 | 10.0 |
| 62-53-3 | Aniline | | 43.6 | ug/L | 3.00 | 10.0 |
| 108-95-2 | Phenol | | 17.7 | ug/L | 3.00 | 10.0 |
| 111-44-4 | bis(2-Chloroethyl) ether | | 39.0 | ug/L | 3.00 | 10.0 |
| 95-57-8 | 2-Chlorophenol | | 41.3 | ug/L | 3.00 | 10.0 |
| 541-73-1 | 1,3-Dichlorobenzene | | 30.5 | ug/L | 3.00 | 10.0 |
| 106-46-7 | 1,4-Dichlorobenzene | | 30.7 | ug/L | 3.00 | 10.0 |
| 95-50-1 | 1,2-Dichlorobenzene | | 30.6 | ug/L | 3.00 | 10.0 |
| 39638-32-9 | bis(2-Chloroisopropyl)ether | | 33.0 | ug/L | 3.00 | 10.0 |
| 100-51-6 | Benzyl alcohol | | 26.4 | ug/L | 3.00 | 10.0 |
| 95-48-7 | o-Cresol | | 34.5 | ug/L | 3.00 | 10.0 |
| 65794-96-9 | m,p-Cresols | | 38.2 | ug/L | 3.00 | 10.0 |
| 621-64-7 | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | | 41.3 | ug/L | 3.00 | 10.0 |
| 67-72-1 | Hexachloroethane | | 31.2 | ug/L | 3.00 | 10.0 |
| 98-95-3 | Nitrobenzene | | 41.3 | ug/L | 3.00 | 10.0 |
| 78-59-1 | Isophorone | | 46.5 | ug/L | 3.00 | 10.0 |
| 88-75-5 | 2-Nitrophenol | | 42.6 | ug/L | 3.00 | 10.0 |
| 105-67-9 | 2,4-Dimethylphenol | | 38.1 | ug/L | 3.00 | 10.0 |
| 111-91-1 | bis(2-Chloroethoxy)methane | | 47.7 | ug/L | 3.00 | 10.0 |
| 120-83-2 | 2,4-Dichlorophenol | | 44.0 | ug/L | 3.00 | 10.0 |
| 65-85-0 | Benzoic acid | | 23.4 | ug/L | 6.00 | 20.0 |
| 106-47-8 | 4-Chloroaniline | | 55.7 | ug/L | 3.30 | 10.0 |
| 87-68-3 | Hexachlorobutadiene | | 33.1 | ug/L | 3.00 | 10.0 |
| 59-50-7 | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | | 44.4 | ug/L | 3.00 | 10.0 |
| 91-57-6 | 2-Methylnaphthalene | | 33.9 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | | 36.0 | ug/L | 0.300 | 1.00 |
| 90-12-0 | 1-Methylnaphthalene | | 36.6 | ug/L | 0.300 | 1.00 |
| 77-47-4 | Hexachlorocyclopentadiene | | 22.5 | ug/L | 3.00 | 10.0 |
| 88-06-2 | 2,4,6-Trichlorophenol | | 42.5 | ug/L | 3.00 | 10.0 |
| 95-95-4 | 2,4,5-Trichlorophenol | | 44.4 | ug/L | 3.00 | 10.0 |
| 91-58-7 | 2-Chloronaphthalene | | 35.5 | ug/L | 0.300 | 1.00 |
| 88-74-4 | 2-Nitroaniline<br>*o-Nitroaniline* | | 43.1 | ug/L | 3.00 | 10.0 |
| 99-09-2 | 3-Nitroaniline<br>*m-Nitroaniline* | | 55.8 | ug/L | 3.00 | 10.0 |
| 131-11-3 | Dimethylphthalate | | 47.1 | ug/L | 3.00 | 10.0 |
| 606-20-2 | 2,6-Dinitrotoluene | | 43.7 | ug/L | 3.00 | 10.0 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-866** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202881120** | | | | |
| **Client Sample:** | **QC for batch 1303786** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1303786** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1303788** | **Inst:** | **MSD8.I** | **Dilution:** | **1** |
| **Run Date:** | **05/24/2013 18:06** | **Analyst:** | **AGS1** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/24/2013 08:25** | **Aliquot:** | **1000 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s052413.B\s8E2406.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 121-14-2 | 2,4-Dinitrotoluene | | 43.1 | ug/L | 3.00 | 10.0 |
| 208-96-8 | Acenaphthylene | | 38.8 | ug/L | 0.300 | 1.00 |
| 83-32-9 | Acenaphthene | | 36.9 | ug/L | 0.300 | 1.00 |
| 51-28-5 | 2,4-Dinitrophenol | | 28.3 | ug/L | 5.00 | 20.0 |
| 132-64-9 | Dibenzofuran | | 39.9 | ug/L | 3.00 | 10.0 |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | | 45.6 | ug/L | 3.00 | 10.0 |
| 84-66-2 | Diethylphthalate | | 47.8 | ug/L | 3.00 | 10.0 |
| 100-02-7 | 4-Nitrophenol | | 18.2 | ug/L | 3.00 | 10.0 |
| 86-73-7 | Fluorene | | 40.9 | ug/L | 0.300 | 1.00 |
| 7005-72-3 | 4-Chlorophenylphenylether | | 43.0 | ug/L | 3.00 | 10.0 |
| 100-01-6 | 4-Nitroaniline | | 63.4 | ug/L | 3.00 | 10.0 |
| | *p-Nitroaniline* | | | | | |
| 534-52-1 | 2-Methyl-4,6-dinitrophenol | | 47.3 | ug/L | 3.00 | 10.0 |
| 122-39-4 | Diphenylamine | | 43.4 | ug/L | 3.00 | 10.0 |
| 122-66-7 | Azobenzene | | 41.4 | ug/L | 3.00 | 10.0 |
| | *1,2-Diphenylhydrazine* | | | | | |
| 101-55-3 | 4-Bromophenylphenylether | | 46.6 | ug/L | 3.00 | 10.0 |
| 118-74-1 | Hexachlorobenzene | | 46.6 | ug/L | 3.00 | 10.0 |
| 87-86-5 | Pentachlorophenol | | 33.8 | ug/L | 3.00 | 10.0 |
| 88-85-7 | Dinoseb | U | 10.0 | ug/L | 3.00 | 10.0 |
| 85-01-8 | Phenanthrene | | 41.8 | ug/L | 0.300 | 1.00 |
| 120-12-7 | Anthracene | | 41.6 | ug/L | 0.300 | 1.00 |
| 84-74-2 | Di-n-butylphthalate | | 46.5 | ug/L | 3.00 | 10.0 |
| 206-44-0 | Fluoranthene | | 41.1 | ug/L | 0.300 | 1.00 |
| 129-00-0 | Pyrene | | 38.8 | ug/L | 0.300 | 1.00 |
| 85-68-7 | Butylbenzylphthalate | | 40.1 | ug/L | 3.00 | 10.0 |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | | 41.5 | ug/L | 3.00 | 10.0 |
| 56-55-3 | Benzo(a)anthracene | | 42.0 | ug/L | 0.300 | 1.00 |
| 218-01-9 | Chrysene | | 43.4 | ug/L | 0.300 | 1.00 |
| 117-84-0 | Di-n-octylphthalate | | 41.6 | ug/L | 3.00 | 10.0 |
| 205-99-2 | Benzo(b)fluoranthene | | 43.6 | ug/L | 0.300 | 1.00 |
| 207-08-9 | Benzo(k)fluoranthene | | 45.7 | ug/L | 0.300 | 1.00 |
| 50-32-8 | Benzo(a)pyrene | | 41.5 | ug/L | 0.440 | 1.00 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | | 42.6 | ug/L | 0.300 | 1.00 |
| 53-70-3 | Dibenzo(a,h)anthracene | | 44.6 | ug/L | 0.300 | 1.00 |
| 191-24-2 | Benzo(ghi)perylene | | 39.6 | ug/L | 0.300 | 1.00 |
| 123-91-1 | 1,4-Dioxane | | 26.0 | ug/L | 3.00 | 10.0 |
| 55-18-5 | N-Nitrosodiethylamine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 930-55-2 | N-Nitrosopyrrolidine | | 38.3 | ug/L | 3.00 | 10.0 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-866** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202881120** | | | | |
| **Client Sample:** | **QC for batch 1303786** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1303786** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1303788** | **Inst:** | **MSD8.I** | **Dilution:** | **1** |
| **Run Date:** | **05/24/2013 18:06** | **Analyst:** | **AGS1** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/24/2013 08:25** | **Aliquot:** | **1000 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s052413.B\s8E2406.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 924-16-3 | N-Nitrosodi-n-butylamine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | | 34.4 | ug/L | 3.00 | 10.0 |
| 608-93-5 | Pentachlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 1912-24-9 | Atrazine | | 36.0 | ug/L | 3.00 | 10.0 |
| 91-94-1 | 3,3'-Dichlorobenzidine | | 47.8 | ug/L | 3.00 | 10.0 |
| 120-82-1 | 1,2,4-Trichlorobenzene | | 32.9 | ug/L | 3.00 | 10.0 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 2,4,6-Tribromophenol | 97.8 | 100 | ug/L | 97.8 | (26%-129%) |
| 2-Fluorobiphenyl | 35.9 | 50.0 | ug/L | 71.9 | (32%-102%) |
| 2-Fluorophenol | 52.6 | 100 | ug/L | 52.6 | (10%-78%) |
| Nitrobenzene-d5 | 42.7 | 50.0 | ug/L | 85.4 | (36%-125%) |
| Phenol-d5 | 35.8 | 100 | ug/L | 35.8 | (10%-104%) |
| p-Terphenyl-d14 | 44.3 | 50.0 | ug/L | 88.6 | (34%-135%) |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-866** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202881120** | | | | |
| **Client Sample:** | **QC for batch 1303786** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1303786DL** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1303788** | **Inst:** | **MSD8.I** | **Dilution:** | **2** |
| **Run Date:** | **05/28/2013 12:55** | **Analyst:** | **RMB** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/24/2013 08:25** | **Aliquot:** | **1000 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s052813.B\s8E2807.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 92-87-5 | Benzidine | | 87.2 | ug/L | 6.00 | 20.0 |

| Surrogate/Tracer recovery | Result | Nominal | Recovery% | Acceptable Limits |
|---|---|---|---|---|

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-866** | **Date Collected:** | **05/21/2013 11:08** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202881121** | **Date Received:** | **05/23/2013 09:00** | | |
| **Client Sample:** | **QC for batch 1303786** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **CAMO-13-30615MS** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1303788** | **Inst:** | **MSD8.I** | **Dilution:** | **1** |
| **Run Date:** | **05/24/2013 21:50** | **Analyst:** | **AGS1** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/24/2013 08:25** | **Aliquot:** | **445 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s052413.B\s8E2413.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 62-75-9 | N-Methyl-N-nitrosomethylamine | | 72.6 | ug/L | 6.74 | 22.5 |
| 110-86-1 | Pyridine | | 82.3 | ug/L | 6.74 | 22.5 |
| 62-53-3 | Aniline | | 106 | ug/L | 6.74 | 22.5 |
| 108-95-2 | Phenol | | 69.7 | ug/L | 6.74 | 22.5 |
| 111-44-4 | bis(2-Chloroethyl) ether | | 92.9 | ug/L | 6.74 | 22.5 |
| 95-57-8 | 2-Chlorophenol | | 97.3 | ug/L | 6.74 | 22.5 |
| 541-73-1 | 1,3-Dichlorobenzene | | 70.0 | ug/L | 6.74 | 22.5 |
| 106-46-7 | 1,4-Dichlorobenzene | | 72.6 | ug/L | 6.74 | 22.5 |
| 95-50-1 | 1,2-Dichlorobenzene | | 72.7 | ug/L | 6.74 | 22.5 |
| 39638-32-9 | bis(2-Chloroisopropyl)ether | | 80.8 | ug/L | 6.74 | 22.5 |
| 100-51-6 | Benzyl alcohol | | 72.0 | ug/L | 6.74 | 22.5 |
| 95-48-7 | o-Cresol | | 89.4 | ug/L | 6.74 | 22.5 |
| 65794-96-9 | m,p-Cresols | | 110 | ug/L | 6.74 | 22.5 |
| 621-64-7 | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | | 97.2 | ug/L | 6.74 | 22.5 |
| 67-72-1 | Hexachloroethane | | 71.8 | ug/L | 6.74 | 22.5 |
| 98-95-3 | Nitrobenzene | | 97.0 | ug/L | 6.74 | 22.5 |
| 78-59-1 | Isophorone | | 104 | ug/L | 6.74 | 22.5 |
| 88-75-5 | 2-Nitrophenol | | 95.4 | ug/L | 6.74 | 22.5 |
| 105-67-9 | 2,4-Dimethylphenol | | 89.5 | ug/L | 6.74 | 22.5 |
| 111-91-1 | bis(2-Chloroethoxy)methane | | 108 | ug/L | 6.74 | 22.5 |
| 120-83-2 | 2,4-Dichlorophenol | | 102 | ug/L | 6.74 | 22.5 |
| 65-85-0 | Benzoic acid | | 98.8 | ug/L | 13.5 | 44.9 |
| 106-47-8 | 4-Chloroaniline | | 133 | ug/L | 7.42 | 22.5 |
| 87-68-3 | Hexachlorobutadiene | | 73.7 | ug/L | 6.74 | 22.5 |
| 59-50-7 | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | | 105 | ug/L | 6.74 | 22.5 |
| 91-57-6 | 2-Methylnaphthalene | | 80.8 | ug/L | 0.674 | 2.25 |
| 91-20-3 | Naphthalene | | 86.1 | ug/L | 0.674 | 2.25 |
| 90-12-0 | 1-Methylnaphthalene | | 87.7 | ug/L | 0.674 | 2.25 |
| 77-47-4 | Hexachlorocyclopentadiene | | 45.2 | ug/L | 6.74 | 22.5 |
| 88-06-2 | 2,4,6-Trichlorophenol | | 96.9 | ug/L | 6.74 | 22.5 |
| 95-95-4 | 2,4,5-Trichlorophenol | | 103 | ug/L | 6.74 | 22.5 |
| 91-58-7 | 2-Chloronaphthalene | | 81.1 | ug/L | 0.674 | 2.25 |
| 88-74-4 | 2-Nitroaniline<br>*o-Nitroaniline* | | 104 | ug/L | 6.74 | 22.5 |
| 99-09-2 | 3-Nitroaniline<br>*m-Nitroaniline* | | 141 | ug/L | 6.74 | 22.5 |
| 131-11-3 | Dimethylphthalate | | 105 | ug/L | 6.74 | 22.5 |
| 606-20-2 | 2,6-Dinitrotoluene | | 98.7 | ug/L | 6.74 | 22.5 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-866** | **Date Collected:** | **05/21/2013 11:08** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202881121** | **Date Received:** | **05/23/2013 09:00** | | |
| **Client Sample:** | **QC for batch 1303786** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **CAMO-13-30615MS** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1303788** | **Inst:** | **MSD8.I** | **Dilution:** | **1** |
| **Run Date:** | **05/24/2013 21:50** | **Analyst:** | **AGS1** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/24/2013 08:25** | **Aliquot:** | **445 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s052413.B\s8E2413.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 121-14-2 | 2,4-Dinitrotoluene | | 104 | ug/L | 6.74 | 22.5 |
| 208-96-8 | Acenaphthylene | | 88.7 | ug/L | 0.674 | 2.25 |
| 83-32-9 | Acenaphthene | | 82.9 | ug/L | 0.674 | 2.25 |
| 51-28-5 | 2,4-Dinitrophenol | | 69.0 | ug/L | 11.2 | 44.9 |
| 132-64-9 | Dibenzofuran | | 93.0 | ug/L | 6.74 | 22.5 |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | | 107 | ug/L | 6.74 | 22.5 |
| 84-66-2 | Diethylphthalate | | 108 | ug/L | 6.74 | 22.5 |
| 100-02-7 | 4-Nitrophenol | | 73.6 | ug/L | 6.74 | 22.5 |
| 86-73-7 | Fluorene | | 96.1 | ug/L | 0.674 | 2.25 |
| 7005-72-3 | 4-Chlorophenylphenylether | | 99.7 | ug/L | 6.74 | 22.5 |
| 100-01-6 | 4-Nitroaniline | | 173 | ug/L | 6.74 | 22.5 |
| | *p-Nitroaniline* | | | | | |
| 534-52-1 | 2-Methyl-4,6-dinitrophenol | | 105 | ug/L | 6.74 | 22.5 |
| 122-39-4 | Diphenylamine | | 94.4 | ug/L | 6.74 | 22.5 |
| 122-66-7 | Azobenzene | | 91.8 | ug/L | 6.74 | 22.5 |
| | *1,2-Diphenylhydrazine* | | | | | |
| 101-55-3 | 4-Bromophenylphenylether | | 103 | ug/L | 6.74 | 22.5 |
| 118-74-1 | Hexachlorobenzene | | 100 | ug/L | 6.74 | 22.5 |
| 87-86-5 | Pentachlorophenol | | 81.1 | ug/L | 6.74 | 22.5 |
| 88-85-7 | Dinoseb | U | 22.5 | ug/L | 6.74 | 22.5 |
| 85-01-8 | Phenanthrene | | 96.0 | ug/L | 0.674 | 2.25 |
| 120-12-7 | Anthracene | | 95.8 | ug/L | 0.674 | 2.25 |
| 84-74-2 | Di-n-butylphthalate | | 101 | ug/L | 6.74 | 22.5 |
| 206-44-0 | Fluoranthene | | 99.6 | ug/L | 0.674 | 2.25 |
| 129-00-0 | Pyrene | | 83.6 | ug/L | 0.674 | 2.25 |
| 85-68-7 | Butylbenzylphthalate | | 85.8 | ug/L | 6.74 | 22.5 |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | | 92.9 | ug/L | 6.74 | 22.5 |
| 56-55-3 | Benzo(a)anthracene | | 96.7 | ug/L | 0.674 | 2.25 |
| 218-01-9 | Chrysene | | 100 | ug/L | 0.674 | 2.25 |
| 117-84-0 | Di-n-octylphthalate | | 96.6 | ug/L | 6.74 | 22.5 |
| 205-99-2 | Benzo(b)fluoranthene | | 100 | ug/L | 0.674 | 2.25 |
| 207-08-9 | Benzo(k)fluoranthene | | 106 | ug/L | 0.674 | 2.25 |
| 50-32-8 | Benzo(a)pyrene | | 96.1 | ug/L | 0.989 | 2.25 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | | 92.4 | ug/L | 0.674 | 2.25 |
| 53-70-3 | Dibenzo(a,h)anthracene | | 97.2 | ug/L | 0.674 | 2.25 |
| 191-24-2 | Benzo(ghi)perylene | | 86.9 | ug/L | 0.674 | 2.25 |
| 123-91-1 | 1,4-Dioxane | | 79.2 | ug/L | 6.74 | 22.5 |
| 55-18-5 | N-Nitrosodiethylamine | U | 22.5 | ug/L | 6.74 | 22.5 |
| 930-55-2 | N-Nitrosopyrrolidine | | 95.0 | ug/L | 6.74 | 22.5 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-866** | **Date Collected:** | **05/21/2013 11:08** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202881121** | **Date Received:** | **05/23/2013 09:00** | | |
| **Client Sample:** | **QC for batch 1303786** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **CAMO-13-30615MS** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1303788** | **Inst:** | **MSD8.I** | **Dilution:** | **1** |
| **Run Date:** | **05/24/2013 21:50** | **Analyst:** | **AGS1** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/24/2013 08:25** | **Aliquot:** | **445 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s052413.B\s8E2413.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 924-16-3 | N-Nitrosodi-n-butylamine | U | 22.5 | ug/L | 6.74 | 22.5 |
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | | 76.5 | ug/L | 6.74 | 22.5 |
| 608-93-5 | Pentachlorobenzene | U | 22.5 | ug/L | 6.74 | 22.5 |
| 1912-24-9 | Atrazine | | 72.2 | ug/L | 6.74 | 22.5 |
| 92-87-5 | Benzidine | E | 242 | ug/L | 6.74 | 22.5 |
| 91-94-1 | 3,3'-Dichlorobenzidine | | 110 | ug/L | 6.74 | 22.5 |
| 120-82-1 | 1,2,4-Trichlorobenzene | | 75.0 | ug/L | 6.74 | 22.5 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 2,4,6-Tribromophenol | 220 | 225 | ug/L | 97.9 | (26%-129%) |
| 2-Fluorobiphenyl | 81.6 | 112 | ug/L | 72.6 | (32%-102%) |
| 2-Fluorophenol | 156 | 225 | ug/L | 69.6 | (10%-78%) |
| Nitrobenzene-d5 | 95.5 | 112 | ug/L | 85.0 | (36%-125%) |
| Phenol-d5 | 137 | 225 | ug/L | 61.0 | (10%-104%) |
| p-Terphenyl-d14 | 91.3 | 112 | ug/L | 81.3 | (34%-135%) |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-866** | **Date Collected:** | **05/21/2013 11:08** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202881122** | **Date Received:** | **05/23/2013 09:00** | | |
| **Client Sample:** | **QC for batch 1303786** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **CAMO-13-30615MSD** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1303788** | **Inst:** | **MSD8.I** | **Dilution:** | **1** |
| **Run Date:** | **05/24/2013 22:22** | **Analyst:** | **AGS1** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/24/2013 08:25** | **Aliquot:** | **445 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s052413.B\s8E2414.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 62-75-9 | N-Methyl-N-nitrosomethylamine | | 74.3 | ug/L | 6.74 | 22.5 |
| 110-86-1 | Pyridine | | 87.6 | ug/L | 6.74 | 22.5 |
| 62-53-3 | Aniline | | 109 | ug/L | 6.74 | 22.5 |
| 108-95-2 | Phenol | | 68.9 | ug/L | 6.74 | 22.5 |
| 111-44-4 | bis(2-Chloroethyl) ether | | 93.6 | ug/L | 6.74 | 22.5 |
| 95-57-8 | 2-Chlorophenol | | 98.7 | ug/L | 6.74 | 22.5 |
| 541-73-1 | 1,3-Dichlorobenzene | | 71.8 | ug/L | 6.74 | 22.5 |
| 106-46-7 | 1,4-Dichlorobenzene | | 74.8 | ug/L | 6.74 | 22.5 |
| 95-50-1 | 1,2-Dichlorobenzene | | 74.9 | ug/L | 6.74 | 22.5 |
| 39638-32-9 | bis(2-Chloroisopropyl)ether | | 81.9 | ug/L | 6.74 | 22.5 |
| 100-51-6 | Benzyl alcohol | | 73.5 | ug/L | 6.74 | 22.5 |
| 95-48-7 | o-Cresol | | 92.5 | ug/L | 6.74 | 22.5 |
| 65794-96-9 | m,p-Cresols | | 109 | ug/L | 6.74 | 22.5 |
| 621-64-7 | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | | 99.2 | ug/L | 6.74 | 22.5 |
| 67-72-1 | Hexachloroethane | | 73.6 | ug/L | 6.74 | 22.5 |
| 98-95-3 | Nitrobenzene | | 99.8 | ug/L | 6.74 | 22.5 |
| 78-59-1 | Isophorone | | 106 | ug/L | 6.74 | 22.5 |
| 88-75-5 | 2-Nitrophenol | | 98.8 | ug/L | 6.74 | 22.5 |
| 105-67-9 | 2,4-Dimethylphenol | | 92.0 | ug/L | 6.74 | 22.5 |
| 111-91-1 | bis(2-Chloroethoxy)methane | | 111 | ug/L | 6.74 | 22.5 |
| 120-83-2 | 2,4-Dichlorophenol | | 103 | ug/L | 6.74 | 22.5 |
| 65-85-0 | Benzoic acid | | 128 | ug/L | 13.5 | 44.9 |
| 106-47-8 | 4-Chloroaniline | | 133 | ug/L | 7.42 | 22.5 |
| 87-68-3 | Hexachlorobutadiene | | 75.3 | ug/L | 6.74 | 22.5 |
| 59-50-7 | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | | 108 | ug/L | 6.74 | 22.5 |
| 91-57-6 | 2-Methylnaphthalene | | 83.5 | ug/L | 0.674 | 2.25 |
| 91-20-3 | Naphthalene | | 88.5 | ug/L | 0.674 | 2.25 |
| 90-12-0 | 1-Methylnaphthalene | | 88.9 | ug/L | 0.674 | 2.25 |
| 77-47-4 | Hexachlorocyclopentadiene | | 47.8 | ug/L | 6.74 | 22.5 |
| 88-06-2 | 2,4,6-Trichlorophenol | | 94.7 | ug/L | 6.74 | 22.5 |
| 95-95-4 | 2,4,5-Trichlorophenol | | 101 | ug/L | 6.74 | 22.5 |
| 91-58-7 | 2-Chloronaphthalene | | 81.6 | ug/L | 0.674 | 2.25 |
| 88-74-4 | 2-Nitroaniline<br>*o-Nitroaniline* | | 101 | ug/L | 6.74 | 22.5 |
| 99-09-2 | 3-Nitroaniline<br>*m-Nitroaniline* | | 138 | ug/L | 6.74 | 22.5 |
| 131-11-3 | Dimethylphthalate | | 103 | ug/L | 6.74 | 22.5 |
| 606-20-2 | 2,6-Dinitrotoluene | | 97.2 | ug/L | 6.74 | 22.5 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-866** | **Date Collected:** | **05/21/2013 11:08** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202881122** | **Date Received:** | **05/23/2013 09:00** | | |
| **Client Sample:** | **QC for batch 1303786** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **CAMO-13-30615MSD** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1303788** | **Inst:** | **MSD8.I** | **Dilution:** | **1** |
| **Run Date:** | **05/24/2013 22:22** | **Analyst:** | **AGS1** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/24/2013 08:25** | **Aliquot:** | **445 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s052413.B\s8E2414.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 121-14-2 | 2,4-Dinitrotoluene | | 99.7 | ug/L | 6.74 | 22.5 |
| 208-96-8 | Acenaphthylene | | 88.5 | ug/L | 0.674 | 2.25 |
| 83-32-9 | Acenaphthene | | 84.1 | ug/L | 0.674 | 2.25 |
| 51-28-5 | 2,4-Dinitrophenol | | 72.3 | ug/L | 11.2 | 44.9 |
| 132-64-9 | Dibenzofuran | | 93.3 | ug/L | 6.74 | 22.5 |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | | 105 | ug/L | 6.74 | 22.5 |
| 84-66-2 | Diethylphthalate | | 103 | ug/L | 6.74 | 22.5 |
| 100-02-7 | 4-Nitrophenol | | 70.4 | ug/L | 6.74 | 22.5 |
| 86-73-7 | Fluorene | | 94.2 | ug/L | 0.674 | 2.25 |
| 7005-72-3 | 4-Chlorophenylphenylether | | 97.2 | ug/L | 6.74 | 22.5 |
| 100-01-6 | 4-Nitroaniline | | 165 | ug/L | 6.74 | 22.5 |
| | *p-Nitroaniline* | | | | | |
| 534-52-1 | 2-Methyl-4,6-dinitrophenol | | 105 | ug/L | 6.74 | 22.5 |
| 122-39-4 | Diphenylamine | | 93.5 | ug/L | 6.74 | 22.5 |
| 122-66-7 | Azobenzene | | 91.8 | ug/L | 6.74 | 22.5 |
| | *1,2-Diphenylhydrazine* | | | | | |
| 101-55-3 | 4-Bromophenylphenylether | | 103 | ug/L | 6.74 | 22.5 |
| 118-74-1 | Hexachlorobenzene | | 99.2 | ug/L | 6.74 | 22.5 |
| 87-86-5 | Pentachlorophenol | | 81.3 | ug/L | 6.74 | 22.5 |
| 88-85-7 | Dinoseb | U | 22.5 | ug/L | 6.74 | 22.5 |
| 85-01-8 | Phenanthrene | | 93.1 | ug/L | 0.674 | 2.25 |
| 120-12-7 | Anthracene | | 93.4 | ug/L | 0.674 | 2.25 |
| 84-74-2 | Di-n-butylphthalate | | 93.5 | ug/L | 6.74 | 22.5 |
| 206-44-0 | Fluoranthene | | 90.9 | ug/L | 0.674 | 2.25 |
| 129-00-0 | Pyrene | | 96.4 | ug/L | 0.674 | 2.25 |
| 85-68-7 | Butylbenzylphthalate | | 90.4 | ug/L | 6.74 | 22.5 |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | | 93.1 | ug/L | 6.74 | 22.5 |
| 56-55-3 | Benzo(a)anthracene | | 91.9 | ug/L | 0.674 | 2.25 |
| 218-01-9 | Chrysene | | 93.4 | ug/L | 0.674 | 2.25 |
| 117-84-0 | Di-n-octylphthalate | | 85.9 | ug/L | 6.74 | 22.5 |
| 205-99-2 | Benzo(b)fluoranthene | | 96.8 | ug/L | 0.674 | 2.25 |
| 207-08-9 | Benzo(k)fluoranthene | | 100 | ug/L | 0.674 | 2.25 |
| 50-32-8 | Benzo(a)pyrene | | 88.9 | ug/L | 0.989 | 2.25 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | | 93.0 | ug/L | 0.674 | 2.25 |
| 53-70-3 | Dibenzo(a,h)anthracene | | 101 | ug/L | 0.674 | 2.25 |
| 191-24-2 | Benzo(ghi)perylene | | 89.7 | ug/L | 0.674 | 2.25 |
| 123-91-1 | 1,4-Dioxane | | 76.5 | ug/L | 6.74 | 22.5 |
| 55-18-5 | N-Nitrosodiethylamine | U | 22.5 | ug/L | 6.74 | 22.5 |
| 930-55-2 | N-Nitrosopyrrolidine | | 101 | ug/L | 6.74 | 22.5 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-866** | **Date Collected:** | **05/21/2013 11:08** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202881122** | **Date Received:** | **05/23/2013 09:00** | | |
| **Client Sample:** | **QC for batch 1303786** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **CAMO-13-30615MSD** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1303788** | **Inst:** | **MSD8.I** | **Dilution:** | **1** |
| **Run Date:** | **05/24/2013 22:22** | **Analyst:** | **AGS1** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/24/2013 08:25** | **Aliquot:** | **445 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s052413.B\s8E2414.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 924-16-3 | N-Nitrosodi-n-butylamine | U | 22.5 | ug/L | 6.74 | 22.5 |
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | | 77.8 | ug/L | 6.74 | 22.5 |
| 608-93-5 | Pentachlorobenzene | U | 22.5 | ug/L | 6.74 | 22.5 |
| 1912-24-9 | Atrazine | | 69.4 | ug/L | 6.74 | 22.5 |
| 92-87-5 | Benzidine | | 148 | ug/L | 6.74 | 22.5 |
| 91-94-1 | 3,3'-Dichlorobenzidine | | 96.5 | ug/L | 6.74 | 22.5 |
| 120-82-1 | 1,2,4-Trichlorobenzene | | 77.7 | ug/L | 6.74 | 22.5 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 2,4,6-Tribromophenol | 214 | 225 | ug/L | 95.4 | (26%-129%) |
| 2-Fluorobiphenyl | 80.3 | 112 | ug/L | 71.5 | (32%-102%) |
| 2-Fluorophenol | 150 | 225 | ug/L | 66.7 | (10%-78%) |
| Nitrobenzene-d5 | 95.8 | 112 | ug/L | 85.3 | (36%-125%) |
| Phenol-d5 | 135 | 225 | ug/L | 60.0 | (10%-104%) |
| p-Terphenyl-d14 | 102 | 112 | ug/L | 91.1 | (34%-135%) |

# Miscellaneous

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 28-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| SEMIVOA GC/MS | SW846 8270C | Liquid | ARSL (ESHL) |
| **Batch ID:** | **Sample Numbers:** | | |
| 1303788 | See Below | | |

**Potentially affected work order(s)(SDG): 326020(2013-866),326200(2013-871),326213(2013-873)**

**Application Issues:**

Failed Recovery for MS/PS

Failed RPD for MS/MSD, or PS/PSD

Failed Recovery for LCS/LCSD

Failed Recovery for MSD/PSD

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. The MS(1202881121) recovered p-Nitroaniline at 154%. The limits are 25%-133%.<br><br>2. The MSD(1202881122) recovered p-Nitroaniline at 147%. The limits are 25%-133%. | 1. & 2. Since the analyte was not detected in the parent sample, the high recoveries do not have any adverse impact on the data. The data results have been reported. |
| 3. The MS/MSD RPD value for Benzidine was 48%. The limit is 30%. | 3. Higher recovery in the MS caused the RPD failure. Individually, the analyte recovered within acceptance limits in the MS and MSD and it was not detected in the parent sample. The data results have been reported. |

**Originator's Name:**

Anne Salter 28-MAY-13

**Data Validator/Group Leader:**

Barbara Bailey 30-MAY-13

# Perchlorates by LCMSMS Analysis

# Case Narrative

**Perchlorate by LC/MSMS**
**ARS International (ARSL)**
**SDG 2013-866**

## Method/Analysis Information

| | |
|---|---|
| **Procedure:** | **Definitive Low Level Perchlorate Analysis Utilizing Liquid Chromatography/Mass Spectrometry/Mass Spectrometry (LC/MS/MS) by EPA Method 6850 Modified (6850M)** |
| Analytical Method: | SW846 6850 Modified |
| Prep Method: | SW846 6850 Modified |
| Analytical Batch Number: | 1302799 |
| Prep Batch Number: | 1302798 |

## Sample Analysis

| Sample ID | Client ID |
|---|---|
| 326020002 | CAMO-13-30600 |
| 1202878498 | Interference Check Sample (ICS) |
| 1202878494 | Method Blank (MB) |
| 1202878495 | Laboratory Control Sample (LCS) |
| 1202878496 | 326020002(CAMO-13-30600) Matrix Spike (MS) |
| 1202878497 | 326020002(CAMO-13-30600) Matrix Spike Duplicate (MSD) |

The samples in this SDG were analyzed on an "as received" basis.

## Preparation/Analytical Method Verification

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-067 REV# 10.

## Calibration Information

**Initial Calibration**
All initial calibration requirements have been met for this SDG. Due to software constraints, all Initial Calibration Blanks must be designated as IPB001.

**ICV Requirements**
All associated initial calibration verification standard(s) (ICV) met the acceptance criteria.

**CCB Requirements**
All continuing calibration blanks (CCB) bracketing the analyses associated with this batch were within acceptance criteria.

**CCV Requirements**
All continuing calibration checks (CCV) requirements were met by all bracketing CCV standards.

**Low Level Standard (CRI) Requirements**
All low level calibration verification (CRI) requirements were met by all bracketing CRI standards.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Interference Check Sample (ICS)**
The ICS met all recovery acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recoveries met the acceptance limits.

**QC Sample Designation**
Client sample 326020002 (CAMO-13-30600) was chosen for matrix spike and matrix spike duplicate analysis.

**Matrix Spike (MS) Recovery Statement**
The Perchlorate recovery in the matrix spike 1202878496 (CAMO-13-30600) was below the acceptance limits. The recovery for Perchlorate was 35% and with an acceptance range of 75-125%. The low recovery was attributed to a significant background concentration of Perchlorate in the parent sample and sample dilutions needed to analyze the extracts. Data were reported with the appropriate Data Exception Report (DER).

**Matrix Spike Duplicate (MSD) Recovery Statement**
The Perchlorate and Perchlorate-101 recoveries in the matrix spike duplicate 1202878497 (CAMO-13-30600) were below the acceptance limits. The recovery for Perchlorate was 29% and with an acceptance range of 75-125%. The low recovery was attributed to a significant background concentration of Perchlorate in the parent sample and sample dilutions needed to analyze the extracts. Data were reported with the appropriate Data Exception Report (DER).

**MS/MSD Relative Percent Difference (RPD) Statement**
The RPD(s) between the MS and MSD met the acceptance limits.

**Retention Time Standard Area Acceptance**
The retention time standard areas were within the required acceptance criteria for all samples and QC.

**Retention Time**
During the analysis of Perchlorate by LC/MS/MS, retention time shifts are commonly observed. These retention time shifts, which are caused by fouling of the column by the sample matrices, are problematic when the retention time is used as one of the criterion for confirmation. To overcome this problem, a known amount of O(18) labeled Perchlorate was added to each sample as a retention time standard. The presence of Perchlorate was confirmed by the relative retention time (RRT) of the Perchlorate peak and the O(18) standard. A RRT window of 0.98 to 1.02, as required by Method 332.0, has been used. In addition to the isotopic ratio, the presence of Perchlorate in the samples associated with this data package have been confirmed using the relative retention criteria stated above, not the absolute retention time.

## Technical Information

### Holding Time Specifications
All samples in this SDG in this analytical batch met the specified holding time. GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

### Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

### Sample Dilutions
Samples 1202878496 (CAMO-13-30600), 1202878497 (CAMO-13-30600) and 326020002 (CAMO-13-30600) were diluted due to over range target analytes.

### Sample Re-extraction/Re-analysis
The samples in this batch were initially analyzed on 05/28/13, however the batch was re-analyzed due to unacceptable responses in the calibration verification standards bracketing the samples. The samples were re-analyzed the following day and data were reported.

## Miscellaneous Information

### Data Exception (DER) Documentation
The following DER was generated for this SDG: 1190616.

### Manual Integrations
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations.

### Method Comments
The samples in this SDG were not originally analyzed using EPA Method 314.0.

### Additional Comments
The Perchlorate Isotope Ratio on the Form I may differ slightly from the ratio on the corresponding raw data due to rounding rules and/or significant figures or due to software limitations when there are manual integrations, dilutions or other factors. The ratio value of the Form I is the correct value. The retention time marker, Perchlorate-O (18), is added to all samples, instrument blanks, and standards prior to injection. It is used to verify the retention time of Perchlorate and Perchlorate-101 and to insure an accurate injection occurred. Due to various anions affecting the recovery of Perchlorate-O (18) and not Perchlorate and Perchlorate-101, the calibration curves of Perchlorate and Perchlorate-101 are not internally corrected for using Perchlorate-O (18). They are external calibrations.

### Perchlorate Isotope Ratio
The Perchlorate isotope ratio met acceptance criteria for all samples and QC samples. Please see the isotope ratio criteria in the Miscellaneous Section.

## System Configuration

The laboratory utilizes a Waters LC 2795 liquid chromatography instrument for Perchlorate analysis. It is coupled with either a Micromass Quattro Micro Mass Spectrometer/ Mass Spectrometer, or a Micromass Quattro Ultima Mass Spectrometer/ Mass Spectrometer. Each being designated as LCMSMS #1 and LCMSMS #2, respectively. It is fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis. The laboratory may also utilize an Agilent 1100 liquid chromatography instrument for Perchlorate analysis. It is coupled with an Applied Biosystems 4000 Mass Spectrometer/ Mass Spectrometer, designated as LCMSMS #3 or LCMSMS #4. It is also fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Chromatographic Columns**

Chromatographic separation of Perchlorate is accomplished through analysis on the following anion column:

Dionex: IonPac AG-16 2 x 50 mm.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-866 GEL Work Order: 326020

**The Qualifiers in this report are defined as follows:**

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

**Review/Validation**

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

**Signature:** Pat Steele **Name: Patricia Steele**

**Date: 04 JUN 2013** **Title: Data Validator**

# Sample Data Summary

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1302798

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CAMO-13-30600

**Date Received:** 18-MAY-13

**GEL Job No (SDG):** 2013-866

**GEL Sample ID:** 326020002

**Date Filtered:** 28-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .5 | 2 | 5.82 | ug/L | | 10 | 29-MAY-13 18:52 | per0529024a |
| | Perchlorate Isotope Ratio | | | 3.16 | | | 10 | 29-MAY-13 18:52 | per0529024a |
| 14797-73-0 | Perchlorate-101 | .5 | 2 | 5.73 | ug/L | | 10 | 29-MAY-13 18:52 | per0529024a |
| | Perchlorate-O(18) | | | 4.70 | ug/L | | 10 | 29-MAY-13 18:52 | per0529024a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Quality Control Summary

## Perchlorate Laboratory Control Sample

**Lab Name:** General Engineering Laboratories

**Lab Code:** GEL

**GEL Job No. (SDG):** 2013-866

**Extract Batch Code:** 1302798

**Date Filtered:** 28-MAY-13

**Matrix:** WATER

**Sample ID:** 1202878495

| Analyte^ | True | Found | Units | %Rec | Q | Control Limits |
|---|---|---|---|---|---|---|
| Perchlorate | 0.200 | .196 | ug/L | 98.2 | | 85 - 115 |
| Perchlorate Isotope Ratio | | 2.91 | | | | - |
| Perchlorate-101 | 0.200 | .21 | ug/L | 105 | | 85 - 115 |
| Perchlorate-O(18) | | .479 | ug/L | | | - |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

## Perchlorate Spike/Spike Duplicate Summary

**Lab Name:** General Engineering Laboratories

**Lab Code:** GEL

**GEL Job No (SDG):** 2013-866

**Extract Batch Code:** 1302798

**Date Extracted:** 28-MAY-13

**GEL MS/PS ID:** 1202878496

**Client ID:** CAMO-13-30600

**GEL MSD/PSD ID:** 1202878497

**QC Type:** MS

| Compound^ | Spike Added | Sample Conc | Units | MS Conc | MS Rec | # | MSD Conc | MSD Rec | # | RPD | # | RPD Limit | Recovery Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Perchlorate | 0.200 | 5.82 | ug/L | 5.89 | 34.9 | * | 5.88 | 29.4 | * | .186 | | 30 | 75 - 125 |
| Perchlorate Isotope Ratio | 0 | 3.16 | | 3.1 | | | 3.15 | | | 1.64 | | | - |
| Perchlorate-101 | 0.200 | 5.73 | ug/L | 5.91 | 89.3 | | 5.8 | 35.8 | * | 1.83 | | 30 | 75 - 125 |
| Perchlorate-O(18) | 0 | 4.70 | ug/L | 4.77 | | | 4.72 | | | 1.05 | | | - |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

# Quality Control Data

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** EPA 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1302798

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
MB

**Date Received:** 28-MAY-13

**GEL Job No (SDG):** 2013-866

**GEL Sample ID:** 1202878494

**Date Filtered:** 28-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.200 | ug/L | U | 1 | 29-MAY-13 17:16 | per0529012a |
| | Perchlorate Isotope Ratio | | | | | | 1 | 29-MAY-13 17:16 | per0529012a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.200 | ug/L | U | 1 | 29-MAY-13 17:16 | per0529012a |
| | Perchlorate-O(18) | | | 0.504 | ug/L | | 1 | 29-MAY-13 17:16 | per0529012a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** EPA 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1302798

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
LCS

**Date Received:** 28-MAY-13

**GEL Job No (SDG):** 2013-866

**GEL Sample ID:** 1202878495

**Date Filtered:** 28-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.196 | ug/L | J | 1 | 29-MAY-13 17:24 | per0529013a |
| | Perchlorate Isotope Ratio | | | 2.91 | | | 1 | 29-MAY-13 17:24 | per0529013a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.210 | ug/L | | 1 | 29-MAY-13 17:24 | per0529013a |
| | Perchlorate-O(18) | | | 0.479 | ug/L | | 1 | 29-MAY-13 17:24 | per0529013a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1302798

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
ICS

**Date Received:**

**GEL Job No (SDG):** 2013-866

**GEL Sample ID:** 1202878498

**Date Filtered:** 28-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.205 | ug/L | | 1 | 29-MAY-13 17:32 | per0529014a |
| | Perchlorate Isotope Ratio | | | 3.23 | | | 1 | 29-MAY-13 17:32 | per0529014a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.198 | ug/L | J | 1 | 29-MAY-13 17:32 | per0529014a |
| | Perchlorate-O(18) | | | 0.503 | ug/L | | 1 | 29-MAY-13 17:32 | per0529014a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1302798

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CAMO-13-30600MS

**Date Received:** 18-MAY-13

**GEL Job No (SDG):** 2013-866

**GEL Sample ID:** 1202878496

**Date Filtered:** 28-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .5 | 2 | 5.89 | ug/L | | 10 | 29-MAY-13 19:00 | per0529025a |
| | Perchlorate Isotope Ratio | | | 3.1 | | | 10 | 29-MAY-13 19:00 | per0529025a |
| 14797-73-0 | Perchlorate-101 | .5 | 2 | 5.91 | ug/L | | 10 | 29-MAY-13 19:00 | per0529025a |
| | Perchlorate-O(18) | | | 4.77 | ug/L | | 10 | 29-MAY-13 19:00 | per0529025a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1302798

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CAMO-13-30600MSD

**Date Received:** 18-MAY-13

**GEL Job No (SDG):** 2013-866

**GEL Sample ID:** 1202878497

**Date Filtered:** 28-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .5 | 2 | 5.88 | ug/L | | 10 | 29-MAY-13 19:08 | per0529026a |
| | Perchlorate Isotope Ratio | | | 3.15 | | | 10 | 29-MAY-13 19:08 | per0529026a |
| 14797-73-0 | Perchlorate-101 | .5 | 2 | 5.80 | ug/L | | 10 | 29-MAY-13 19:08 | per0529026a |
| | Perchlorate-O(18) | | | 4.72 | ug/L | | 10 | 29-MAY-13 19:08 | per0529026a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Miscellaneous

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 30-MAY-13 | Federal | | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| LC-MS/MS | SW846 6850 Modified | Liquid | ARSL001 |
| **Batch ID:** | **Sample Numbers:** | | |
| 1302799 | See below | | |

**Potentially affected work order(s)(SDG):** **325733(2013-838),325736(2013-840),325739(2013-841),325847(2013-847),325923(2013-856),326020(2013-866),326056(2013-868),326427(2013-887)**

**Application Issues:**

Failed Recovery for MS/PS

Failed Recovery for MSD/PSD

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Low recovery for Perchlorate was observed in 1202878496 (MS). The recovery was 35% and the acceptance range is 75-125%.<br><br>2. Low recoveries for Perchlorate and Perchlorate-101 were observed in 1202878497 (MSD). The recoveries were 29% and 36%, respectively. The acceptance range is 75-125%. | 1. & 2. The low recoveries may be the result of the background concentration present in the parent sample, 326020002, and the need to dilute all at a 1:10 dilution prior to analysis. The data are reported with the appropriate DER. |

**Originator's Name:**

Charles Wilson 30-MAY-13

**Data Validator/Group Leader:**

Michael Penny 30-MAY-13

# Metals Analysis

# Case Narrative

**Metals Fractional Narrative**
**ARS International (ARSL)**
**SDG 2013-866**

## Sample Analysis

| Sample ID | Client ID |
|---|---|
| 326020002 | CAMO-13-30600 |
| 1202883949 | Method Blank (MB) **ICP** |
| 1202883950 | Laboratory Control Sample (LCS) |
| 1202883953 | 325649002(CAMO-13-30594L) Serial Dilution (SD) |
| 1202883951 | 325649002(CAMO-13-30594D) Sample Duplicate (DUP) |
| 1202883952 | 325649002(CAMO-13-30594S) Matrix Spike (MS) |
| 1202883954 | Method Blank (MB) **ICP-MS** |
| 1202883955 | Laboratory Control Sample (LCS) |
| 1202883958 | 325649002(CAMO-13-30594L) Serial Dilution (SD) |
| 1202883956 | 325649002(CAMO-13-30594D) Sample Duplicate (DUP) |
| 1202883957 | 325649002(CAMO-13-30594S) Matrix Spike (MS) |
| 1202881480 | Method Blank (MB) **CVAA** |
| 1202881487 | Laboratory Control Sample (LCS) |
| 1202881483 | 326018002(CASA-13-30551L) Serial Dilution (SD) |
| 1202881481 | 326018002(CASA-13-30551D) Sample Duplicate (DUP) |
| 1202881485 | 326018002(CASA-13-30551S) Matrix Spike (MS) |

## Method/Analysis Information

| | |
|---|---|
| **Analytical Batch:** | 1304837, 1304840, 1303940 and 1306982 |
| **Prep Batch :** | 1304836, 1304838 and 1303939 |
| **Standard Operating Procedures:** | GL-MA-E-013 REV# 22, GL-MA-E-006 REV# 9, GL-MA-E-014 REV# 25, GL-MA-E-010 REV# 26 and GL-GC-E-107 REV# 8 |
| **Analytical Method:** | SW846 3005/6010B, SW846 3005/6020 DOE-AL, EPA 245.1/245.2 and SM 2340 B |
| **Prep Method :** | SW846 3005A and EPA 245.1/245.2 Prep |

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

**System Configuration**

The Hardness as CaCO3 is calculated from Calcium and Magnesium results.

The Metals analysis-ICP was performed on a P E 5300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis-ICP was performed on a PE 7300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN 9000 inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadruple mass spectrometer, and dual mode electron multiplier detector. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum. Operating conditions are set at 1400W power and combined argon pressures of 360+/-7 kPa for the plasma and auxiliary gases, and 0.85 L/min carrier gas flow, and an initial lens voltage of 5.2.

The Metals analysis-Mercury was performed on a Perkin-Elmer Flow Injection Mercury System (FIMS-100) automated mercury analyzer. The instrument consists of a cold vapor atomic absorption spectrometer set to detect mercury at a wavelength of 253.7 nm. Sample introduction through the flow injection system is performed via a peristaltic pump at 9 mL/min and nitrogen carrier gas rate of 80 mL/min.

**Calibration Information**

**Instrument Calibration**
All initial calibration requirements have been met for this sample delivery group (SDG).

**CRDL Requirements**
All CRDL standard(s) met the referenced advisory control limits.

**ICSA/ICSAB Statement**
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

**Continuing Calibration Blank (CCB) Requirements**
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

**Continuing Calibration Verification (CCV) Requirements**
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MBs analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recoveries met the acceptance limits.

**Quality Control (QC) Sample Statement**
The following samples were selected as the quality control (QC) samples for this SDG: 325649002 (CAMO-13-30594)-ICP and ICP-MS and 326018002 (CASA-13-30551)-CVAA.

**Matrix Spike (MS) Recovery Statement**
The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. All applicable elements met the acceptance criteria.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. All applicable analytes met these requirements.

**Serial Dilution % Difference Statement**
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations that are 25X the IDL/MDL for CVAA, 50X the IDL/MDL for ICP, and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the acceptance criteria of less than 10% difference (%D).

## Technical Information

### Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

### Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

### Sample Dilutions
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. The samples in this SDG did not require dilutions.

### Preparation Information
The samples in this SDG were prepared exactly according to the cited SOP.

## Miscellaneous Information

### Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

### Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

### Additional Comments
Additional comments were not required for this SDG.
Total Hardness by Calculation is determined using the results of Total Calcium (Ca) and Total Magnesium (Mg) determined by ICP or ICP-MS.

Hardness = 2.497 (Ca) + 4.118 (Mg)

Please refer to the Total Ca and Total Mg data to validate results appearing on the Hardness Summary sheet. Both results are in the Inorganic/metals section of the package. There is no Batch QC for calculated results, and thus no QC Summary for the Hardness by Calculation Batch. The MDLs and PQLs are calculated using the higher of the two calculated values of Ca or Mg.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

**Review Validation:**

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

**The following data validator verified the information presented in this case narrative:**

**Reviewer:**_____ **Date:** 06/12/13

# Sample Data Summary

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-866  GEL Work Order: 326020

**The Qualifiers in this report are defined as follows:**

* A quality control analyte recovery is outside of specified acceptance criteria

J Value is estimated

N Metals--The Matrix spike sample recovery is not within specified control limits

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____ 06/12/13

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−866 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

**SAMPLE ID:** 326020002 **BASIS:** As Received **DATE COLLECTED** 17−MAY−13

**CLIENT ID:** CAMO−13−30600 **LEVEL:** Low **DATE RECEIVED** 18−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7439−97−6 | Mercury | 0.20 | ug/L | U | 0.067 | 0.2 | 0.2 | 1 | AV | NOR1 | 05/28/13 10:47 | 052813W1−6 | 1303940 |

# METALS
## −1−
## INORGANICS ANALYSIS DATA PACKAGE

**SDG No:** 2013−866 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

**SAMPLE ID:** 326020002 **BASIS:** As Received **DATE COLLECTED** 17−MAY−13

**CLIENT ID:** CAMO−13−30600 **LEVEL:** Low **DATE RECEIVED** 18−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7429−90−5 | Aluminum | 143 | ug/L | J | 68 | 200 | 200 | 1 | P | HSC | 06/06/13 16:02 | 060613−1 | 1304837 |
| 7440−36−0 | Antimony | 3 | ug/L | U | 1 | 3 | 3 | 1 | MS | PRB | 06/08/13 03:46 | 130607−5 | 1304840 |
| 7440−38−2 | Arsenic | 5 | ug/L | U | 1.7 | 5 | 5 | 1 | MS | BAJ | 06/07/13 08:20 | 130606−3 | 1304840 |
| 7440−39−3 | Barium | 26.8 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 16:02 | 060613−1 | 1304837 |
| 7440−41−7 | Beryllium | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 16:02 | 060613−1 | 1304837 |
| 7440−42−8 | Boron | 50 | ug/L | U | 15 | 50 | 50 | 1 | P | HSC | 06/06/13 16:02 | 060613−1 | 1304837 |
| 7440−43−9 | Cadmium | 1 | ug/L | U | 0.11 | 1 | 1 | 1 | MS | BAJ | 06/07/13 08:20 | 130606−3 | 1304840 |
| 7440−70−2 | Calcium | 8520 | ug/L | | 50 | 200 | 200 | 1 | P | HSC | 06/06/13 16:02 | 060613−1 | 1304837 |
| 7440−47−3 | Chromium | 18.3 | ug/L | | 2 | 10 | 10 | 1 | MS | BAJ | 06/07/13 08:20 | 130606−3 | 1304840 |
| 7440−48−4 | Cobalt | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 16:02 | 060613−1 | 1304837 |
| 7440−50−8 | Copper | 10 | ug/L | U | 3 | 10 | 10 | 1 | P | HSC | 06/06/13 16:02 | 060613−1 | 1304837 |
| 7439−89−6 | Iron | 40.7 | ug/L | J | 30 | 100 | 100 | 1 | P | HSC | 06/06/13 16:02 | 060613−1 | 1304837 |
| 7439−92−1 | Lead | 2 | ug/L | U | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/07/13 08:20 | 130606−3 | 1304840 |
| 7439−95−4 | Magnesium | 3020 | ug/L | | 110 | 300 | 300 | 1 | P | HSC | 06/07/13 11:03 | 060713B−2 | 1304837 |
| 7439−96−5 | Manganese | 17.2 | ug/L | | 2 | 10 | 10 | 1 | P | HSC | 06/06/13 16:02 | 060613−1 | 1304837 |
| 7439−98−7 | Molybdenum | 1.63 | ug/L | | 0.165 | 0.5 | 0.5 | 1 | MS | BAJ | 06/07/13 16:42 | 130607−4 | 1304840 |
| 7440−02−0 | Nickel | 1.1 | ug/L | J | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/07/13 08:20 | 130606−3 | 1304840 |
| 7440−09−7 | Potassium | 13500 | ug/L | | 50 | 150 | 150 | 1 | P | HSC | 06/06/13 16:02 | 060613−1 | 1304837 |
| 7782−49−2 | Selenium | 5 | ug/L | U | 1.5 | 5 | 5 | 1 | MS | BAJ | 06/07/13 08:20 | 130606−3 | 1304840 |
| 7631−86−9 | Silica | 84100 | ug/L | | 53 | 213 | 213 | 1 | P | HSC | 06/06/13 16:02 | 060613−1 | 1304837 |
| 7440−22−4 | Silver | 1 | ug/L | U | 0.2 | 1 | 1 | 1 | MS | BAJ | 06/07/13 08:20 | 130606−3 | 1304840 |
| 7440−23−5 | Sodium | 10900 | ug/L | | 100 | 300 | 300 | 1 | P | HSC | 06/07/13 11:03 | 060713B−2 | 1304837 |
| 7440−24−6 | Strontium | 35.2 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 16:02 | 060613−1 | 1304837 |
| 7440−28−0 | Thallium | 2 | ug/L | U | 0.45 | 2 | 2 | 1 | MS | BAJ | 06/07/13 08:20 | 130606−3 | 1304840 |
| 7440−31−5 | Tin | 10 | ug/L | U | 2.5 | 10 | 10 | 1 | P | HSC | 06/07/13 11:03 | 060713B−2 | 1304837 |
| 7440−61−1 | Uranium | 0.193 | ug/L | J | 0.067 | 0.2 | 0.2 | 1 | MS | BAJ | 06/07/13 16:42 | 130607−4 | 1304840 |
| 7440−62−2 | Vanadium | 5.35 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 16:02 | 060613−1 | 1304837 |
| 7440−66−6 | Zinc | 6.61 | ug/L | J | 3.3 | 10 | 10 | 1 | P | HSC | 06/06/13 16:02 | 060613−1 | 1304837 |

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−866 **CONTRACT:** ESHL00210 **METHOD TYPE:**

**SAMPLE ID:** 326020002 **BASIS:** As Received **DATE COLLECTED** 17−MAY−13

**CLIENT ID:** CAMO−13−30600 **LEVEL:** Low **DATE RECEIVED** 18−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Hardness as CaCO3 | 33.7 | mg/L | | 0.453 | 1.24 | 1.24 | 1 | | JJ2 | 06/10/13 14:16 | | 1306982 |

**Prep Information:**

| Analytical Batch | Prep Batch | Prep Method | Initial wt./vol. | Units | Final wt./vol. | Units | Date | Analyst |
|---|---|---|---|---|---|---|---|---|
| 1303940 | 1303939 | EPA 245.1/245.2 Prep | 20 | mL | 20 | mL | 05/24/13 | AXS5 |
| 1304837 | 1304836 | SW846 3005A | 50 | mL | 50 | mL | 06/06/13 | AXG2 |
| 1304840 | 1304838 | SW846 3005A | 50 | mL | 50 | mL | 06/06/13 | AXG2 |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**
**P** **SW846 3005/6010B**
**AV** **EPA 245.1/245.2**

# Quality Control Summary

**METALS**
**−3b−**
**PREPARATION BLANK SUMMARY**

**SDG NO.** 2013−866

**Contract:** ESHL00210

**Matrix:** W

| Sample ID | Analyte | Result | Units | Acceptance Window | Conc Qual | M* | MDL | RDL |
|---|---|---|---|---|---|---|---|---|
| 1202881480 | | | | | | | | |
| | Mercury | −0.076 | ug/L | +/−0.2 | J | AV | 0.067 | 0.2 |
| 1202883949 | | | | | | | | |
| | Aluminum | 68 | ug/L | +/−200 | U | P | 68 | 200 |
| | Barium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Beryllium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Boron | 15 | ug/L | +/−50 | U | P | 15 | 50 |
| | Calcium | 50 | ug/L | +/−200 | U | P | 50 | 200 |
| | Cobalt | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Copper | 3 | ug/L | +/−10 | U | P | 3 | 10 |
| | Iron | 30 | ug/L | +/−100 | U | P | 30 | 100 |
| | Magnesium | 110 | ug/L | +/−300 | U | P | 110 | 300 |
| | Manganese | 2 | ug/L | +/−10 | U | P | 2 | 10 |
| | Potassium | 50 | ug/L | +/−150 | U | P | 50 | 150 |
| | Silica | 53 | ug/L | +/−213 | U | P | 53 | 213 |
| | Sodium | 100 | ug/L | +/−300 | U | P | 100 | 300 |
| | Strontium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Tin | 2.5 | ug/L | +/−10 | U | P | 2.5 | 10 |
| | Vanadium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Zinc | 3.3 | ug/L | +/−10 | U | P | 3.3 | 10 |
| 1202883954 | | | | | | | | |
| | Antimony | 1 | ug/L | +/−3 | U | MS | 1 | 3 |
| | Arsenic | 1.7 | ug/L | +/−5 | U | MS | 1.7 | 5 |
| | Cadmium | 0.11 | ug/L | +/−1 | U | MS | 0.11 | 1 |
| | Chromium | 2 | ug/L | +/−10 | U | MS | 2 | 10 |
| | Lead | 0.5 | ug/L | +/−2 | U | MS | 0.5 | 2 |
| | Molybdenum | 0.165 | ug/L | +/−0.5 | U | MS | 0.165 | 0.5 |
| | Nickel | 0.5 | ug/L | +/−2 | U | MS | 0.5 | 2 |
| | Selenium | 1.5 | ug/L | +/−5 | U | MS | 1.5 | 5 |
| | Silver | 0.2 | ug/L | +/−1 | U | MS | 0.2 | 1 |
| | Thallium | 0.45 | ug/L | +/−2 | U | MS | 0.45 | 2 |
| | Uranium | 0.067 | ug/L | +/−0.2 | U | MS | 0.067 | 0.2 |

***Analytical Methods:**

| | |
|---|---|
| **MS** | **SW846 3005/6020 DOE−AL** |
| **P** | **SW846 3005/6010B** |
| **AV** | **EPA 245.1/245.2** |

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−866 **Client ID** CASA−13−30551S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 326018002 **Spike ID:** 1202881485

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | ug/L | 75−125 | 2.01 | | 0.067 | U | 2 | 101 | | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−866 **Client ID** CAMO−13−30594S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 325649002 **Spike ID:** 1202883952

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Tin | ug/L | 75−125 | 470 | | 2.5 | U | 500 | 94 | | P |
| Vanadium | ug/L | 75−125 | 507 | | 5.58 | | 500 | 100 | | P |
| Zinc | ug/L | 75−125 | 490 | | 3.3 | U | 500 | 97.4 | | P |
| Strontium | ug/L | 75−125 | 560 | | 58.8 | | 500 | 100 | | P |
| Aluminum | ug/L | 75−125 | 5060 | | 68 | U | 5000 | 101 | | P |
| Barium | ug/L | 75−125 | 513 | | 21.9 | | 500 | 98.3 | | P |
| Beryllium | ug/L | 75−125 | 498 | | 1 | U | 500 | 99.5 | | P |
| Boron | ug/L | 75−125 | 491 | | 15 | U | 500 | 97.5 | | P |
| Calcium | ug/L | 75−125 | 17600 | | 13300 | | 5000 | 86.2 | | P |
| Cobalt | ug/L | 75−125 | 496 | | 1 | U | 500 | 99.2 | | P |
| Copper | ug/L | 75−125 | 532 | | 3 | U | 500 | 106 | | P |
| Iron | ug/L | 75−125 | 5140 | | 30 | U | 5000 | 103 | | P |
| Magnesium | ug/L | 75−125 | 8390 | | 3700 | | 5000 | 93.7 | | P |
| Manganese | ug/L | 75−125 | 492 | | 2 | U | 500 | 98.3 | | P |
| Potassium | ug/L | 75−125 | 5990 | | 1210 | | 5000 | 95.6 | | P |
| Silica | ug/L | | 81700 | | 74900 | | 10700 | 62.8 | N/A | P |
| Sodium | ug/L | 75−125 | 14200 | | 9930 | | 5000 | 85.2 | | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−866 **Client ID** CAMO−13−30594S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 325649002 **Spike ID:** 1202883957

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ug/L | 75−125 | 55 | | 1 | U | 50 | 110 | | MS |
| Arsenic | ug/L | 75−125 | 52.4 | | 1.7 | U | 50 | 102 | | MS |
| Cadmium | ug/L | 75−125 | 54.8 | | 0.11 | U | 50 | 110 | | MS |
| Chromium | ug/L | 75−125 | 68.1 | | 17.5 | | 50 | 101 | | MS |
| Lead | ug/L | 75−125 | 51.2 | | 0.5 | U | 50 | 102 | | MS |
| Molybdenum | ug/L | 75−125 | 51.8 | | 0.849 | | 50 | 102 | | MS |
| Nickel | ug/L | 75−125 | 53.4 | | 2.22 | | 50 | 102 | | MS |
| Selenium | ug/L | 75−125 | 59.2 | | 1.5 | U | 50 | 116 | | MS |
| Silver | ug/L | 75−125 | 54 | | 0.2 | U | 50 | 108 | | MS |
| Thallium | ug/L | 75−125 | 47.3 | | 0.45 | U | 50 | 94.6 | | MS |
| Uranium | ug/L | 75−125 | 51.9 | | 0.429 | | 50 | 103 | | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−866 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CASA−13−30551D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 326018002 **Duplicate ID:** 1202881481 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | ug/L | | 0.067 | U | 0.067 | U | | | AV |

***Analytical Methods:**

**AV EPA 245.1/245.2**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−866 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CAMO−13−30594D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325649002 **Duplicate ID:** 1202883951 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | ug/L | | 68 | U | 68 | U | | | P |
| Barium | ug/L | +/−5 | 21.9 | | 20.8 | | 5.14 | | P |
| Beryllium | ug/L | | 1 | U | 1 | U | | | P |
| Boron | ug/L | | 15 | U | 15 | U | | | P |
| Calcium | ug/L | +/−20% | 13300 | | 12900 | | 3.27 | | P |
| Cobalt | ug/L | | 1 | U | 1 | U | | | P |
| Copper | ug/L | | 3 | U | 3 | U | | | P |
| Iron | ug/L | | 30 | U | 30 | U | | | P |
| Magnesium | ug/L | +/−20% | 3700 | | 3510 | | 5.41 | | P |
| Manganese | ug/L | | 2 | U | 2 | U | | | P |
| Potassium | ug/L | +/−20% | 1210 | | 1170 | | 3.01 | | P |
| Silica | ug/L | +/−20% | 74900 | | 72500 | | 3.29 | | P |
| Sodium | ug/L | +/−20% | 9930 | | 9590 | | 3.45 | | P |
| Strontium | ug/L | +/−20% | 58.8 | | 56.4 | | 4.05 | | P |
| Tin | ug/L | | 2.5 | U | 2.5 | U | | | P |
| Vanadium | ug/L | +/−5 | 5.58 | | 4.98 | J | 11.3 | | P |
| Zinc | ug/L | | 3.3 | U | 3.3 | U | | | P |

***Analytical Methods:**

**P SW846 3005/6010B**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−866 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CAMO−13−30594D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325649002 **Duplicate ID:** 1202883956 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Antimony | ug/L | | 1 | U | 1 | U | | | MS |
| Arsenic | ug/L | | 1.7 | U | 1.7 | U | | | MS |
| Cadmium | ug/L | | 0.11 | U | 0.11 | U | | | MS |
| Chromium | ug/L | +/−10 | 17.5 | | 16 | | 9.39 | | MS |
| Lead | ug/L | | 0.5 | U | 0.5 | U | | | MS |
| Molybdenum | ug/L | +/−.5 | 0.849 | | 0.877 | | 3.24 | | MS |
| Nickel | ug/L | +/−2 | 2.22 | | 1.9 | J | 15.5 | | MS |
| Selenium | ug/L | | 1.5 | U | 1.5 | U | | | MS |
| Silver | ug/L | | 0.2 | U | 0.2 | U | | | MS |
| Thallium | ug/L | | 0.45 | U | 0.45 | U | | | MS |
| Uranium | ug/L | +/−.2 | 0.429 | | 0.42 | | 2.12 | | MS |

***Analytical Methods:**

**MS SW846 3005/6020 DOE−AL**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−866

**Contract:** ESHL00210

**Aqueous LCS Source:** GEL **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202881487 | | | | | | | | |
| | Mercury | ug/L | 2 | 2.09 | | 104 | 85−115 | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−866

**Contract:** ESHL00210

**Aqueous LCS Source:** OS2I **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202883950 | | | | | | | | |
| | Copper | ug/L | 500 | 533 | | 107 | 80−120 | P |
| | Iron | ug/L | 5000 | 5300 | | 106 | 80−120 | P |
| | Magnesium | ug/L | 5000 | 5140 | | 103 | 80−120 | P |
| | Manganese | ug/L | 500 | 517 | | 103 | 80−120 | P |
| | Potassium | ug/L | 5000 | 5100 | | 102 | 80−120 | P |
| | Silica | ug/L | 10700 | 10800 | | 101 | 80−120 | P |
| | Sodium | ug/L | 5000 | 5040 | | 101 | 80−120 | P |
| | Strontium | ug/L | 500 | 527 | | 105 | 80−120 | P |
| | Tin | ug/L | 500 | 496 | | 99.2 | 80−120 | P |
| | Vanadium | ug/L | 500 | 517 | | 103 | 80−120 | P |
| | Zinc | ug/L | 500 | 493 | | 98.5 | 80−120 | P |
| | Aluminum | ug/L | 5000 | 5200 | | 104 | 80−120 | P |
| | Barium | ug/L | 500 | 510 | | 102 | 80−120 | P |
| | Beryllium | ug/L | 500 | 508 | | 102 | 80−120 | P |
| | Boron | ug/L | 500 | 488 | | 97.7 | 80−120 | P |
| | Calcium | ug/L | 5000 | 5150 | | 103 | 80−120 | P |
| | Cobalt | ug/L | 500 | 508 | | 102 | 80−120 | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−866

**Contract:** ESHL00210

**Aqueous LCS Source:** O2Si **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202883955 | | | | | | | | |
| | Arsenic | ug/L | 50 | 51.7 | | 103 | 80−120 | MS |
| | Cadmium | ug/L | 50 | 54.4 | | 109 | 80−120 | MS |
| | Chromium | ug/L | 50 | 52.9 | | 106 | 80−120 | MS |
| | Lead | ug/L | 50 | 51.4 | | 103 | 80−120 | MS |
| | Molybdenum | ug/L | 50 | 50.2 | | 100 | 80−120 | MS |
| | Nickel | ug/L | 50 | 52.7 | | 105 | 80−120 | MS |
| | Selenium | ug/L | 50 | 59.7 | | 119 | 80−120 | MS |
| | Silver | ug/L | 50 | 53.8 | | 108 | 80−120 | MS |
| | Thallium | ug/L | 50 | 46.7 | | 93.5 | 80−120 | MS |
| | Uranium | ug/L | 50 | 49.6 | | 99.3 | 80−120 | MS |
| | Antimony | ug/L | 50 | 55.6 | | 111 | 80−120 | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−866 **Client ID** CASA−13−30551L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 326018002 **Serial Dilution ID:** 1202881483

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Mercury | .067 | U | .335 | U | | | | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−866 **Client ID** CAMO−13−30594L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325649002 **Serial Dilution ID:** 1202883953

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Aluminum | 68 | U | 340 | U | | | | P |
| Barium | 21.9 | | 25.2 | | 14.8 | | | P |
| Beryllium | 1 | U | 5 | U | | | | P |
| Boron | 15 | U | 75 | U | | | | P |
| Calcium | 13300 | | 13000 | | 2.28 | | 10 | P |
| Cobalt | 1 | U | 5 | U | | | | P |
| Copper | 3 | U | 15 | U | | | | P |
| Iron | 30 | U | 150 | U | | | | P |
| Magnesium | 3700 | | 3680 | | .612 | | | P |
| Manganese | 2 | U | 10 | U | | | | P |
| Potassium | 1210 | | 1320 | | 8.88 | | | P |
| Silica | 74900 | | 73100 | | 2.4 | | 10 | P |
| Sodium | 9930 | | 10500 | | 5.47 | | 10 | P |
| Strontium | 58.8 | | 56.9 | | 3.16 | | 10 | P |
| Tin | 2.5 | U | 12.5 | U | | | | P |
| Vanadium | 5.58 | | 6.2 | J | 11.1 | | | P |
| Zinc | 3.3 | U | 16.5 | U | | | | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−866 **Client ID** CAMO−13−30594L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325649002 **Serial Dilution ID:** 1202883958

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Antimony | 1 | U | 5 | U | | | | MS |
| Arsenic | 1.7 | U | 8.5 | U | | | | MS |
| Cadmium | .11 | U | .55 | U | | | | MS |
| Chromium | 17.5 | | 16.6 | J | 5.12 | | | MS |
| Lead | .5 | U | 2.5 | U | | | | MS |
| Molybdenum | .849 | | 1.15 | J | 35.5 | | | MS |
| Nickel | 2.22 | | 2.5 | U | 100 | | | MS |
| Selenium | 1.5 | U | 7.5 | U | | | | MS |
| Silver | .2 | U | 1 | U | | | | MS |
| Thallium | .45 | U | 2.25 | U | | | | MS |
| Uranium | .429 | | .53 | J | 23.5 | | | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

# General Chem Analysis

# Case Narrative

**General Chemistry Narrative**
**ARS International (ARSL)**
**SDG 2013-866**

## Method/Analysis Information

**Product:** **Carbon, Total Organic**

**Analytical Batch:** 1302796 **Method:** SW 9060 Total Organic Carbon

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9060:

| Sample ID | Client ID |
|---|---|
| 326020001 | CAMO-13-30584 |
| 1202878485 | Method Blank (MB) |
| 1202878486 | 325847001(CASA-13-30547) Sample Duplicate (DUP) |
| 1202878488 | 325847001(CASA-13-30547) Post Spike (PS) |
| 1202878490 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-093 REV# 12.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Carbon analysis was performed on a O-I Analytical Model 1010 Total Organic Carbon Analyzer.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

## Quality Control (QC) Information

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325847001 (CASA-13-30547).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

## Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

## Miscellaneous Information

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Specific Conductivity** | | |
| **Analytical Batch:** | 1305450 | **Method:** | EPA120.1 Specific Conductivity |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 120.1:

| Sample ID | Client ID |
|---|---|
| 326020002 | CAMO-13-30600 |
| 1202885569 | 325847002(CASA-13-30555) Sample Duplicate (DUP) |
| 1202885571 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-009 REV# 11.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Conductivity analysis was performed on a Orion 160 Conductivity Meter.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325847002 (CASA-13-30555).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

**Product:** **pH**

**Analytical Batch:** 1302797 **Method:** EPA 150.1 pH

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 150.1:

| Sample ID | Client ID |
|---|---|
| 326020002 | CAMO-13-30600 |
| 1202878491 | 325736002(CASA-13-30550) Sample Duplicate (DUP) |
| 1202878493 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-008 REV# 21.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Electrode analysis was performed on a PerpHect pH Meter Orion 370.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**

The following sample was selected for QC analysis: 325736002 (CASA-13-30550).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
The following sample from this sample group was received by the lab outside of the method specified holding time: 326020002 (CAMO-13-30600).

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1188061 326020002 (CAMO-13-30600).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Ion Chromatography** | | |
| **Analytical Batch:** | 1303846 | **Method:** | EPA 300.0 Anions Liquid 28 day |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

| Sample ID | Client ID |
|---|---|
| 326020002 | CAMO-13-30600 |
| 1202881256 | Method Blank (MB) |
| 1202881257 | 325847002(CASA-13-30555) Sample Duplicate (DUP) |
| 1202881258 | 325847002(CASA-13-30555) Post Spike (PS) |
| 1202881259 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 21.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-3000 Ion Chromatograph.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325847002 (CASA-13-30555).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The spike recovery falls outside of the established acceptance limits due to matrix interference: 1202881258 (CASA-13-30555).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1193509 1202881258 (CASA-13-30555).

**Manual Integrations**
The following samples from this sample group had to be manually integrated due to errors in the instrument software peak integration: 1202881257 (CASA-13-30555), 1202881258 (CASA-13-30555) and 326020002 (CAMO-13-30600).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an

effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Ammonia Nitrogen** | | |
| **Analytical Batch:** | 1302881 | **Method:** | EPA 350.1 Nitrogen and Ammonia L |
| **Prep Batch :** | 1302880 | **Method:** | EEPA 350.2 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 350.1:

| Sample ID | Client ID |
|---|---|
| 326020002 | CAMO-13-30600 |
| 1202878736 | Method Blank (MB) |
| 1202878737 | 325847002(CASA-13-30555) Sample Duplicate (DUP) |
| 1202878739 | 325847002(CASA-13-30555) Matrix Spike (MS) |
| 1202878741 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-106 REV# 9.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325847002 (CASA-13-30555).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
One or more of the values for the sample and/or duplicate are less than 5 times the Practical Quantitation Limit (PQL), and the difference is within one PQL value; therefore, the RPD is not applicable. 1202878737 (CASA-13-30555).

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Total Kjeldahl Nitrogen** | | |
| **Analytical Batch:** | 1303595 | **Method:** | Nitrogen and Total Kjeldahl (TKN) |
| **Prep Batch :** | 1303594 | **Method:** | EEPA 351.2 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 351.2:

| Sample ID | Client ID |
|---|---|
| 326020001 | CAMO-13-30584 |
| 1202880630 | Method Blank (MB) |
| 1202880631 | Laboratory Control Sample (LCS) |
| 1202882338 | 326020001(CAMO-13-30584) Sample Duplicate (DUP) |
| 1202882339 | 326020001(CAMO-13-30584) Matrix Spike (MS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-104 REV# 14.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 326020001 (CAMO-13-30584).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The spike recovery falls outside of the established acceptance limits due to matrix interference: 1202882339 (CAMO-13-30584).

**Duplicate Relative Percent Difference (RPD) Statement**
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202882338 (CAMO-13-30584).

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1191929 1202882339 (CAMO-13-30584).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an

effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Nitrate Nitrite by Cadmium Reduction** | | |
| **Analytical Batch:** | 1302905 | **Method:** | EPA 353.2 Nitrogen and Nitrate/Nitrite |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 353.2:

| Sample ID | Client ID |
|---|---|
| 326020002 | CAMO-13-30600 |
| 1202878825 | Method Blank (MB) |
| 1202878827 | 325922002(CAMO-13-30618) Sample Duplicate (DUP) |
| 1202878830 | 325922002(CAMO-13-30618) Post Spike (PS) |
| 1202878832 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-128 REV# 8.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8500 Series.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within

acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325922002 (CAMO-13-30618).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recoveries for this sample set were within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The following sample in this sample group was diluted due to high concentration: 326020002 (CAMO-13-30600).

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an

effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Total Phosphorus** | | |
| **Analytical Batch:** | 1304213 | **Method:** | EPA 365.4 Phosphorus and Total in |
| **Prep Batch :** | 1304212 | **Method:** | EEPA 365.4 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 365.4:

| Sample ID | Client ID |
|---|---|
| 326020002 | CAMO-13-30600 |
| 1202882350 | Method Blank (MB) |
| 1202882351 | 326020002(CAMO-13-30600) Sample Duplicate (DUP) |
| 1202882353 | 326020002(CAMO-13-30600) Matrix Spike (MS) |
| 1202882355 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-103 REV# 10.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

## Quality Control (QC) Information

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 326020002 (CAMO-13-30600).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS recovery is not applicable because the spike was diluted. 1202882353 (CAMO-13-30600).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

## Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The following samples in this sample group were diluted due to high concentration: 1202882351 (CAMO-13-30600), 1202882353 (CAMO-13-30600) and 326020002 (CAMO-13-30600).

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

## Miscellaneous Information

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are

present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Solids, Total Dissolved** | | |
| **Analytical Batch:** | 1303373 | **Method:** | EPA 160.1 Solids and Dissolved-F |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 160.1:

| Sample ID | Client ID |
|---|---|
| 326020002 | CAMO-13-30600 |
| 1202880068 | Method Blank (MB) |
| 1202880070 | 326056004(CASA-13-30556) Sample Duplicate (DUP) |
| 1202880071 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-001 REV# 13.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Solids analysis was performed on a Sartorius Balance BAL216. Solids lab

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

## Quality Control (QC) Information

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**

The following sample was selected for QC analysis: 326056004 (CASA-13-30556).

**Duplicate Relative Percent Difference (RPD) Statement**
The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample: 1202880070 (CASA-13-30556).

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Sample Aliquot**
A sufficient amount of sample was provided by the client for analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1190030 1202880070 (CASA-13-30556).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Alkalinity** | | |
| **Analytical Batch:** | 1304792 | **Method:** | EPA 310.1 Total Alkalinity |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 310.1:

| Sample ID | Client ID |
|---|---|
| 326020002 | CAMO-13-30600 |
| 1202883809 | Laboratory Control Sample (LCS) |
| 1202883815 | 326018002(CASA-13-30551) Sample Duplicate (DUP) |
| 1202883816 | 326018002(CASA-13-30551) Matrix Spike (MS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-033 REV# 10.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Titration analysis was performed on a Manually operated buret.

**Initial Standardization**
The titrant was properly standardized

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 326018002 (CASA-13-30551).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**

The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

**Review Validation:**

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

**The following data validator verified the information presented in this case narrative:**

**Reviewer:**_____ **Date:**_____14Jun13_____

# Sample Data Summary

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-866  GEL Work Order: 326020

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

**  Analyte is a Tracer compound

**  Analyte is a surrogate compound

E  Concentration of the target analyte exceeds the instrument calibration range

H  Analytical holding time was exceeded

J  Value is estimated

N  Metals--The Matrix spike sample recovery is not within specified control limits

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: June 11, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-866

Client Sample ID: CAMO-13-30584
Sample ID: 326020001
Matrix: W
Collect Date: 17-MAY-13 12:52
Receive Date: 18-MAY-13
Collector: Client
Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon Analysis | | | | | | | | | | | |
| SW 9060 Total Organic Carbon "As Received" | | | | | | | | | | | |
| Total Organic Carbon Average | | 1.31 | 0.330 | 1.00 | mg/L | 1 | TSM | 05/20/13 | 2109 | 1302796 | 1 |
| Nutrient Analysis | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl (TKN) "As Received" | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | U | ND | 0.033 | 0.100 | mg/L | 1 | KLP1 | 06/04/13 | 1346 | 1303595 | 2 |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 351.2 Prep | EPA 351.2 Total Kjeldahl Nitrogen Prep | KLP1 | 06/03/13 | 1700 | 1303594 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | SW846 9060 | |
| 2 | EPA 351.2 | |

**Notes:**

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: June 11, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-866

Client Sample ID: CAMO-13-30600
Sample ID: 326020002
Matrix: W
Collect Date: 17-MAY-13 12:52
Receive Date: 18-MAY-13
Collector: Client
Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Conductivity Analysis | | | | | | | | | | | |
| EPA120.1 Specific Conductivity "As Received" | | | | | | | | | | | |
| Conductivity | | 157 | 1.00 | 1.00 | umhos/cm | 1 | LXA1 | 06/03/13 | 1605 | 1305450 | 1 |
| Electrode Analysis | | | | | | | | | | | |
| EPA 150.1 pH "As Received" | | | | | | | | | | | |
| pH at Temp 10.7C | H | 6.93 | 0.010 | 0.100 | SU | 1 | LYG1 | 05/20/13 | 0911 | 1302797 | 2 |
| Ion Chromatography | | | | | | | | | | | |
| EPA 300.0 Anions Liquid 28 day "As Received" | | | | | | | | | | | |
| Bromide | U | ND | 0.067 | 0.200 | mg/L | 1 | MAR1 | 06/09/13 | 1732 | 1303846 | 3 |
| Chloride | | 3.10 | 0.067 | 0.200 | mg/L | 1 | | | | | |
| Fluoride | | 0.444 | 0.033 | 0.100 | mg/L | 1 | | | | | |
| Sulfate | | 5.55 | 0.133 | 0.400 | mg/L | 1 | | | | | |
| Nutrient Analysis | | | | | | | | | | | |
| EPA 350.1 Nitrogen, Ammonia L "As Received" | | | | | | | | | | | |
| Nitrogen, Ammonia | | 0.0786 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/22/13 | 1100 | 1302881 | 4 |
| EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received" | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | 1.63 | 0.085 | 0.250 | mg/L | 5 | KLP1 | 05/24/13 | 1448 | 1302905 | 5 |
| EPA 365.4 Phosphorus, Total in "As Received" | | | | | | | | | | | |
| Phosphorus, Total as P | | 3.23 | 0.085 | 0.250 | mg/L | 5 | KLP1 | 06/11/13 | 1313 | 1304213 | 6 |
| Solids Analysis | | | | | | | | | | | |
| EPA 160.1 Solids, Dissolved-F "As Received" | | | | | | | | | | | |
| Total Dissolved Solids | | 114 | 3.40 | 14.3 | mg/L | | LYG1 | 05/22/13 | 0920 | 1303373 | 7 |
| Titration Analysis | | | | | | | | | | | |
| EPA 310.1 Total Alkalinity "As Received" | | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | 50.2 | 0.725 | 1.00 | mg/L | | LXA1 | 05/30/13 | 1733 | 1304792 | 8 |
| Carbonate alkalinity (CaCO3) | U | ND | 0.725 | 1.00 | mg/L | | | | | | |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 350.2 Prep | EPA 350.1 Ammonia Nitrogen Prep | KLP1 | 05/21/13 | 1550 | 1302880 |
| EPA 365.4 Prep | EPA 365.4 Phosphorus, Total in liquid PR | KLP1 | 06/10/13 | 1800 | 1304212 |

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## Certificate of Analysis

Report Date: June 11, 2013

| | | | |
|---|---|---|---|
| Company : | Los Alamos National Laboratory | | |
| Address : | PO Box 1663<br>TA-03, SM271, Drop Pt. 02U, Rm111<br>Los Alamos, New Mexico 87545 | | |
| Contact: | Keith Greene | Client SDG: | 2013-866 |
| Project: | LANL-WQH Water Samples | | |

| | | | |
|---|---|---|---|
| Client Sample ID: | CAMO-13-30600 | Project: | ESHL00210 |
| Sample ID: | 326020002 | Client ID: | ARSL001 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | EPA 120.1 | |
| 2 | EPA 150.1 | |
| 3 | EPA 300.0 | |
| 4 | EPA 350.1 | |
| 5 | EPA 353.2 | |
| 6 | EPA 365.4 | |
| 7 | EPA 160.1 | |
| 8 | EPA 310.1 | |

**Notes:**

# Quality Control Summary

# GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

## QC Summary

**Report Date: June 11, 2013**


**Los Alamos National Laboratory**
**PO Box 1663**
**TA-03, SM271, Drop Pt. 02U, Rm111**
**Los Alamos, New Mexico**

**Contact:** **Keith Greene**

**Workorder:** **326020**

| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Carbon Analysis** | | | | | | | | | | | | |
| Batch 1302796 | | | | | | | | | | | | |
| QC1202878486 325847001 DUP | | | | | | | | | | | | |
| Total Organic Carbon Average | | J | 0.772 | J | 0.796 | mg/L | 3.06 | ^ | | (+/-1.00) | TSM | 05/20/13 19:31 |
| QC1202878490 LCS | | | | | | | | | | | | |
| Total Organic Carbon Average | 10.0 | | | | 9.46 | mg/L | | | 94.6 | (85%-115%) | | 05/20/13 14:41 |
| QC1202878485 MB | | | | | | | | | | | | |
| Total Organic Carbon Average | | | | U | ND | mg/L | | | | | | 05/20/13 14:32 |
| QC1202878488 325847001 PS | | | | | | | | | | | | |
| Total Organic Carbon Average | 10.0 | J | 0.772 | | 10.5 | mg/L | | | 97.2 | (65%-120%) | | 05/20/13 19:51 |
| **Conductivity Analysis** | | | | | | | | | | | | |
| Batch 1305450 | | | | | | | | | | | | |
| QC1202885569 325847002 DUP | | | | | | | | | | | | |
| Conductivity | | | 192 | | 191 | umhos/cm | 0.575 | | | (0%-10%) | LXA1 | 06/03/13 16:03 |
| QC1202885571 LCS | | | | | | | | | | | | |
| Conductivity | 1410 | | | | 1450 | umhos/cm | | | 102 | (95%-105%) | | 06/03/13 15:57 |
| **Electrode Analysis** | | | | | | | | | | | | |
| Batch 1302797 | | | | | | | | | | | | |
| QC1202878491 325736002 DUP | | | | | | | | | | | | |
| pH | | H | 7.98 | H | 8.01 | SU | 0.375 | | | (0%-10%) | LYG1 | 05/20/13 08:50 |
| QC1202878493 LCS | | | | | | | | | | | | |
| pH | 7.00 | | | | 6.96 | SU | | | 99.4 | (99%-101%) | | 05/20/13 08:39 |
| **Ion Chromatography** | | | | | | | | | | | | |
| Batch 1303846 | | | | | | | | | | | | |
| QC1202881257 325847002 DUP | | | | | | | | | | | | |
| Bromide | | J | 0.0687 | U | ND | mg/L | N/A | ^ | | | MAR1 | 06/09/13 15:03 |
| Chloride | | | 4.23 | | 4.18 | mg/L | 1.07 | | | (0%-20%) | | |
| Fluoride | | | 0.319 | | 0.306 | mg/L | 4.45 | ^ | | (+/-0.100) | | |
| Sulfate | | | 4.82 | | 4.95 | mg/L | 2.59 | | | (0%-20%) | | |
| QC1202881259 LCS | | | | | | | | | | | | |
| Bromide | 1.25 | | | | 1.29 | mg/L | | | 103 | (90%-110%) | | 06/09/13 14:03 |

## QC Summary

**Workorder: 326020**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Ion Chromatography** | | | | | | | | | | | |
| Batch 1303846 | | | | | | | | | | | |
| Chloride | 5.00 | | | | 5.22 | mg/L | | 104 | (90%-110%) | MAR1 | 06/09/13 14:03 |
| Fluoride | 2.50 | | | | 2.66 | mg/L | | 106 | (90%-110%) | | |
| Sulfate | 10.0 | | | | 10.3 | mg/L | | 103 | (90%-110%) | | |
| QC1202881256 MB | | | | | | | | | | | |
| Bromide | | | | U | ND | mg/L | | | | | 06/09/13 13:33 |
| Chloride | | | | U | ND | mg/L | | | | | |
| Fluoride | | | | U | ND | mg/L | | | | | |
| Sulfate | | | | U | ND | mg/L | | | | | |
| QC1202881258 325847002 PS | | | | | | | | | | | |
| Bromide | 1.25 | J | 0.0687 | | 1.33 | mg/L | | 101 | (90%-110%) | | 06/09/13 15:33 |
| Chloride | 5.00 | | 4.23 | | 9.90 | mg/L | | 113* | (90%-110%) | | |
| Fluoride | 2.50 | | 0.319 | | 2.87 | mg/L | | 102 | (90%-110%) | | |
| Sulfate | 10.0 | | 4.82 | | 15.3 | mg/L | | 104 | (90%-110%) | | |
| **Nutrient Analysis** | | | | | | | | | | | |
| Batch 1302881 | | | | | | | | | | | |
| QC1202878737 325847002 DUP | | | | | | | | | | | |
| Nitrogen, Ammonia | | | 0.0526 | | 0.0684 | mg/L | 26.1 ^ | | (+/-0.050) | KLP1 | 05/22/13 10:47 |
| QC1202878741 LCS | | | | | | | | | | | |
| Nitrogen, Ammonia | 1.00 | | | | 1.10 | mg/L | | 110 | (90%-110%) | | 05/22/13 10:34 |
| QC1202878736 MB | | | | | | | | | | | |
| Nitrogen, Ammonia | | | | J | 0.0344 | mg/L | | | | | 05/22/13 10:33 |
| QC1202878739 325847002 MS | | | | | | | | | | | |
| Nitrogen, Ammonia | 1.00 | | 0.0526 | | 1.06 | mg/L | | 101 | (90%-110%) | | 05/22/13 10:48 |
| Batch 1302905 | | | | | | | | | | | |
| QC1202878827 325922002 DUP | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | | 0.446 | | 0.435 | mg/L | 2.50 | | (0%-20%) | KLP1 | 05/24/13 14:06 |
| QC1202878832 LCS | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | 1.00 | | | | 1.06 | mg/L | | 106 | (90%-110%) | | 05/24/13 13:34 |

## QC Summary

**Workorder: 326020**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Nutrient Analysis** | | | | | | | | | | | |
| Batch 1302905 | | | | | | | | | | | |
| QC1202878825 MB | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | | | U | ND | mg/L | | | | KLP1 | 05/24/13 13:33 |
| QC1202878830 325922002 PS | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | 1.00 | | 0.446 | | 1.47 | mg/L | | 102 | (90%-110%) | | 05/24/13 14:07 |
| Batch 1303595 | | | | | | | | | | | |
| QC1202882338 326020001 DUP | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | U | ND | U | ND | mg/L | N/A | | | KLP1 | 06/04/13 13:47 |
| QC1202880631 LCS | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | | | | 1.01 | mg/L | | 101 | (90%-110%) | | 06/04/13 13:45 |
| QC1202880630 MB | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | | | U | ND | mg/L | | | | | 06/04/13 13:44 |
| QC1202882339 326020001 MS | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | U | ND | | 1.28 | mg/L | | 128* | (90%-110%) | | 06/04/13 13:47 |
| Batch 1304213 | | | | | | | | | | | |
| QC1202882351 326020002 DUP | | | | | | | | | | | |
| Phosphorus, Total as P | | | 3.23 | | 3.59 | mg/L | 10.6 | | (0%-31%) | KLP1 | 06/11/13 13:13 |
| QC1202882355 LCS | | | | | | | | | | | |
| Phosphorus, Total as P | 1.00 | | | | 1.02 | mg/L | | 102 | (76%-120%) | | 06/11/13 12:19 |
| QC1202882350 MB | | | | | | | | | | | |
| Phosphorus, Total as P | | | | U | ND | mg/L | | | | | 06/11/13 12:18 |
| QC1202882353 326020002 MS | | | | | | | | | | | |
| Phosphorus, Total as P | 1.00 | | 3.23 | | 3.47 | mg/L | | 24* | (62%-139%) | | 06/11/13 13:14 |
| **Solids Analysis** | | | | | | | | | | | |
| Batch 1303373 | | | | | | | | | | | |
| QC1202880070 326056004 DUP | | | | | | | | | | | |
| Total Dissolved Solids | | | 357 | | 409 | mg/L | 13.4* | | (0%-10%) | LYG1 | 05/22/13 09:20 |
| QC1202880071 LCS | | | | | | | | | | | |
| Total Dissolved Solids | 300 | | | | 290 | mg/L | | 96.7 | (95%-105%) | | 05/22/13 09:20 |
| QC1202880068 MB | | | | | | | | | | | |
| Total Dissolved Solids | | | | U | ND | mg/L | | | | | 05/22/13 09:20 |
| **Titration Analysis** | | | | | | | | | | | |
| Batch 1304792 | | | | | | | | | | | |

## QC Summary

**Workorder:** **326020**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Titration Analysis** | | | | | | | | | | |
| Batch 1304792 | | | | | | | | | | |
| QC1202883815 326018002 DUP | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | 104 | | 104 | mg/L | 0.489 | | (0%-20%) | LXA1 | 05/30/13 17:28 |
| Carbonate alkalinity (CaCO3) | U | ND | U | ND | mg/L | N/A | | | | |
| QC1202883809 LCS | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | 50.0 | | | 50.8 | mg/L | | 102 | (90%-110%) | | 05/30/13 11:10 |
| QC1202883816 326018002 MS | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | 50.0 | 104 | | 155 | mg/L | | 103 | (80%-120%) | | 05/30/13 17:29 |

**Notes:**

| | |
|---|---|
| ** | Analyte is a Tracer compound |
| ** | Analyte is a surrogate compound |
| < | Result is less than value reported |
| > | Result is greater than value reported |
| A | The TIC is a suspected aldol-condensation product |
| B | The target analyte was detected in the associated blank. |
| BD | Results are either below the MDC or tracer recovery is low |
| C | Analyte has been confirmed by GC/MS analysis |
| D | Results are reported from a diluted aliquot of the sample |
| E | %difference of sample and SD is >10%. Sample concentration must meet flagging criteria |
| E | Concentration of the target analyte exceeds the instrument calibration range |
| E | General Chemistry--Concentration of the target analyte exceeds the instrument calibration range |
| FA | Failed analysis. |
| FB | Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies |
| H | Analytical holding time was exceeded |
| J | Value is estimated |
| JNX | Non Calibrated Compound |
| K | Analyte present. Reported value may be biased high. Actual value is expected to be lower. |
| L | Analyte present. Reported value may be biased low. Actual value is expected to be higher. |
| M | M if above MDC and less than LLD |
| M | REMP Result > MDC/CL and < RDL |
| N | Metals--The Matrix spike sample recovery is not within specified control limits |
| N | Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N | Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |

## QC Summary

**Workorder:** **326020**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|

| | |
|---|---|
| N/A | RPD or %Recovery limits do not apply. |
| N1 | See case narrative |
| ND | Analyte concentration is not detected above the detection limit |
| NJ | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| P | Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70% |
| Q | One or more quality control criteria have not been met. Refer to the applicable narrative or DER. |
| R | Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes. |
| R | Sample results are rejected |
| U | Analyte was analyzed for, but not detected above the MDL, MDA, or LOD. |
| UI | Gamma Spectroscopy--Uncertain identification |
| UJ | Compound cannot be extracted |
| UJ | Gamma Spectroscopy--Uncertain identification |
| UL | Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias. |
| X | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| Y | Other specific qualifiers were required to properly define the results. Consult case narrative. |
| Y | QC Samples were not spiked with this compound |
| Z | Paint Filter Test--Particulates passed through the filter, however no free liquids were observed. |
| ^ | RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry. |
| d | 5-day BOD--The 2:1 depletion requirement was not met for this sample |
| h | Preparation or preservation holding time was exceeded |

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

# Miscellaneous

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 21-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| ELECTRODE | EPA 150.1 | Liquid | BETT, ESHL, GELC, UCOR |
| **Batch ID:** | **Sample Numbers:** | | |
| 1302797 | See below. | | |

**Potentially affected work order(s)(SDG):** **325724,325736(2013-840),325739(2013-841),325752,325759,325847(2013-847),325922(2013-855),325923(2013-856),326018(2013-865),326020(2013-866)**

**Application Issues:**

Sample received out of holding

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Sample received out of holding:<br>325724 001,002<br>325736 002,004<br>325739 002<br>325752 002,006,010<br>325759 007,013,019,025,031<br>325847 002<br>325922 002<br>325923 002<br>326018 002<br>326020 002 | 1. Samples were received out of holding. |

**Originator's Name:**
Lisa Gregory 22-MAY-13

**Data Validator/Group Leader:**
Julia Hamilton 29-MAY-13

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 29-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| BALANCE | EPA 160.1 | Liquid | ESHL, SUBR, UCOR |
| **Batch ID:** | **Sample Numbers:** | | |
| 1303373 | See below. | | |

**Potentially affected work order(s)(SDG): 325936,325982,326018(2013-865),326020(2013-866),326024,326056(2013-868)**

**Application Issues:**

Failed RPD for DUP

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed RPD for DUP:<br><br>QC 1202880070DUP<br><br>2. Consecutive weight check criteria not met:<br><br>325936009, 325982004, 325982005, 325982006, 325982010,<br><br>QC 1202880069, and QC 1202880070DUP | 1. The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample.<br><br>2. In order to meet consecutive weight check criteria, weight events must be within 0.0005g of each other. After initial weight checks failed this criteria, the analyst performed two additional weight events for Total Dissolved Solids. After four weight events, the analyst was unable to get the samples to conform to the criteria. The failure to meet weighback criteria is attributed to the matrix of the samples. |

**Originator's Name:**

Lisa Gregory 29-MAY-13

**Data Validator/Group Leader:**

Julia Hamilton 31-MAY-13

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 04-JUN-13 | Industrial | Specifications | Process |
| **Instrument Type:** LACHAT Flow Injection Analyzer | **Test / Method:** EPA 351.2 | **Matrix Type:** Liquid | **Client Code:** ANRL, DSMN, ESHL, SOOP, |
| **Batch ID:** 1303595 | **Sample Numbers:** See below. | | |

**Potentially affected work order(s)(SDG): 326020(2013-866),326183,326213(2013-873),326214(2013-874),326426(2013-886),326558,326681,326804,326805**

**Application Issues:**

Failed Recovery for MS/PS

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed Recovery for MS:<br><br>QC 1202880633MS and QC 1202882339MS | 1. The spike recoveries fall outside of the established acceptance limits due to matrix interference. |

**Originator's Name:**
Kristen Parson 04-JUN-13

**Data Validator/Group Leader:**
Julia Hamilton 05-JUN-13

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 11-JUN-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| IC | EPA 300.0 | Liquid | ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1303846 | See Below | | |

**Potentially affected work order(s)(SDG):** **325847(2013-847),325922(2013-855),325923(2013-856),326018(2013-865),326020(2013-866),326056(2013-868),326057(2013-869),326213(2013-873),326214(2013-874),326426(2013-886)**

**Application Issues:**

Failed Recovery for MS/PS

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed Recovery for MS/PS:<br><br>QC 1202881258PS | 1. The MS/PS mixture contains seven anions of interest. Of those, all requested anions except chloride met normal acceptance criteria for recovery (90 - 110%). This failure is attributed to the matrix of the sample because the successful recovery of the other compounds indicate that the laboratory process was in control. This variance is judged to have no negative impact on the data. The deviation is noted in the Case Narrative and DER, and the data has been reported. |

**Originator's Name:**
Mary Sherwood 11-JUN-13

**Data Validator/Group Leader:**
Virginia Wininger 11-JUN-13

# Radiological Analysis

**Radiochemistry Case Narrative**
**ARS International (ARSL)**
**SDG 2013-866**
**Work Order 326020**

**Method/Analysis Information**

| | |
|---|---|
| **Product:** | **Alphaspec Am241 Liquid** |
| Analytical Method: | DOE EML HASL-300, Am-05-RC Modified |
| Analytical Batch Number: | 1302968 |

| Sample ID | Client ID |
|---|---|
| 326020001 | CAMO-13-30584 |
| 1202879050 | Method Blank (MB) |
| 1202879051 | 326020001(CAMO-13-30584) Sample Duplicate (DUP) |
| 1202879052 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 24.

**Calibration Information:**

**Calibration Information**
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

**Standards Information**
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

**Sample Geometry**
All counting sources were prepared in the same geometry as the calibration standards.

**Quality Control (QC) Information:**

**Blank Information**
Aliquots for samples 1202879050 (MB) and 1202879052 (LCS) were changed to 1.0 per client request.

**Designated QC**
The following sample was used for QC: 326020001 (CAMO-13-30584). The QC was from ARSL work order 326020.

**QC Information**

All of the QC samples met the required acceptance limits.

**CSU**
The blank result is less than 1.65 times the CSU.

**Technical Information:**

**Holding Time**
All sample procedures for this sample set were performed within the required holding time.

**Sample Re-prep/Re-analysis**
None of the samples in this sample set required reprep or reanalysis.

**Miscellaneous Information:**

**Data Exception (DER) Documentation**
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Manual Integration**
No manual integrations were performed on data in this batch.

**Additional Comments**
The MDCs are calculated using a blank population.

**Blank Decision Level**
The blank result is less than the decision level.

**Qualifier Information**

Manual qualifiers were not required.

**Method/Analysis Information**

| | |
|---|---|
| **Product:** | **Alphaspec Pu, Liquid** |
| Analytical Method: | DOE EML HASL-300, Pu-11-RC Modified |
| Analytical Batch Number: | 1302970 |

| Sample ID | Client ID |
|---|---|
| 326020001 | CAMO-13-30584 |
| 1202879053 | Method Blank (MB) |
| 1202879054 | 326020001(CAMO-13-30584) Sample Duplicate (DUP) |
| 1202879055 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as

Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 24.

**Calibration Information:**

**Calibration Information**
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

**Standards Information**
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

**Sample Geometry**
All counting sources were prepared in the same geometry as the calibration standards.

**Quality Control (QC) Information:**

**Blank Information**
Aliquots for samples 1202879053 (MB) and 1202879055 (LCS) were changed to 1.0 per client request.

**Designated QC**
The following sample was used for QC: 326020001 (CAMO-13-30584). The QC was from ARSL work order 326020.

**QC Information**
All of the QC samples met the required acceptance limits.

**CSU**
The blank result is less than 1.65 times the CSU.

**Technical Information:**

**Holding Time**
All sample procedures for this sample set were performed within the required holding time.

**Sample Re-prep/Re-analysis**
None of the samples in this sample set required reprep or reanalysis.

**Miscellaneous Information:**

**Data Exception (DER) Documentation**
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Manual Integration**
No manual integrations were performed on data in this batch.

**Additional Comments**
The MDCs are calculated using a blank population.

**Blank Decision Level**
The blank result is less than the decision level.

**Qualifier Information**

Manual qualifiers were not required.

**Method/Analysis Information**

| | |
|---|---|
| **Product:** | **Alphaspec U, Liquid** |
| Analytical Method: | DOE EML HASL-300, U-02-RC Modified |
| Analytical Batch Number: | 1302971 |

| Sample ID | Client ID |
|---|---|
| 326020001 | CAMO-13-30584 |
| 1202879060 | Method Blank (MB) |
| 1202879061 | 326020001(CAMO-13-30584) Sample Duplicate (DUP) |
| 1202879062 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 24.

**Calibration Information:**

**Calibration Information**
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

**Standards Information**
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

**Sample Geometry**
All counting sources were prepared in the same geometry as the calibration standards.

**Quality Control (QC) Information:**

**Blank Information**
Aliquots for samples 1202879060 (MB) and 1202879062 (LCS) were changed to 1.0 per client request.

**Designated QC**
The following sample was used for QC: 326020001 (CAMO-13-30584). The QC was from ARSL work order 326020.

**QC Information**
All of the QC samples met the required acceptance limits.

**CSU**
The U-233/234 blank result is greater than 1.65 times the CSU but less than the MDC.

**Technical Information:**

**Holding Time**
All sample procedures for this sample set were performed within the required holding time.

**Sample Re-prep/Re-analysis**
None of the samples in this sample set required reprep or reanalysis.

**Miscellaneous Information:**

**Data Exception (DER) Documentation**
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Manual Integration**
No manual integrations were performed on data in this batch.

**Additional Comments**
The MDCs are calculated using a blank population.

**Blank Decision Level**
The blank result is less than the decision level.

**Qualifier Information**

Manual qualifiers were not required.

**Method/Analysis Information**

| | |
|---|---|
| **Product:** | **Gammaspec** |
| Analytical Method: | EPA 901.1 |
| Analytical Batch Number: | 1302818 |

| Sample ID | Client ID |
|---|---|
| 326020001 | CAMO-13-30584 |
| 1202878533 | Method Blank (MB) |
| 1202878534 | 326020001(CAMO-13-30584) Sample Duplicate (DUP) |
| 1202878535 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-013 REV# 25.

**Calibration Information:**

**Calibration Information**
All initial and continuing calibration requirements have been met. The initial Calibrations were performed in July 2012 and August 2012.

**Standards Information**
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

**Sample Geometry**
All counting sources were prepared in the same geometry as the calibration standards.

**Quality Control (QC) Information:**

**Blank Information**
The blank volume is representative of the sample volume in this batch.

**Designated QC**
The following sample was used for QC: 326020001 (CAMO-13-30584). The QC was from ARSL work order 326020.

**QC Information**
All of the QC samples met the required acceptance limits.

**CSU**
The blank result is less than 1.65 times the CSU.

**Technical Information:**

**Holding Time**
All sample procedures for this sample set were performed within the required holding time.

**Sample Re-prep/Re-analysis**
None of the samples in this sample set required reprep or reanalysis.

**Miscellaneous Information:**

**Data Exception (DER) Documentation**
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this sample set.

**Blank Decision Level**
The blank result is less than the decision level.

**Qualifier Information**

Manual qualifiers were not required.

**Method/Analysis Information**

| | |
|---|---|
| **Product:** | **GFPC, Sr90, liquid** |
| Analytical Method: | EPA 905.0 Modified |
| Analytical Batch Number: | 1303190 |

| Sample ID | Client ID |
|---|---|
| 326020001 | CAMO-13-30584 |
| 1202879645 | Method Blank (MB) |
| 1202879646 | 326020001(CAMO-13-30584) Sample Duplicate (DUP) |
| 1202879647 | 326020001(CAMO-13-30584) Matrix Spike (MS) |
| 1202879648 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-004 REV# 16.

**Calibration Information:**

**Calibration Information**
All initial and continuing calibration requirements have been met. The initial Calibration was performed in March 2013.

**Standards Information**
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

**Sample Geometry**
All counting sources were prepared in the same geometry as the calibration standards.

**Quality Control (QC) Information:**

**Blank Information**
Aliquots for samples 1202879645 (MB) and 1202879648 (LCS) were changed to 1.0 per client request.

**Designated QC**
The following sample was used for QC: 326020001 (CAMO-13-30584). The QC was from ARSL work order 326020.

**QC Information**
All of the QC samples met the required acceptance limits.

**CSU**
The blank result is less than 1.65 times the CSU.

**Technical Information:**

**Holding Time**
All sample procedures for this sample set were performed within the required holding time.

**Sample Re-prep/Re-analysis**
Sample 1202879645 (MB) was recounted due to a suspected blank false positive. The recount is reported.
Sample 1202879646 (CAMO-13-30584) was recounted due to a suspected false positive. The recount is reported.

**Chemical Recoveries**
All chemical recoveries meet the required acceptance limits for this sample set.

**Miscellaneous Information:**

**Data Exception (DER) Documentation**
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
The matrix spike, 1202879647 (CAMO-13-30584), aliquot was reduced to conserve sample volume.

**Blank Decision Level**
The blank result is less than the decision level.

**Qualifier Information**

Manual qualifiers were not required.

**Method/Analysis Information**

| | |
|---|---|
| **Product:** | **WSP-GrossA/B** |
| Analytical Method: | EPA 900.0/SW846 9310 |
| Analytical Batch Number: | 1304583 |

| Sample ID | Client ID |
|---|---|
| 326020001 | CAMO-13-30584 |
| 1202883282 | Method Blank (MB) |
| 1202883283 | 326426001(CAMO-13-30585) Sample Duplicate (DUP) |
| 1202883284 | 326426001(CAMO-13-30585) Matrix Spike (MS) |
| 1202883285 | 326426001(CAMO-13-30585) Matrix Spike Duplicate (MSD) |
| 1202883286 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-001 REV# 16.

**Calibration Information:**

**Calibration Information**
All initial and continuing calibration requirements have been met. The initial Calibration was performed in December 2012.

**Standards Information**
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

**Sample Geometry**
All counting sources were prepared in the same geometry as the calibration standards.

**Quality Control (QC) Information:**

**Blank Information**
Aliquots for samples 1202883282 (MB) and 1202883286 (LCS) were changed to 1.0 per client request.

**Designated QC**
The following sample was used for QC: 326426001 (CAMO-13-30585). The QC was from ARSL work order 326426.

**QC Information**
All of the QC samples met the required acceptance limits.

**CSU**
The blank result is less than 1.65 times the CSU.

**Technical Information:**

**Holding Time**
All sample procedures for this sample set were performed within the required holding time.

**Sample Re-prep/Re-analysis**
Sample 1202883286 (LCS) was recounted due to high recovery. The recount is reported. Samples 1202883282 (MB) and 1202883285 (CAMO-13-30585) were recounted due to a detector lock out condition. The recounts are reported.

**Chemical Recoveries**
All chemical recoveries meet the required acceptance limits for this sample set.

**Gross Alpha/Beta Preparation Information**
High hygroscopic salt content in evaporated samples can cause the sample mass to fluctuate due to moisture absorption. To minimize this interference, the salts are converted to oxides by heating the sample under a flame until a dull red color is obtained. The conversion to oxides stabilizes the sample weight and ensures that proper alpha/beta efficiencies are assigned for each sample. Volatile radioisotopes of carbon, hydrogen, technetium, polonium and cesium may be lost during sample heating, especially to a dull red heat. For this sample set, the prepared planchet was counted for beta activity before being flamed. After flaming, the planchet was counted for alpha activity.

**Miscellaneous Information:**

**Data Exception (DER) Documentation**
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
The matrix spike and matrix spike duplicate, 1202883284 (CAMO-13-30585) and 1202883285 (CAMO-13-30585), aliquots were reduced to conserve sample volume.

**Blank Decision Level**
The blank result is less than the decision level.

**Qualifier Information**

Manual qualifiers were not required.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-866  GEL Work Order: 326020

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

**  Analyte is a Tracer compound

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

**Review/Validation**

GEL requires all analytical data to be verified by a qualified data reviewer.  In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

**Signature:** Heather M. McCarty  **Name:** **Heather McCarty**

**Date:** **11 JUN 2013**  **Title:** **Analyst II**

# Sample Data Summary

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

# Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: June 11, 2013

Contact: Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-30584
Sample ID: 326020001
Matrix: W
Collect Date: 17-MAY-13
Receive Date: 18-MAY-13
Collector: Client

Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | Uncertainty | MDC | Lc | TPU | RL | Units | DF | Analyst | Date | Time | Batch | Mtd. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Rad Alpha Spec Analysis** | | | | | | | | | | | | | | |
| *Alphaspec Am241 Liquid "As Received"* | | | | | | | | | | | | | | |
| Americium-241 | U | 0.0023 | +/-0.00513 | 0.0445 | 0.0191 | +/-0.00513 | 0.050 | pCi/L | | HAKB | 05/24/13 | 1618 | 1302968 | 1 |
| *Alphaspec Pu, Liquid "As Received"* | | | | | | | | | | | | | | |
| Plutonium-238 | U | 0.0189 | +/-0.00655 | 0.0281 | 0.0115 | +/-0.00659 | 0.050 | pCi/L | | HAKB | 05/24/13 | 1618 | 1302970 | 2 |
| Plutonium-239/240 | U | 0.0284 | +/-0.00779 | 0.0339 | 0.0144 | +/-0.00787 | 0.050 | pCi/L | | | | | | |
| *Alphaspec U, Liquid "As Received"* | | | | | | | | | | | | | | |
| Uranium-234 | | 0.113 | +/-0.0215 | 0.0761 | 0.0335 | +/-0.0228 | 1.00 | pCi/L | | HAKB | 05/24/13 | 1549 | 1302971 | 3 |
| Uranium-235/236 | U | 0.0041 | +/-0.0109 | 0.0353 | 0.0121 | +/-0.0109 | 1.00 | pCi/L | | | | | | |
| Uranium-238 | | 0.0796 | +/-0.0176 | 0.046 | 0.0185 | +/-0.0183 | 0.500 | pCi/L | | | | | | |
| **Rad Gamma Spec Analysis** | | | | | | | | | | | | | | |
| *Gammaspec "As Received"* | | | | | | | | | | | | | | |
| Cesium-137 | U | -2.71 | +/-2.04 | 5.53 | | +/-2.13 | 8.00 | pCi/L | | RXF2 | 05/21/13 | 1342 | 1302818 | 4 |
| Cobalt-60 | U | 0.898 | +/-1.52 | 6.03 | | +/-1.54 | 8.00 | pCi/L | | | | | | |
| Neptunium-237 | U | -1.95 | +/-3.36 | 11.8 | | +/-3.40 | 10.0 | pCi/L | | | | | | |
| Potassium-40 | U | 31.2 | +/-29.3 | 63.3 | | +/-29.3 | 10.0 | pCi/L | | | | | | |
| Sodium-22 | U | -1.32 | +/-1.70 | 5.92 | | +/-1.73 | 10.0 | pCi/L | | | | | | |
| **Rad Gas Flow Proportional Counting** | | | | | | | | | | | | | | |
| *GFPC, Sr90, liquid "As Received"* | | | | | | | | | | | | | | |
| Strontium-90 | U | 0.379 | +/-0.150 | 0.486 | 0.235 | +/-0.153 | 0.500 | pCi/L | | BXF1 | 06/07/13 | 1750 | 1303190 | 5 |
| *WSP-GrossA/B "As Received"* | | | | | | | | | | | | | | |
| Beta | | 10.5 | +/-1.22 | 2.22 | 0.943 | +/-1.50 | 3.00 | pCi/L | | DYT1 | 06/09/13 | 1213 | 1304583 | 6 |
| Alpha | | 2.26 | +/-0.386 | 0.990 | 0.445 | +/-0.431 | 3.00 | pCi/L | | DYT1 | 06/10/13 | 1950 | 1304583 | 7 |

**The following Analytical Methods were performed**

| Method | Description |
|---|---|
| 1 | DOE EML HASL-300, Am-05-RC Modified |
| 2 | DOE EML HASL-300, Pu-11-RC Modified |
| 3 | DOE EML HASL-300, U-02-RC Modified |
| 4 | EPA 901.1 |
| 5 | EPA 905.0 Modified |
| 6 | EPA 900.0/SW846 9310 |
| 7 | EPA 900.0/SW846 9310 |

| Surrogate/Tracer Recovery | Test | Batch ID | Recovery% | Acceptable Limits |
|---|---|---|---|---|
| Americium-243 Tracer | Alphaspec Am241 Liquid "As Received" | 1302968 | 74.0 | (50%-105%) |
| Plutonium-242 Tracer | Alphaspec Pu, Liquid "As Received" | 1302970 | 85.0 | (50%-105%) |
| Uranium-232 Tracer | Alphaspec U, Liquid "As Received" | 1302971 | 65.1 | (50%-105%) |

# GEL LABORATORIES LLC

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## Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: June 11, 2013

Contact: Keith Greene

Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-30584
Sample ID: 326020001

Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | Uncertainty | MDC | Lc | TPU | RL | Units | DF | Analyst | Date | Time | Batch | Mtd. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| Surrogate/Tracer Recovery | Test | Batch ID | Recovery% | Acceptable Limits |
|---|---|---|---|---|
| Strontium Carrier | GFPC, Sr90, liquid "As Received" | 1303190 | 81.9 | (50%-105%) |

**Notes:**

TPU and Counting Uncertainty are calculated at the 68% confidence level (1-sigma).

# Quality Control Data

## QC Summary

**Report Date: June 11, 2013**


**Client :** **Los Alamos National Laboratory**
**PO Box 1663**
**TA-03, SM271, Drop Pt. 02U, Rm111**
**Los Alamos, New Mexico**

**Contact:** **Keith Greene**

**Workorder:** **326020**

| Parmname | NOM | Sample | Qual | QC | Units | RER | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Rad Alpha Spec** | | | | | | | | | | |
| Batch 1302968 | | | | | | | | | | |
| QC1202879051 326020001 DUP | | | | | | | | | | |
| Americium-241 | U | 0.0023 | U | 0.0041 | pCi/L | 0.0826 | | (0-1) | HAKB | 05/24/1316:18 |
| | Uncert: | +/-0.00513 | | +/-0.0058 | | | | | | |
| | TPU: | +/-0.00513 | | +/-0.0058 | | | | | | |
| **Americium-243 Tracer | 2.62 | 1.94 | | 2.26 | pCi/L | | 86.2 | (50%-105%) | | |
| | Uncert: | +/-0.0773 | | +/-0.0728 | | | | | | |
| | TPU: | +/-0.132 | | +/-0.127 | | | | | | |
| QC1202879052 LCS | | | | | | | | | | |
| Americium-241 | 1.41 | | | 1.38 | pCi/L | | 97.3 | (80%-120%) | HAKB | 05/24/1316:16 |
| | Uncert: | | | +/-0.0557 | | | | | | |
| | TPU: | | | +/-0.0814 | | | | | | |
| **Americium-243 Tracer | 2.09 | | | 1.68 | pCi/L | | 80.1 | (50%-105%) | | |
| | Uncert: | | | +/-0.068 | | | | | | |
| | TPU: | | | +/-0.113 | | | | | | |
| QC1202879050 MB | | | | | | | | | | |
| Americium-241 | | | U | 0.00266 | pCi/L | | | | HAKB | 05/24/1316:16 |
| | Uncert: | | | +/-0.00461 | | | | | | |
| | TPU: | | | +/-0.00461 | | | | | | |
| **Americium-243 Tracer | 2.09 | | | 1.43 | pCi/L | | 68.3 | (50%-105%) | | |
| | Uncert: | | | +/-0.0742 | | | | | | |
| | TPU: | | | +/-0.121 | | | | | | |
| Batch 1302970 | | | | | | | | | | |
| QC1202879054 326020001 DUP | | | | | | | | | | |
| Plutonium-238 | U | 0.0189 | U | 9.53E-10 | pCi/L | 0.789 | | (0-1) | HAKB | 05/24/1316:18 |
| | Uncert: | +/-0.00655 | | +/-0.00539 | | | | | | |
| | TPU: | +/-0.00659 | | +/-0.00539 | | | | | | |
| Plutonium-239/240 | U | 0.0284 | U | 0.00381 | pCi/L | 0.925 | | (0-1) | | |
| | Uncert: | +/-0.00779 | | +/-0.00539 | | | | | | |
| | TPU: | +/-0.00787 | | +/-0.00539 | | | | | | |
| **Plutonium-242 Tracer | 2.44 | 2.07 | | 2.25 | pCi/L | | 92 | (50%-105%) | | |
| | Uncert: | +/-0.0683 | | +/-0.0684 | | | | | | |
| | TPU: | +/-0.118 | | +/-0.118 | | | | | | |
| QC1202879055 LCS | | | | | | | | | | |
| Plutonium-238 | | | U | 0.0121 | pCi/L | | | (80%-120%) | HAKB | 05/24/1316:18 |
| | Uncert: | | | +/-0.00477 | | | | | | |
| | TPU: | | | +/-0.00479 | | | | | | |
| Plutonium-239/240 | 1.97 | | | 1.94 | pCi/L | | 98.3 | (80%-120%) | | |
| | Uncert: | | | +/-0.0541 | | | | | | |
| | TPU: | | | +/-0.0937 | | | | | | |
| **Plutonium-242 Tracer | 1.95 | | | 1.73 | pCi/L | | 88.5 | (50%-105%) | | |
| | Uncert: | | | +/-0.0544 | | | | | | |
| | TPU: | | | +/-0.0943 | | | | | | |
| QC1202879053 MB | | | | | | | | | | |

## QC Summary

**Workorder:** **326020**



| Parmname | NOM | Sample | Qual | QC | Units | RER | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Rad Alpha Spec** | | | | | | | | | | |
| Batch 1302970 | | | | | | | | | | |
| Plutonium-238 | | | U | 0.00 | pCi/L | | | | HAKB | 05/24/1316:18 |
| | Uncert: | | | +/-0.00238 | | | | | | |
| | TPU: | | | +/-0.00238 | | | | | | |
| Plutonium-239/240 | | | U | -0.00168 | pCi/L | | | | | |
| | Uncert: | | | +/-0.00559 | | | | | | |
| | TPU: | | | +/-0.00559 | | | | | | |
| **Plutonium-242 Tracer | 1.95 | | | 1.55 | pCi/L | | 79.2 | (50%-105%) | | |
| | Uncert: | | | +/-0.0574 | | | | | | |
| | TPU: | | | +/-0.0978 | | | | | | |
| Batch 1302971 | | | | | | | | | | |
| QC1202879061 326020001 DUP | | | | | | | | | | |
| Uranium-234 | | 0.113 | | 0.166 | pCi/L | 0.561 | | (0-1) | HAKB | 05/24/1315:49 |
| | Uncert: | +/-0.0215 | | +/-0.0223 | | | | | | |
| | TPU: | +/-0.0228 | | +/-0.0248 | | | | | | |
| Uranium-235/236 | U | 0.0041 | U | 0.0101 | pCi/L | 0.163 | | (0-1) | | |
| | Uncert: | +/-0.0109 | | +/-0.00753 | | | | | | |
| | TPU: | +/-0.0109 | | +/-0.00756 | | | | | | |
| Uranium-238 | | 0.0796 | | 0.0654 | pCi/L | 0.205 | | (0-1) | | |
| | Uncert: | +/-0.0176 | | +/-0.0159 | | | | | | |
| | TPU: | +/-0.0183 | | +/-0.0164 | | | | | | |
| **Uranium-232 Tracer | 2.70 | 1.76 | | 2.09 | pCi/L | | 77.4 | (50%-105%) | | |
| | Uncert: | +/-0.0947 | | +/-0.086 | | | | | | |
| | TPU: | +/-0.203 | | +/-0.195 | | | | | | |
| QC1202879062 LCS | | | | | | | | | | |
| Uranium-234 | | | | 2.71 | pCi/L | | | | HAKB | 05/24/1315:49 |
| | Uncert: | | | +/-0.0781 | | | | | | |
| | TPU: | | | +/-0.193 | | | | | | |
| Uranium-235/236 | | | | 0.130 | pCi/L | | | | | |
| | Uncert: | | | +/-0.0194 | | | | | | |
| | TPU: | | | +/-0.0212 | | | | | | |
| Uranium-238 | 2.70 | | | 2.80 | pCi/L | | 104 | (80%-120%) | | |
| | Uncert: | | | +/-0.0793 | | | | | | |
| | TPU: | | | +/-0.199 | | | | | | |
| **Uranium-232 Tracer | 2.16 | | | 1.68 | pCi/L | | 78 | (50%-105%) | | |
| | Uncert: | | | +/-0.0699 | | | | | | |
| | TPU: | | | +/-0.157 | | | | | | |
| QC1202879060 MB | | | | | | | | | | |
| Uranium-234 | | | U | 0.0115 | pCi/L | | | | HAKB | 05/24/1315:49 |
| | Uncert: | | | +/-0.00663 | | | | | | |
| | TPU: | | | +/-0.00667 | | | | | | |
| Uranium-235/236 | | | U | 0.00 | pCi/L | | | | | |
| | Uncert: | | | +/-0.00473 | | | | | | |
| | TPU: | | | +/-0.00473 | | | | | | |
| Uranium-238 | | | U | 0.00574 | pCi/L | | | | | |
| | Uncert: | | | +/-0.00428 | | | | | | |
| | TPU: | | | +/-0.00429 | | | | | | |
| **Uranium-232 Tracer | 2.16 | | | 1.91 | pCi/L | | 88.5 | (50%-105%) | | |
| | Uncert: | | | +/-0.0646 | | | | | | |

## QC Summary

**Workorder:** **326020**



| Parmname | NOM | Sample | Qual | QC | Units | RER | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Rad Alpha Spec** | | | | | | | | | | |
| Batch 1302971 | | | | | | | | | | |
| | TPU: | | | +/-0.152 | | | | | | |
| **Rad Gamma Spec** | | | | | | | | | | |
| Batch 1302818 | | | | | | | | | | |
| QC1202878534 326020001 DUP | | | | | | | | | | |
| Cesium-137 | U | -2.71 | U | 0.179 | pCi/L | 0.437 | | (0-1) | RXF2 | 05/21/1316:26 |
| | Uncert: | +/-2.04 | | +/-1.17 | | | | | | |
| | TPU: | +/-2.13 | | +/-1.17 | | | | | | |
| Cobalt-60 | U | 0.898 | U | 0.493 | pCi/L | 0.0758 | | (0-1) | | |
| | Uncert: | +/-1.52 | | +/-1.13 | | | | | | |
| | TPU: | +/-1.54 | | +/-1.14 | | | | | | |
| Neptunium-237 | U | -1.95 | U | -7.13 | pCi/L | 0.393 | | (0-1) | | |
| | Uncert: | +/-3.36 | | +/-2.72 | | | | | | |
| | TPU: | +/-3.40 | | +/-3.20 | | | | | | |
| Potassium-40 | U | 31.2 | U | -3.8 | pCi/L | 0.357 | | (0-1) | | |
| | Uncert: | +/-29.3 | | +/-19.7 | | | | | | |
| | TPU: | +/-29.3 | | +/-19.7 | | | | | | |
| Sodium-22 | U | -1.32 | U | -0.176 | pCi/L | 0.199 | | (0-1) | | |
| | Uncert: | +/-1.70 | | +/-1.14 | | | | | | |
| | TPU: | +/-1.73 | | +/-1.14 | | | | | | |
| QC1202878535 LCS | | | | | | | | | | |
| Americium-241 | 2780 | | | 2580 | pCi/L | | 92.8 | (80%-120%) | RXF2 | 05/22/1307:19 |
| | Uncert: | | | +/-81.5 | | | | | | |
| | TPU: | | | +/-162 | | | | | | |
| Cesium-137 | 6020 | | | 6010 | pCi/L | | 99.8 | (80%-120%) | | |
| | Uncert: | | | +/-55.1 | | | | | | |
| | TPU: | | | +/-259 | | | | | | |
| Cobalt-60 | 5280 | | | 5230 | pCi/L | | 99.1 | (80%-120%) | | |
| | Uncert: | | | +/-57.7 | | | | | | |
| | TPU: | | | +/-219 | | | | | | |
| Neptunium-237 | | | U | 23.2 | pCi/L | | | | | |
| | Uncert: | | | +/-22.6 | | | | | | |
| | TPU: | | | +/-23.3 | | | | | | |
| Potassium-40 | | | U | 39.6 | pCi/L | | | | | |
| | Uncert: | | | +/-42.2 | | | | | | |
| | TPU: | | | +/-43.3 | | | | | | |
| Sodium-22 | | | U | -4.66 | pCi/L | | | | | |
| | Uncert: | | | +/-7.30 | | | | | | |
| | TPU: | | | +/-7.38 | | | | | | |
| QC1202878533 MB | | | | | | | | | | |
| Cesium-137 | | | U | -0.355 | pCi/L | | | | RXF2 | 05/21/1313:43 |
| | Uncert: | | | +/-1.63 | | | | | | |
| | TPU: | | | +/-1.64 | | | | | | |
| Cobalt-60 | | | U | 0.174 | pCi/L | | | | | |
| | Uncert: | | | +/-1.40 | | | | | | |
| | TPU: | | | +/-1.40 | | | | | | |
| Neptunium-237 | | | U | 1.54 | pCi/L | | | | | |
| | Uncert: | | | +/-2.90 | | | | | | |
| | TPU: | | | +/-2.92 | | | | | | |

## QC Summary

**Workorder:** **326020**



| Parmname | NOM | Sample | Qual | QC | Units | RER | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Rad Gamma Spec** | | | | | | | | | | |
| Batch 1302818 | | | | | | | | | | |
| Potassium-40 | | | U | -0.822 | pCi/L | | | | | |
| Uncert: | | | | +/-17.3 | | | | | | |
| TPU: | | | | +/-17.3 | | | | | | |
| Sodium-22 | | | U | -3.57 | pCi/L | | | | | |
| Uncert: | | | | +/-1.89 | | | | | | |
| TPU: | | | | +/-2.06 | | | | | | |
| **Rad Gas Flow** | | | | | | | | | | |
| Batch 1303190 | | | | | | | | | | |
| QC1202879646 326020001 DUP | | | | | | | | | | |
| Strontium-90 | U | 0.379 | U | 0.138 | pCi/L | 0.408 | | (0-1) | BXF1 | 06/10/1310:54 |
| Uncert: | | +/-0.150 | | +/-0.141 | | | | | | |
| TPU: | | +/-0.153 | | +/-0.142 | | | | | | |
| **Strontium Carrier | 8.55 | 7.00 | | 6.60 | mg | | 77.2 | (50%-105%) | | |
| QC1202879648 LCS | | | | | | | | | | |
| Strontium-90 | 24.3 | | | 22.7 | pCi/L | | 93.6 | (80%-120%) | BXF1 | 06/07/1317:59 |
| Uncert: | | | | +/-0.585 | | | | | | |
| TPU: | | | | +/-1.90 | | | | | | |
| **Strontium Carrier | 8.55 | | | 8.30 | mg | | 97.1 | (50%-105%) | | |
| QC1202879645 MB | | | | | | | | | | |
| Strontium-90 | | | U | 0.0228 | pCi/L | | | | BXF1 | 06/10/1310:54 |
| Uncert: | | | | +/-0.105 | | | | | | |
| TPU: | | | | +/-0.105 | | | | | | |
| **Strontium Carrier | 8.55 | | | 6.70 | mg | | 78.4 | (50%-105%) | | |
| QC1202879647 326020001 MS | | | | | | | | | | |
| Strontium-90 | 243 U | 0.379 | | 229 | pCi/L | | 94.2 | (75%-125%) | BXF1 | 06/07/1317:50 |
| Uncert: | | +/-0.150 | | +/-6.25 | | | | | | |
| TPU: | | +/-0.153 | | +/-19.2 | | | | | | |
| **Strontium Carrier | 8.55 | 7.00 | | 7.20 | mg | | 84.2 | (50%-105%) | | |
| Batch 1304583 | | | | | | | | | | |
| QC1202883283 326426001 DUP | | | | | | | | | | |
| Alpha | | 1.26 | | 2.13 | pCi/L | 0.507 | | (0-1) | DYT1 | 06/10/1318:46 |
| Uncert: | | +/-0.310 | | +/-0.493 | | | | | | |
| TPU: | | +/-0.330 | | +/-0.526 | | | | | | |
| Beta | | 10.9 | | 9.89 | pCi/L | 0.167 | | (0-1) | | 06/09/1312:13 |
| Uncert: | | +/-1.27 | | +/-1.23 | | | | | | |
| TPU: | | +/-1.56 | | +/-1.48 | | | | | | |
| QC1202883286 LCS | | | | | | | | | | |
| Alpha | 12.3 | | | 11.3 | pCi/L | | 91.9 | (80%-120%) | DYT1 | 06/11/1308:16 |
| Uncert: | | | | +/-0.640 | | | | | | |
| TPU: | | | | +/-1.32 | | | | | | |
| Beta | 48.5 | | | 47.1 | pCi/L | | 97.2 | (80%-120%) | | 06/09/1312:13 |
| Uncert: | | | | +/-0.879 | | | | | | |
| TPU: | | | | +/-4.01 | | | | | | |
| QC1202883282 MB | | | | | | | | | | |
| Alpha | | | U | 0.0195 | pCi/L | | | | DYT1 | 06/10/1318:46 |
| Uncert: | | | | +/-0.0152 | | | | | | |
| TPU: | | | | +/-0.0153 | | | | | | |
| Beta | | | U | 0.00638 | pCi/L | | | | | 06/10/1308:34 |

## QC Summary

**Workorder:** **326020**



| Parmname | NOM | Sample | Qual | QC | Units | RER | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Rad Gas Flow** | | | | | | | | | | |
| Batch 1304583 | | | | | | | | | | |
| | Uncert: | | | +/-0.109 | | | | | | |
| | TPU: | | | +/-0.109 | | | | | | |
| QC1202883284 326426001 MS | | | | | | | | | | |
| Alpha | 494 | 1.26 | | 595 | pCi/L | | 120 | (75%-125%) | DYT1 | 06/10/1316:36 |
| | Uncert: | +/-0.310 | | +/-28.5 | | | | | | |
| | TPU: | +/-0.330 | | +/-57.6 | | | | | | |
| Beta | 1940 | 10.9 | | 2250 | pCi/L | | 116 | (75%-125%) | | 06/09/1312:13 |
| | Uncert: | +/-1.27 | | +/-40.2 | | | | | | |
| | TPU: | +/-1.56 | | +/-193 | | | | | | |
| QC1202883285 326426001 MSD | | | | | | | | | | |
| Alpha | 494 | 1.26 | | 606 | pCi/L | 0.050 | 123 | (0-1) | DYT1 | 06/10/1316:36 |
| | Uncert: | +/-0.310 | | +/-30.1 | | | | | | |
| | TPU: | +/-0.330 | | +/-59.5 | | | | | | |
| Beta | 1940 | 10.9 | | 2150 | pCi/L | 0.142 | 110 | (0-1) | | 06/10/1308:35 |
| | Uncert: | +/-1.27 | | +/-38.2 | | | | | | |
| | TPU: | +/-1.56 | | +/-182 | | | | | | |

**Notes:**

TPU and Counting Uncertainty are calculated at the 68% confidence level (1-sigma).

The Qualifiers in this report are defined as follows:

| | |
|---|---|
| ** | Analyte is a Tracer compound |
| ** | Analyte is a surrogate compound |
| < | Result is less than value reported |
| > | Result is greater than value reported |
| A | The TIC is a suspected aldol-condensation product |
| B | The target analyte was detected in the associated blank. |
| BD | Results are either below the MDC or tracer recovery is low |
| C | Analyte has been confirmed by GC/MS analysis |
| D | Results are reported from a diluted aliquot of the sample |
| E | %difference of sample and SD is >10%. Sample concentration must meet flagging criteria |
| E | Concentration of the target analyte exceeds the instrument calibration range |
| E | General Chemistry--Concentration of the target analyte exceeds the instrument calibration range |
| FA | Failed analysis. |
| FB | Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies |
| H | Analytical holding time was exceeded |
| J | Value is estimated |
| JNX | Non Calibrated Compound |
| K | Analyte present. Reported value may be biased high. Actual value is expected to be lower. |
| L | Analyte present. Reported value may be biased low. Actual value is expected to be higher. |
| M | M if above MDC and less than LLD |
| M | REMP Result > MDC/CL and < RDL |
| N | Metals--The Matrix spike sample recovery is not within specified control limits |
| N | Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |

## QC Summary

**Workorder:** **326020**



| Parmname | NOM | Sample | Qual | QC | Units | RER | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|

| | |
|---|---|
| N | Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N/A | RPD or %Recovery limits do not apply. |
| N1 | See case narrative |
| ND | Analyte concentration is not detected above the detection limit |
| NJ | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| P | Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70% |
| Q | One or more quality control criteria have not been met. Refer to the applicable narrative or DER. |
| R | Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes. |
| R | Sample results are rejected |
| U | Analyte was analyzed for, but not detected above the MDL, MDA, or LOD. |
| UI | Gamma Spectroscopy--Uncertain identification |
| UJ | Compound cannot be extracted |
| UJ | Gamma Spectroscopy--Uncertain identification |
| UL | Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias. |
| X | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| Y | Other specific qualifiers were required to properly define the results. Consult case narrative. |
| Y | QC Samples were not spiked with this compound |
| Z | Paint Filter Test--Particulates passed through the filter, however no free liquids were observed. |
| ^ | RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry. |
| d | 5-day BOD--The 2:1 depletion requirement was not met for this sample |
| h | Preparation or preservation holding time was exceeded |

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
** Indicates analyte is a surrogate/tracer compound.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

# Chain of Custody/Analysis Request

COC/Lab Request #: 2013-865



**Client Contact:**

**Lab Agreement # :** 126310011

**Project Number :**

**Analysis Turnaround Time:**

- 24 Hour - ☐ Other - ☐
- 7 Day - ☐
- 14 Day - ☐
- 21 Day - ☐
- 28 Day - ☒

**Site Name:** Los Alamos National Laboratory

**Rad Screening Info:** Yes, Below Background

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | WSP-GENINORG | WSP-Met+B+SN+SR+U | WSP-NH3+NO3/NO2+PO4 | WSP-TKN+TOC | Special Instructions: |
|---|---|---|---|---|---|---|---|---|
| CASA-13-30543 | May 17 2013 | 14:16 | W | | | | 1 | |
| CASA-13-30551 | May 17 2013 | 14:16 | W | 1 | 1 | 1 | | |

**Special Instructions:**

| Relinquished by: | | Date/Time: | Received by: |
|---|---|---|---|
| Glen Sherwood | S. Sherwood | 5/17/13 3pm | |
| Relinquished by: | | Date/Time: | Received by: |
| Relinquished by: | | Date/Time: | Received by: |

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4194

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_SANDIA

**SAMPLE ID:** CASA-13-30543

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | 5/16/2013 | FIELD MATRIX: | WG | OK |
| TIME COLLECTED (HH:MM): | | 1416 | MEDIA: | UA | |
| PRS ID: | | OK | SAMPLE TECH CODE: | UA | G SP |
| LOCATION ID: | R-35a | | FIELD PREP: | UF | ok |
| LOCATION TYPE: | MON | | FIELD QC TYPE: | REG | |
| PORT: | SINGLE COMPLETION | | SAMPLE USAGE: | INV | |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| N/A | WSP-TKN+TOC | 500 ML AMBER GLASS | 1 | H2SO4 | X | N/A |

**SAMPLE COMMENTS:** N/A

**LOCATION COMMENTS:** N/A

**FIELD PARAMETERS:**

Dissolved Oxygen 5.03 mg/L  Oxidation-Reduction Potential 81.4 MV  pH 8.05 SU

Specific Conductance 242 uS/cm  Temperature 24.66 deg C  Turbidity 1.97 NTU

**COLLECTED BY (PRINT)** M Shonto

| RELINQUISHED BY (Printed Name) (Signature) | Date/Time | RECEIVED BY (Printed Name) (Signature) | Date/Time |
|---|---|---|---|
| V. Nigam Shah | 1505 5/16/13 | M. Montoya | 5/16/13 1505 |
| RELINQUISHED BY (Printed Name) (Signature) | Date/Time | RECEIVED BY (Printed Name) (Signature) | Date/Time |
| | | | |

Report Date 04/30/2013

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4194

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_SANDIA

**SAMPLE ID:** CASA-13-30551

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | 5/16/2013 | FIELD MATRIX: | WG | OK |
| TIME COLLECTED (HH:MM): | | 1416 | MEDIA: | UA | |
| PRS ID: | | OK | SAMPLE TECH CODE: | UA | ws 5/16/13 GSP |
| LOCATION ID: | R-35a | | FIELD PREP: | F | OK |
| LOCATION TYPE: | MON | | FIELD QC TYPE: | REG | |
| PORT: | SINGLE COMPLETION | | SAMPLE USAGE: | INV | |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| N/A | WSP-GENINORG | 1 LITER POLY | 1 | ICE | Y | N/A |
| | WSP-Met+B+SN+SR+U | 1 LITER POLY | 1 | HNO3 | | |
| | WSP-NH3+NO3/NO2+PO4 | 500 ML AMBER GLASS | 1 | H2SO4 | | |

**SAMPLE COMMENTS:** Deisel Generator running while sampling

**LOCATION COMMENTS:** N/A

**FIELD PARAMETERS:**

Dissolved Oxygen 5.03 mg/L  Oxidation-Reduction Potential 81.4 MV  pH 8.05 SU

Specific Conductance 242 uS/cm  Temperature 24.66 deg C  Turbidity 1.97 NTU

**COLLECTED BY (PRINT)** M. Shendo

| RELINQUISHED BY (Printed Name) (Signature) | Date/Time | RECEIVED BY (Printed Name) (Signature) | Date/Time |
|---|---|---|---|
| William Stan | 1505 5/16/13 | M. Montoya | 5/16/13 1500 |
| RELINQUISHED BY (Printed Name) (Signature) | Date/Time | RECEIVED BY (Printed Name) (Signature) | Date/Time |
| | | | |

Report Date 04/30/2013

Data Validation Report

Chain Of Custody No. 2013-865

**1. Distribution Of Samples In EDD.**

| SDG | Analytical Method | Regular Samples | Field Duplicates | Trip Blanks | Field Blanks | Equipment Blanks |
|---|---|---|---|---|---|---|
| 326018 | EPA:120.1 | 1 | | | | |
| 326018 | EPA:150.1 | 1 | | | | |
| 326018 | EPA:160.1 | 1 | | | | |
| 326018 | EPA:245.2 | 1 | | | | |
| 326018 | EPA:300.0 | 1 | | | | |
| 326018 | EPA:310.1 | 1 | | | | |
| 326018 | EPA:350.1 | 1 | | | | |
| 326018 | EPA:351.2 | 1 | | | | |
| 326018 | EPA:353.2 | 1 | | | | |
| 326018 | EPA:365.4 | 1 | | | | |
| 326018 | SM:A2340B | 1 | | | | |
| 326018 | SW-846:6010B | 1 | | | | |
| 326018 | SW-846:6020 | 1 | | | | |
| 326018 | SW-846:9060 | 1 | | | | |

| SDG | Analytical Method | Analysis Lot ID | Prep Lot ID | Regular Samples | Field Duplicates | Trip Blanks | Field Blanks | Equipment Blanks | Method Blanks | Matrix Spikes | Matrix Spike Dups |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 326018 | EPA:120.1 | 1305450 | 1305450 | 1 | | | | | | | |
| 326018 | EPA:150.1 | 1302797 | 1302797 | 1 | | | | | | | |
| 326018 | EPA:160.1 | 1303373 | 1303373 | 1 | | | | | 1 | | |
| 326018 | EPA:245.2 | 1303940 | 1303939 | 1 | | | | | 1 | 1 | |
| 326018 | EPA:300.0 | 1303846 | 1303846 | 1 | | | | | 1 | | |
| 326018 | EPA:310.1 | 1304792 | 1304792 | 1 | | | | | 2 | 1 | |
| 326018 | EPA:350.1 | 1302881 | 1302880 | 1 | | | | | 1 | 1 | |
| 326018 | EPA:351.2 | 1302893 | 1302892 | 1 | | | | | 1 | 2 | |
| 326018 | EPA:353.2 | 1302905 | 1302905 | 1 | | | | | 1 | | |
| 326018 | EPA:365.4 | 1303593 | 1303592 | 1 | | | | | 1 | 1 | |
| 326018 | SM:A2340B | 1306982 | 1306982 | 1 | | | | | | | |
| 326018 | SW-846:6010B | 1304837 | 1304836 | 1 | | | | | 1 | 1 | |
| 326018 | SW-846:6020 | 1304840 | 1304838 | 1 | | | | | 1 | 1 | |
| 326018 | SW-846:9060 | 1302796 | 1302796 | 1 | | | | | 1 | | |

**2. Distribution Of Analytes In EDD.**

| Analytical Method | Method Category | Field Sample ID | Lab Sample ID | Sample Purpose | Target Analytes | Surrogates | Spikes | TICS |
|---|---|---|---|---|---|---|---|---|
| EPA:120.1 | GENERAL CHEMISTRY | CASA-13-30551 | 326018002 | REG | 1 | 0 | 0 | 0 |
| EPA:120.1 | GENERAL CHEMISTRY | CASA-13-30555 | 1202885569 | DUP | 1 | 0 | 0 | 0 |
| EPA:120.1 | GENERAL CHEMISTRY | LCS | 1202885571 | LCS | 0 | 0 | 1 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | CASA-13-30550 | 1202878491 | DUP | 1 | 0 | 0 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | CASA-13-30551 | 326018002 | REG | 1 | 0 | 0 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | LCS | 1202878493 | LCS | 0 | 0 | 1 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | CASA-13-30551 | 326018002 | REG | 1 | 0 | 0 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | CASA-13-30556 | 1202880070 | DUP | 1 | 0 | 0 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | LCS | 1202880071 | LCS | 0 | 0 | 1 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | MB | 1202880068 | MB | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CASA-13-30551 | 1202881481 | DUP | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CASA-13-30551 | 1202881485 | MS | 0 | 0 | 1 | 0 |

Data Validation Report for:

Chain Of Custody No. 2013-865

| Analytical Spikes | Post-Digestion Spikes | Lab Control Samples | Lab Control Sample Dups | Blank Spikes | Blank Spike Dups | Lab Duplicates | Storage Blanks | Preparation Blanks | Reagent Blanks |
|---|---|---|---|---|---|---|---|---|---|
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 2 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 2 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | | | | | | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| EPA:245.2 | INORGANIC | CASA-13-30551 | 326018002 | REG | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | LCS | 1202881487 | LCS | 0 | 0 | 1 | 0 |
| EPA:245.2 | INORGANIC | MB | 1202881480 | MB | 1 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | CASA-13-30551 | 326018002 | REG | 4 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | CASA-13-30555 | 1202881257 | DUP | 4 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | LCS | 1202881259 | LCS | 0 | 0 | 4 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | MB | 1202881256 | MB | 4 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CASA-13-30551 | 1202883815 | DUP | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CASA-13-30551 | 1202883816 | MS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CASA-13-30551 | 326018002 | REG | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | LCS | 1202883809 | LCS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | LCS | 1202884506 | LCS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | MB | 1202883808 | MB | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | MB | 1202884505 | MB | 2 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CASA-13-30551 | 326018002 | REG | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CASA-13-30555 | 1202878737 | DUP | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CASA-13-30555 | 1202878739 | MS | 0 | 0 | 1 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | LCS | 1202878741 | LCS | 0 | 0 | 1 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | MB | 1202878736 | MB | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-31070 | 1202878783 | DUP | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-31070 | 1202878785 | MS | 0 | 0 | 1 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CASA-13-30543 | 326018001 | REG | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | LCS | 1202878787 | LCS | 0 | 0 | 1 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | MB | 1202878782 | MB | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | SWWS46-13-33497 | 1202878784 | DUP | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | SWWS46-13-33497 | 1202878786 | MS | 0 | 0 | 1 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CAMO-13-30618 | 1202878827 | DUP | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CASA-13-30551 | 326018002 | REG | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | LCS | 1202878832 | LCS | 0 | 0 | 1 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | MB | 1202878825 | MB | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CASA-13-30551 | 1202880625 | DUP | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CASA-13-30551 | 1202880627 | MS | 0 | 0 | 1 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CASA-13-30551 | 326018002 | REG | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | LCS | 1202880629 | LCS | 0 | 0 | 1 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | MB | 1202880624 | MB | 1 | 0 | 0 | 0 |
| SM:A2340B | INORGANIC | CASA-13-30551 | 326018002 | REG | 1 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30594 | 1202883951 | DUP | 17 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30594 | 1202883952 | MS | 0 | 0 | 17 | 0 |
| SW-846:6010B | INORGANIC | CASA-13-30551 | 326018002 | REG | 17 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | LCS | 1202883950 | LCS | 0 | 0 | 17 | 0 |
| SW-846:6010B | INORGANIC | MB | 1202883949 | MB | 17 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30594 | 1202883956 | DUP | 11 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30594 | 1202883957 | MS | 0 | 0 | 11 | 0 |
| SW-846:6020 | INORGANIC | CASA-13-30551 | 326018002 | REG | 11 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | LCS | 1202883955 | LCS | 0 | 0 | 11 | 0 |
| SW-846:6020 | INORGANIC | MB | 1202883954 | MB | 11 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | CASA-13-30543 | 326018001 | REG | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | CASA-13-30547 | 1202878486 | DUP | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | LCS | 1202878490 | LCS | 0 | 0 | 1 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | MB | 1202878485 | MB | 1 | 0 | 0 | 0 |

**3. Are any analytes missing?**

No.

**4. Were any holding times exceeded?**

No.

**5. Any contaminants in blanks?**

| Field Sample ID | Lab Sample ID | Type Of Blank | Analytical Method | Sample Matrix | Parameter Name | Lab Result | Lab Qualifier | Units | Lab Detection Limit |
|---|---|---|---|---|---|---|---|---|---|
| MB | 1202878736 | METHOD BLANK | EPA:350.1 | W | Ammonia as Nitrogen | 0.0344 | J | mg/L | 0.05 |
| MB | 1202881480 | METHOD BLANK | EPA:245.2 | W | Mercury | -0.076 | J | ug/L | 0.2 |

**Any samples affected by the presence of contaminants in blanks?**

| Field Sample ID | Blank Field Sample ID | Blank Lab Sample ID | Blank Type | Analytical Method | Parameter Name | Units | Blank Result | Sample Result | Lab Qualifier | Detect Limit | Detected |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CASA-13-30551 | MB | 1202881480 | METHOD BLANK | EPA:245.2 | Mercury | ug/L | -0.076 | 0.2 | U | 0.2 | N |
| CASA-13-30551 | MB | 1202878736 | METHOD BLANK | EPA:350.1 | Ammonia as Nitrogen | mg/L | 0.0344 | 0.0699 | | 0.05 | Y |

**6. Any surrogate recoveries outside the control limits?**

No.

**7. Any MS/MSD recoveries or RPDs outside the control limits?**

| Field Sample ID | Matrix Spike ID | Matrix Spike Dup ID | Analytical Method | Parameter Name | Analysis Lot ID | Analysis Date | Sample Matrix | MS % Recvry | MSD % Recvry | Upper Limit | Lower Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SWWS46-13-33497 | 1202878786 | | EPA:351.2 | Total Kjeldahl Nitrogen | 1302892 | 5/30/2013 | W | 115 | | 110 | 90 |
| CAMO-13-30594 | 1202883952 | | SW-846:6010B | Silicon Dioxide | 1304836 | 6/6/2013 | W | 62.8 | | 125 | 75 |

**8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?**

No.

**9. Any Field Duplicate RPDs outside the desired limits?**

No.

**10. Any Lab Duplicate RPDs outside the desired limits?**

No.

**11. Any required reporting limits exceeded?**

No.

**12. Additional Validator's Coments.**

None.

**13. Display Flagged Data.**

| Location ID | Chain Of Custody No | Field Sample ID | Sample Purpose | Analysis Type Code | Analytical Suite | Analytical Method | Parameter Name | Lab Qualifier | Validation Qualifier | Validation Reason Codes | Detected |
|---|---|---|---|---|---|---|---|---|---|---|---|

Data Validation Report for:

Chain Of Custody No. 2013-865

| Correction Factor (ND) | Correction Factor (J) | Use Factors |
|---|---|---|
| 5 | | Y |
| 5 | | Y |

| Rejection Limit | RPD | RPD Limit |
|---|---|---|
| 10 | | |
| 10 | | |

| Lab Result | Lab Units | Report Result | Report Units | Report MDA | Report Uncertainty | Lab Matrix | Sample Date | Percent Moisture | Analysis Lot ID | Validation Status Code | Use Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| R-35a | 2013-865 | CASA-13-30551 | REG | INIT | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | | U | I4 | N |

| Reason Code | Description |
|---|---|
| I4 | the sample result is =<5x the concentration of related analyte in the method blank. |
| J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL |
| NQ | The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample. |
| U_LAB | The analytical laboratory qualified the analyte as not detected. |

**14. Useable Result Count.**

| Field Sample ID | Location ID | Sample Purpose | Analytical Method | No. Unuseable Records | Total No. Of Records |
|---|---|---|---|---|---|
| CASA-13-30543 | R-35a | REG | EPA:351.2 | 0 | 1 |
| CASA-13-30543 | R-35a | REG | SW-846:9060 | 0 | 1 |
| CASA-13-30551 | R-35a | REG | EPA:120.1 | 0 | 1 |
| CASA-13-30551 | R-35a | REG | EPA:150.1 | 0 | 1 |
| CASA-13-30551 | R-35a | REG | EPA:160.1 | 0 | 1 |
| CASA-13-30551 | R-35a | REG | EPA:245.2 | 0 | 1 |
| CASA-13-30551 | R-35a | REG | EPA:300.0 | 0 | 4 |
| CASA-13-30551 | R-35a | REG | EPA:310.1 | 0 | 2 |
| CASA-13-30551 | R-35a | REG | EPA:350.1 | 0 | 1 |
| CASA-13-30551 | R-35a | REG | EPA:353.2 | 0 | 1 |
| CASA-13-30551 | R-35a | REG | EPA:365.4 | 0 | 1 |
| CASA-13-30551 | R-35a | REG | SM:A2340B | 0 | 1 |
| CASA-13-30551 | R-35a | REG | SW-846:6010B | 0 | 17 |
| CASA-13-30551 | R-35a | REG | SW-846:6020 | 0 | 11 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0699 | mg/L | 0.0699 | mg/L | | | W | 5/17/2013 | | 1302881 | VAL | Y |

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178
www.gel.com

June 13, 2013

Keith Greene
Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Re: LANL-WQH Water Samples
Work Order: 326018
SDG: 2013-865

Dear Keith Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on May 18, 2013, and analyzed for General Chemistry and Metals. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,

for

Valerie Davis
Project Manager

Purchase Order: 63641-10
Chain of Custody: 2013-865
Enclosures

**ARS International (63641-10)**
**LANL-WQH Water Samples**
**Work Order #: 326018**
**SDG: 2013-865**

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# Case Narrative

**Case Narrative for**
**ARS International (63641-10)**
**LANL-WQH Water Samples**
**Workorder #: 326018**
**SDG # : 2013-865**

**June 13, 2013**

**Laboratory Identification:**

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

**Summary**

**Sample receipt** The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on May 18, 2013 for analysis. The samples were delivered with proper chain of custody documentation and signatures. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. Containers were checked for pH, where appropriate, and matched the preservative as documented on the accompanying chain of custody. Shipping container temperature was within specification (0 - 6C). Shipping container temperatures were checked, documented, and within specifications. There are no additional comments concerning sample receipt.

**Sample Identification** The laboratory received the following samples:

| Laboratory ID | Client ID |
|---|---|
| 326018001 | CASA-13-30543 |
| 326018002 | CASA-13-30551 |

**Case Narrative**

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

**Data Package**

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: General Chemistry and Metals.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.

for

Valerie Davis
Project Manager

**List of current GEL Certifications as of 13 June 2013**

| State | Certification |
|---|---|
| Alaska | UST−110 |
| Arkansas | 88−0651 |
| CLIA | 42D0904046 |
| California NELAP | 01151CA |
| Colorado | SC00012 |
| Connecticut | PH−0169 |
| Delaware | SC00012 |
| DoD ELAP A2LA ISO 17025 | 2567.01 |
| Florida NELAP | E87156 |
| Foreign Soils Permit | P330−12−00283, P330−12−00284 |
| Georgia | SC00012 |
| Georgia SDWA | 967 |
| Hawaii | SC00012 |
| Idaho | SC00012 |
| Illinois NELAP | 200029 |
| Indiana | C−SC−01 |
| Kansas NELAP | E−10332 |
| Kentucky | 90129 |
| Louisiana NELAP | 03046 (AI33904) |
| Louisiana SDWA | LA130005 |
| Maryland | 270 |
| Massachusetts | M−SC012 |
| Nevada | SC000122011−1 |
| New Hampshire NELAP | 2054 |
| New Jersey NELAP | SC002 |
| New Mexico | SC00012 |
| New York NELAP | 11501 |
| North Carolina | 233 |
| North Carolina SDWA | 45709 |
| Oklahoma | 9904 |
| Pennsylvania NELAP | 68−00485 |
| Plant Material Permit | PDEP−12−00260 |
| South Carolina Chemistry | 10120001 |
| South Carolina Radiochemi | 10120002 |
| Tennessee | TN 02934 |
| Texas NELAP | T104704235−13−8 |
| Utah NELAP | SC000122013−8 |
| Vermont | VT87156 |
| Virginia NELAP | 460202 |
| Washington | C780−12 |
| Wisconsin | 999887790 |

# Chain of Custody and Supporting Documentation

General Engineering Laboratories, Inc., Charleston, SC.
2040 Savage Rd
Charleston SC 29407

# Chain of Custody/Analysis Request

326018

**COC/Lab Request #:** 2013-865

Page 1 of 1

**Client Contact:**

**Lab Agreement # :** 126310011

**Project Number :**

**Analysis Turnaround Time:**

- 24 Hour - ☐
- 7 Day - ☐
- 14 Day - ☐
- 21 Day - ☐
- 28 Day - ☒
- Other - ☐

**Site Name:** Los Alamos National Laboratory

**Rad Screening Info:** Yes, Below Background

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | WSP-GENINORG | WSP-Met+B+SN+SR+U | WSP-NH3+NO3/NO2+PO4 | WSP-TKN+TOC | Special Instructions: |
|---|---|---|---|---|---|---|---|---|
| CASA-13-30543 | May 17 2013 | 14:16 | W | | | | 1 | |
| CASA-13-30551 | May 17 2013 | 14:16 | W | 1 | 1 | 1 | | |

**Special Instructions:**

| Relinquished by: | | Date/Time: | Received by: | |
|---|---|---|---|---|
| Glen Sherwood | D. Sherwood | 5/17/13 3pm | [illegible] | 5.18.13 0920 |
| Relinquished by: | | Date/Time: | Received by: | |
| Relinquished by: | | Date/Time: | Received by: | |

GEL Laboratories LLC

# SAMPLE RECEIPT & REVIEW FORM

| | |
|---|---|
| **Client:** LANL | **SDG/AR/COC/Work Order:** 2013-865 |
| **Received By:** MK | **Date Received:** 5-10-13 |

| **Suspected Hazard Information** | **Yes** | **No** | *If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation. |
|---|---|---|---|
| COC/Samples marked as radioactive? | | ✓ | Maximum Net Counts Observed* (Observed Counts - Area Background Counts): cpm 0 |
| Classified Radioactive II or III by RSO? | | ✓ | If yes, Were swipes taken of sample contatiners < action levels? |
| COC/Samples marked containing PCBs? | | ✓ | |
| Package, COC, and/or Samples marked as beryllium or asbestos containing? | | ✓ | If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group. |
| Shipped as a DOT Hazardous? | | ✓ | Hazard Class Shipped: UN#: |
| Samples identified as Foreign Soil? | | ✓ | |

| | **Sample Receipt Criteria** | **Yes** | **NA** | **No** | **Comments/Qualifiers (Required for Non-Conforming Items)** |
|---|---|---|---|---|---|
| 1 | Shipping containers received intact and sealed? | ✓ | | | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 2 | Samples requiring cold preservation within (0 ≤ 6 deg. C)?* | ✓ | | | Preservation Method: Ice bags (Blue ice) Dry ice None Other (describe) *all temperatures are recorded in Celsius 4c |
| 2a | Daily check performed and passed on IR temperature gun? | ✓ | | | Temperature Device Serial #: 41502182 Secondary Temperature Device Serial # (If Applicable): |
| 3 | Chain of custody documents included with shipment? | ✓ | | | |
| 4 | Sample containers intact and sealed? | ✓ | | | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 5 | Samples requiring chemical preservation at proper pH? | ✓ | | | Sample ID's, containers affected and observed pH: If Preservation added, Lot#: |
| 6 | VOA vials free of headspace (defined as < 6mm bubble)? | ✓ | | | Sample ID's and containers affected: |
| 7 | Are Encore containers present? | | | ✓ | (If yes, immediately deliver to Volatiles laboratory) |
| 8 | Samples received within holding time? | ✓ | | | ID's and tests affected: |
| 9 | Sample ID's on COC match ID's on bottles? | ✓ | | | Sample ID's and containers affected: |
| 10 | Date & time on COC match date & time on bottles? | ✓ | | | Sample ID's affected: |
| 11 | Number of containers received match number indicated on COC? | | | ✓ | Sample ID's affected: * see Below |
| 12 | Are sample containers identifiable as GEL provided? | | | ✓ | |
| 13 | COC form is properly signed in relinquished/received sections? | ✓ | | | |
| 14 | Carrier and tracking number. | ✓ | | | Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other 5462 9833 0251 4c 0262 21c HNO3 |

Comments (Use Continuation Form if needed):

* ONLY RECEIVED 1 VIAL FOR CAMO-13-30563

PM (or PMA) review: Initials MK Date 052013 Page 1 of 1

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 17MAY13
ACTWGT: 47.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWK0

50DC1/9983/10BC

FedEx Express

J111311060060125

1 of 2

TRK# 0201 5462 9833 0251
## MASTER ##

SATURDAY 12:00P
PRIORITY OVERNIGHT

X0 CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 08/10

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 17MAY13
ACTWGT: 16.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWK0

50DC1/9983/10BC

FedEx Express

J111311060060125

2 of 2

MPS# 0263 5462 9833 0262
Mstr# 5462 9833 0251

0201

SATURDAY 12:00P
PRIORITY OVERNIGHT

X0 CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 08/10

# Data Review Qualifier Flag Definition Sheet

## Data Review Qualifier Definitions

| Qualifier | Explanation |
|---|---|
| * | A quality control analyte recovery is outside of specified acceptance criteria |
| ** | Analyte is a surrogate compound |
| < | Result is less than value reported |
| > | Result is greater than value reported |
| ^ | RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL |
| A | The TIC is a suspected aldol-condensation product |
| B | Target analyte was detected in the associated blank |
| B | Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL |
| BD | Results are either below the MDC or tracer recovery is low |
| C | Analyte has been confirmed by GC/MS analysis |
| D | Results are reported from a diluted aliquot of the sample |
| d | 5-day BOD-The 2:1 depletion requirement was not met for this sample |
| E | Organics-Concentration of the target analyte exceeds the instrument calibration range |
| E | Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria |
| H | Analytical holding time was exceeded |
| h | Preparation or preservation holding time was exceeded |
| J | Value is estimated |
| N | Metals-The Matrix spike sample recovery is not within specified control limits |
| N | Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N/A | Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more |
| ND | Analyte concentration is not detected above the reporting limit |
| UI | Gamma Spectroscopy-Uncertain identification |
| X | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| Y | QC Samples were not spiked with this compound |
| Z | Paint Filter Test-Particulates passed through the filter, however no free liquids were observed. |

# Metals Analysis

# Case Narrative

**Metals Fractional Narrative**
**ARS International (ARSL)**
**SDG 2013-865**

## Sample Analysis

| Sample ID | Client ID |
|---|---|
| 326018002 | CASA-13-30551 |
| 1202883949 | Method Blank (MB) **ICP** |
| 1202883950 | Laboratory Control Sample (LCS) |
| 1202883953 | 325649002(CAMO-13-30594L) Serial Dilution (SD) |
| 1202883951 | 325649002(CAMO-13-30594D) Sample Duplicate (DUP) |
| 1202883952 | 325649002(CAMO-13-30594S) Matrix Spike (MS) |
| 1202883954 | Method Blank (MB) **ICP-MS** |
| 1202883955 | Laboratory Control Sample (LCS) |
| 1202883958 | 325649002(CAMO-13-30594L) Serial Dilution (SD) |
| 1202883956 | 325649002(CAMO-13-30594D) Sample Duplicate (DUP) |
| 1202883957 | 325649002(CAMO-13-30594S) Matrix Spike (MS) |
| 1202881480 | Method Blank (MB) **CVAA** |
| 1202881487 | Laboratory Control Sample (LCS) |
| 1202881483 | 326018002(CASA-13-30551L) Serial Dilution (SD) |
| 1202881481 | 326018002(CASA-13-30551D) Sample Duplicate (DUP) |
| 1202881485 | 326018002(CASA-13-30551S) Matrix Spike (MS) |

## Method/Analysis Information

| | |
|---|---|
| **Analytical Batch:** | 1304837, 1304840, 1303940 and 1306982 |
| **Prep Batch :** | 1304836, 1304838 and 1303939 |
| **Standard Operating Procedures:** | GL-MA-E-013 REV# 22, GL-MA-E-006 REV# 9, GL-MA-E-014 REV# 25, GL-MA-E-010 REV# 26 and GL-GC-E-107 REV# 8 |
| **Analytical Method:** | SW846 3005/6010B, SW846 3005/6020 DOE-AL, EPA 245.1/245.2 and SM 2340 B |
| **Prep Method :** | SW846 3005A and EPA 245.1/245.2 Prep |

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

**System Configuration**

The Hardness as CaCO3 is calculated from Calcium and Magnesium results.

The Metals analysis-ICP was performed on a P E 5300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis-ICP was performed on a PE 7300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN 9000 inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadruple mass spectrometer, and dual mode electron multiplier detector. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum. Operating conditions are set at 1400W power and combined argon pressures of 360+/-7 kPa for the plasma and auxiliary gases, and 0.85 L/min carrier gas flow, and an initial lens voltage of 5.2.

The Metals analysis-Mercury was performed on a Perkin-Elmer Flow Injection Mercury System (FIMS-100) automated mercury analyzer. The instrument consists of a cold vapor atomic absorption spectrometer set to detect mercury at a wavelength of 253.7 nm. Sample introduction through the flow injection system is performed via a peristaltic pump at 9 mL/min and nitrogen carrier gas rate of 80 mL/min.

**Calibration Information**

**Instrument Calibration**
All initial calibration requirements have been met for this sample delivery group (SDG).

**CRDL Requirements**
All CRDL standard(s) met the referenced advisory control limits.

**ICSA/ICSAB Statement**
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

**Continuing Calibration Blank (CCB) Requirements**
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

**Continuing Calibration Verification (CCV) Requirements**
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MBs analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recoveries met the acceptance limits.

**Quality Control (QC) Sample Statement**
The following samples were selected as the quality control (QC) samples for this SDG: 325649002 (CAMO-13-30594)-ICP and ICP-MS and 326018002 (CASA-13-30551)-CVAA.

**Matrix Spike (MS) Recovery Statement**
The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. All applicable elements met the acceptance criteria.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. All applicable analytes met these requirements.

**Serial Dilution % Difference Statement**
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations that are 25X the IDL/MDL for CVAA, 50X the IDL/MDL for ICP, and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the acceptance criteria of less than 10% difference (%D).

## Technical Information

### Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

### Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

### Sample Dilutions
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. The samples in this SDG did not require dilutions.

### Preparation Information
The samples in this SDG were prepared exactly according to the cited SOP.

## Miscellaneous Information

### Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

### Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

### Additional Comments
Additional comments were not required for this SDG.
Total Hardness by Calculation is determined using the results of Total Calcium (Ca) and Total Magnesium (Mg) determined by ICP or ICP-MS.

Hardness = 2.497 (Ca) + 4.118 (Mg)

Please refer to the Total Ca and Total Mg data to validate results appearing on the Hardness Summary sheet. Both results are in the Inorganic/metals section of the package. There is no Batch QC for calculated results, and thus no QC Summary for the Hardness by Calculation Batch. The MDLs and PQLs are calculated using the higher of the two calculated values of Ca or Mg.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

**Review Validation:**

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

**The following data validator verified the information presented in this case narrative:**

**Reviewer:**_____ **Date:** 06/12/13

# Sample Data Summary

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-865  GEL Work Order: 326018

**The Qualifiers in this report are defined as follows:**

* A quality control analyte recovery is outside of specified acceptance criteria

J Value is estimated

N Metals--The Matrix spike sample recovery is not within specified control limits

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____ 06/12/13

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−865 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

**SAMPLE ID:** 326018002 **BASIS:** As Received **DATE COLLECTED** 17−MAY−13

**CLIENT ID:** CASA−13−30551 **LEVEL:** Low **DATE RECEIVED** 18−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7439−97−6 | Mercury | 0.20 | ug/L | U | 0.067 | 0.2 | 0.2 | 1 | AV | NOR1 | 05/28/13 10:37 | 052813W1−6 | 1303940 |

# METALS
## −1−
## INORGANICS ANALYSIS DATA PACKAGE

**SDG No:** 2013−865 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

**SAMPLE ID:** 326018002 **BASIS:** As Received **DATE COLLECTED** 17−MAY−13

**CLIENT ID:** CASA−13−30551 **LEVEL:** Low **DATE RECEIVED** 18−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7429−90−5 | Aluminum | 200 | ug/L | U | 68 | 200 | 200 | 1 | P | HSC | 06/06/13 15:59 | 060613−1 | 1304837 |
| 7440−36−0 | Antimony | 3 | ug/L | U | 1 | 3 | 3 | 1 | MS | PRB | 06/08/13 03:35 | 130607−5 | 1304840 |
| 7440−38−2 | Arsenic | 5 | ug/L | U | 1.7 | 5 | 5 | 1 | MS | BAJ | 06/07/13 08:13 | 130606−3 | 1304840 |
| 7440−39−3 | Barium | 389 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:59 | 060613−1 | 1304837 |
| 7440−41−7 | Beryllium | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:59 | 060613−1 | 1304837 |
| 7440−42−8 | Boron | 29.4 | ug/L | J | 15 | 50 | 50 | 1 | P | HSC | 06/06/13 15:59 | 060613−1 | 1304837 |
| 7440−43−9 | Cadmium | 1 | ug/L | U | 0.11 | 1 | 1 | 1 | MS | BAJ | 06/07/13 08:13 | 130606−3 | 1304840 |
| 7440−70−2 | Calcium | 24100 | ug/L | | 50 | 200 | 200 | 1 | P | HSC | 06/06/13 15:59 | 060613−1 | 1304837 |
| 7440−47−3 | Chromium | 4.57 | ug/L | J | 2 | 10 | 10 | 1 | MS | BAJ | 06/07/13 08:13 | 130606−3 | 1304840 |
| 7440−48−4 | Cobalt | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:59 | 060613−1 | 1304837 |
| 7440−50−8 | Copper | 10 | ug/L | U | 3 | 10 | 10 | 1 | P | HSC | 06/06/13 15:59 | 060613−1 | 1304837 |
| 7439−89−6 | Iron | 100 | ug/L | U | 30 | 100 | 100 | 1 | P | HSC | 06/06/13 15:59 | 060613−1 | 1304837 |
| 7439−92−1 | Lead | 2 | ug/L | U | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/07/13 08:13 | 130606−3 | 1304840 |
| 7439−95−4 | Magnesium | 6280 | ug/L | | 110 | 300 | 300 | 1 | P | HSC | 06/07/13 11:00 | 060713B−2 | 1304837 |
| 7439−96−5 | Manganese | 10 | ug/L | U | 2 | 10 | 10 | 1 | P | HSC | 06/06/13 15:59 | 060613−1 | 1304837 |
| 7439−98−7 | Molybdenum | 1 | ug/L | | 0.165 | 0.5 | 0.5 | 1 | MS | BAJ | 06/07/13 16:39 | 130607−4 | 1304840 |
| 7440−02−0 | Nickel | 9.17 | ug/L | | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/07/13 08:13 | 130606−3 | 1304840 |
| 7440−09−7 | Potassium | 4240 | ug/L | | 50 | 150 | 150 | 1 | P | HSC | 06/06/13 15:59 | 060613−1 | 1304837 |
| 7782−49−2 | Selenium | 5 | ug/L | U | 1.5 | 5 | 5 | 1 | MS | BAJ | 06/07/13 08:13 | 130606−3 | 1304840 |
| 7631−86−9 | Silica | 89500 | ug/L | | 53 | 213 | 213 | 1 | P | HSC | 06/06/13 15:59 | 060613−1 | 1304837 |
| 7440−22−4 | Silver | 1 | ug/L | U | 0.2 | 1 | 1 | 1 | MS | BAJ | 06/07/13 08:13 | 130606−3 | 1304840 |
| 7440−23−5 | Sodium | 18000 | ug/L | | 100 | 300 | 300 | 1 | P | HSC | 06/07/13 11:00 | 060713B−2 | 1304837 |
| 7440−24−6 | Strontium | 192 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:59 | 060613−1 | 1304837 |
| 7440−28−0 | Thallium | 2 | ug/L | U | 0.45 | 2 | 2 | 1 | MS | BAJ | 06/07/13 08:13 | 130606−3 | 1304840 |
| 7440−31−5 | Tin | 10 | ug/L | U | 2.5 | 10 | 10 | 1 | P | HSC | 06/07/13 11:00 | 060713B−2 | 1304837 |
| 7440−61−1 | Uranium | 0.607 | ug/L | | 0.067 | 0.2 | 0.2 | 1 | MS | BAJ | 06/07/13 16:39 | 130607−4 | 1304840 |
| 7440−62−2 | Vanadium | 18.1 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:59 | 060613−1 | 1304837 |
| 7440−66−6 | Zinc | 10 | ug/L | U | 3.3 | 10 | 10 | 1 | P | HSC | 06/06/13 15:59 | 060613−1 | 1304837 |

# METALS
## −1−
## INORGANICS ANALYSIS DATA PACKAGE

**SDG No:** 2013−865 **CONTRACT:** ESHL00210 **METHOD TYPE:**

**SAMPLE ID:** 326018002 **BASIS:** As Received **DATE COLLECTED** 17−MAY−13

**CLIENT ID:** CASA−13−30551 **LEVEL:** Low **DATE RECEIVED** 18−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Hardness as CaCO3 | 86 | mg/L | | 0.453 | 1.24 | 1.24 | 1 | | JJ2 | 06/10/13 14:16 | | 1306982 |

**Prep Information:**

| Analytical Batch | Prep Batch | Prep Method | Initial wt./vol. | Units | Final wt./vol. | Units | Date | Analyst |
|---|---|---|---|---|---|---|---|---|
| 1303940 | 1303939 | EPA 245.1/245.2 Prep | 20 | mL | 20 | mL | 05/24/13 | AXS5 |
| 1304837 | 1304836 | SW846 3005A | 50 | mL | 50 | mL | 06/06/13 | AXG2 |
| 1304840 | 1304838 | SW846 3005A | 50 | mL | 50 | mL | 06/06/13 | AXG2 |

***Analytical Methods:**

| | |
|---|---|
| **MS** | **SW846 3005/6020 DOE−AL** |
| **P** | **SW846 3005/6010B** |
| **AV** | **EPA 245.1/245.2** |

# Quality Control Summary

**METALS**
**−3b−**
**PREPARATION BLANK SUMMARY**

**SDG NO.** 2013−865

**Contract:** ESHL00210

**Matrix:** W

| Sample ID | Analyte | Result | Units | Acceptance Window | Conc Qual | M* | MDL | RDL |
|---|---|---|---|---|---|---|---|---|
| 1202881480 | | | | | | | | |
| | Mercury | −0.076 | ug/L | +/−0.2 | J | AV | 0.067 | 0.2 |
| 1202883949 | | | | | | | | |
| | Aluminum | 68 | ug/L | +/−200 | U | P | 68 | 200 |
| | Barium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Beryllium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Boron | 15 | ug/L | +/−50 | U | P | 15 | 50 |
| | Calcium | 50 | ug/L | +/−200 | U | P | 50 | 200 |
| | Cobalt | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Copper | 3 | ug/L | +/−10 | U | P | 3 | 10 |
| | Iron | 30 | ug/L | +/−100 | U | P | 30 | 100 |
| | Magnesium | 110 | ug/L | +/−300 | U | P | 110 | 300 |
| | Manganese | 2 | ug/L | +/−10 | U | P | 2 | 10 |
| | Potassium | 50 | ug/L | +/−150 | U | P | 50 | 150 |
| | Silica | 53 | ug/L | +/−213 | U | P | 53 | 213 |
| | Sodium | 100 | ug/L | +/−300 | U | P | 100 | 300 |
| | Strontium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Tin | 2.5 | ug/L | +/−10 | U | P | 2.5 | 10 |
| | Vanadium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Zinc | 3.3 | ug/L | +/−10 | U | P | 3.3 | 10 |
| 1202883954 | | | | | | | | |
| | Antimony | 1 | ug/L | +/−3 | U | MS | 1 | 3 |
| | Arsenic | 1.7 | ug/L | +/−5 | U | MS | 1.7 | 5 |
| | Cadmium | 0.11 | ug/L | +/−1 | U | MS | 0.11 | 1 |
| | Chromium | 2 | ug/L | +/−10 | U | MS | 2 | 10 |
| | Lead | 0.5 | ug/L | +/−2 | U | MS | 0.5 | 2 |
| | Molybdenum | 0.165 | ug/L | +/−0.5 | U | MS | 0.165 | 0.5 |
| | Nickel | 0.5 | ug/L | +/−2 | U | MS | 0.5 | 2 |
| | Selenium | 1.5 | ug/L | +/−5 | U | MS | 1.5 | 5 |
| | Silver | 0.2 | ug/L | +/−1 | U | MS | 0.2 | 1 |
| | Thallium | 0.45 | ug/L | +/−2 | U | MS | 0.45 | 2 |
| | Uranium | 0.067 | ug/L | +/−0.2 | U | MS | 0.067 | 0.2 |

***Analytical Methods:**

| | |
|---|---|
| **MS** | **SW846 3005/6020 DOE−AL** |
| **P** | **SW846 3005/6010B** |
| **AV** | **EPA 245.1/245.2** |

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−865 **Client ID** CASA−13−30551S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 326018002 **Spike ID:** 1202881485

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | ug/L | 75−125 | 2.01 | | 0.067 | U | 2 | 101 | | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−865 **Client ID** CAMO−13−30594S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 325649002 **Spike ID:** 1202883952

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | ug/L | 75−125 | 5060 | | 68 | U | 5000 | 101 | | P |
| Barium | ug/L | 75−125 | 513 | | 21.9 | | 500 | 98.3 | | P |
| Beryllium | ug/L | 75−125 | 498 | | 1 | U | 500 | 99.5 | | P |
| Boron | ug/L | 75−125 | 491 | | 15 | U | 500 | 97.5 | | P |
| Calcium | ug/L | 75−125 | 17600 | | 13300 | | 5000 | 86.2 | | P |
| Cobalt | ug/L | 75−125 | 496 | | 1 | U | 500 | 99.2 | | P |
| Copper | ug/L | 75−125 | 532 | | 3 | U | 500 | 106 | | P |
| Iron | ug/L | 75−125 | 5140 | | 30 | U | 5000 | 103 | | P |
| Magnesium | ug/L | 75−125 | 8390 | | 3700 | | 5000 | 93.7 | | P |
| Manganese | ug/L | 75−125 | 492 | | 2 | U | 500 | 98.3 | | P |
| Potassium | ug/L | 75−125 | 5990 | | 1210 | | 5000 | 95.6 | | P |
| Silica | ug/L | | 81700 | | 74900 | | 10700 | 62.8 | N/A | P |
| Sodium | ug/L | 75−125 | 14200 | | 9930 | | 5000 | 85.2 | | P |
| Strontium | ug/L | 75−125 | 560 | | 58.8 | | 500 | 100 | | P |
| Tin | ug/L | 75−125 | 470 | | 2.5 | U | 500 | 94 | | P |
| Vanadium | ug/L | 75−125 | 507 | | 5.58 | | 500 | 100 | | P |
| Zinc | ug/L | 75−125 | 490 | | 3.3 | U | 500 | 97.4 | | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−865 **Client ID** CAMO−13−30594S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 325649002 **Spike ID:** 1202883957

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ug/L | 75−125 | 55 | | 1 | U | 50 | 110 | | MS |
| Arsenic | ug/L | 75−125 | 52.4 | | 1.7 | U | 50 | 102 | | MS |
| Cadmium | ug/L | 75−125 | 54.8 | | 0.11 | U | 50 | 110 | | MS |
| Chromium | ug/L | 75−125 | 68.1 | | 17.5 | | 50 | 101 | | MS |
| Lead | ug/L | 75−125 | 51.2 | | 0.5 | U | 50 | 102 | | MS |
| Molybdenum | ug/L | 75−125 | 51.8 | | 0.849 | | 50 | 102 | | MS |
| Nickel | ug/L | 75−125 | 53.4 | | 2.22 | | 50 | 102 | | MS |
| Selenium | ug/L | 75−125 | 59.2 | | 1.5 | U | 50 | 116 | | MS |
| Silver | ug/L | 75−125 | 54 | | 0.2 | U | 50 | 108 | | MS |
| Thallium | ug/L | 75−125 | 47.3 | | 0.45 | U | 50 | 94.6 | | MS |
| Uranium | ug/L | 75−125 | 51.9 | | 0.429 | | 50 | 103 | | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−865 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CASA−13−30551D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 326018002 **Duplicate ID:** 1202881481 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | ug/L | | 0.067 | U | 0.067 | U | | | AV |

***Analytical Methods:**

**AV EPA 245.1/245.2**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−865 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CAMO−13−30594D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325649002 **Duplicate ID:** 1202883951 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | ug/L | | 68 | U | 68 | U | | | P |
| Barium | ug/L | +/−5 | 21.9 | | 20.8 | | 5.14 | | P |
| Beryllium | ug/L | | 1 | U | 1 | U | | | P |
| Boron | ug/L | | 15 | U | 15 | U | | | P |
| Calcium | ug/L | +/−20% | 13300 | | 12900 | | 3.27 | | P |
| Cobalt | ug/L | | 1 | U | 1 | U | | | P |
| Copper | ug/L | | 3 | U | 3 | U | | | P |
| Iron | ug/L | | 30 | U | 30 | U | | | P |
| Magnesium | ug/L | +/−20% | 3700 | | 3510 | | 5.41 | | P |
| Manganese | ug/L | | 2 | U | 2 | U | | | P |
| Potassium | ug/L | +/−20% | 1210 | | 1170 | | 3.01 | | P |
| Silica | ug/L | +/−20% | 74900 | | 72500 | | 3.29 | | P |
| Sodium | ug/L | +/−20% | 9930 | | 9590 | | 3.45 | | P |
| Strontium | ug/L | +/−20% | 58.8 | | 56.4 | | 4.05 | | P |
| Tin | ug/L | | 2.5 | U | 2.5 | U | | | P |
| Vanadium | ug/L | +/−5 | 5.58 | | 4.98 | J | 11.3 | | P |
| Zinc | ug/L | | 3.3 | U | 3.3 | U | | | P |

***Analytical Methods:**

**P SW846 3005/6010B**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−865 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CAMO−13−30594D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325649002 **Duplicate ID:** 1202883956 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Antimony | ug/L | | 1 | U | 1 | U | | | MS |
| Arsenic | ug/L | | 1.7 | U | 1.7 | U | | | MS |
| Cadmium | ug/L | | 0.11 | U | 0.11 | U | | | MS |
| Chromium | ug/L | +/−10 | 17.5 | | 16 | | 9.39 | | MS |
| Lead | ug/L | | 0.5 | U | 0.5 | U | | | MS |
| Molybdenum | ug/L | +/−.5 | 0.849 | | 0.877 | | 3.24 | | MS |
| Nickel | ug/L | +/−2 | 2.22 | | 1.9 | J | 15.5 | | MS |
| Selenium | ug/L | | 1.5 | U | 1.5 | U | | | MS |
| Silver | ug/L | | 0.2 | U | 0.2 | U | | | MS |
| Thallium | ug/L | | 0.45 | U | 0.45 | U | | | MS |
| Uranium | ug/L | +/−.2 | 0.429 | | 0.42 | | 2.12 | | MS |

***Analytical Methods:**

**MS SW846 3005/6020 DOE−AL**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−865

**Contract:** ESHL00210

**Aqueous LCS Source:** GEL **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202881487 | | | | | | | | |
| | Mercury | ug/L | 2 | 2.09 | | 104 | 85−115 | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−865

**Contract:** ESHL00210

**Aqueous LCS Source:** OS2I **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202883950 | | | | | | | | |
| | Aluminum | ug/L | 5000 | 5200 | | 104 | 80−120 | P |
| | Barium | ug/L | 500 | 510 | | 102 | 80−120 | P |
| | Beryllium | ug/L | 500 | 508 | | 102 | 80−120 | P |
| | Boron | ug/L | 500 | 488 | | 97.7 | 80−120 | P |
| | Calcium | ug/L | 5000 | 5150 | | 103 | 80−120 | P |
| | Cobalt | ug/L | 500 | 508 | | 102 | 80−120 | P |
| | Copper | ug/L | 500 | 533 | | 107 | 80−120 | P |
| | Iron | ug/L | 5000 | 5300 | | 106 | 80−120 | P |
| | Magnesium | ug/L | 5000 | 5140 | | 103 | 80−120 | P |
| | Manganese | ug/L | 500 | 517 | | 103 | 80−120 | P |
| | Potassium | ug/L | 5000 | 5100 | | 102 | 80−120 | P |
| | Silica | ug/L | 10700 | 10800 | | 101 | 80−120 | P |
| | Sodium | ug/L | 5000 | 5040 | | 101 | 80−120 | P |
| | Strontium | ug/L | 500 | 527 | | 105 | 80−120 | P |
| | Tin | ug/L | 500 | 496 | | 99.2 | 80−120 | P |
| | Vanadium | ug/L | 500 | 517 | | 103 | 80−120 | P |
| | Zinc | ug/L | 500 | 493 | | 98.5 | 80−120 | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−865

**Contract:** ESHL00210

**Aqueous LCS Source:** O2Si **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202883955 | | | | | | | | |
| | Antimony | ug/L | 50 | 55.6 | | 111 | 80−120 | MS |
| | Arsenic | ug/L | 50 | 51.7 | | 103 | 80−120 | MS |
| | Cadmium | ug/L | 50 | 54.4 | | 109 | 80−120 | MS |
| | Chromium | ug/L | 50 | 52.9 | | 106 | 80−120 | MS |
| | Lead | ug/L | 50 | 51.4 | | 103 | 80−120 | MS |
| | Molybdenum | ug/L | 50 | 50.2 | | 100 | 80−120 | MS |
| | Nickel | ug/L | 50 | 52.7 | | 105 | 80−120 | MS |
| | Selenium | ug/L | 50 | 59.7 | | 119 | 80−120 | MS |
| | Silver | ug/L | 50 | 53.8 | | 108 | 80−120 | MS |
| | Thallium | ug/L | 50 | 46.7 | | 93.5 | 80−120 | MS |
| | Uranium | ug/L | 50 | 49.6 | | 99.3 | 80−120 | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−865 **Client ID** CASA−13−30551L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 326018002 **Serial Dilution ID:** 1202881483

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Mercury | .067 | U | .335 | U | | | | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−865 **Client ID** CAMO−13−30594L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325649002 **Serial Dilution ID:** 1202883953

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Aluminum | 68 | U | 340 | U | | | | P |
| Barium | 21.9 | | 25.2 | | 14.8 | | | P |
| Beryllium | 1 | U | 5 | U | | | | P |
| Boron | 15 | U | 75 | U | | | | P |
| Calcium | 13300 | | 13000 | | 2.28 | | 10 | P |
| Cobalt | 1 | U | 5 | U | | | | P |
| Copper | 3 | U | 15 | U | | | | P |
| Iron | 30 | U | 150 | U | | | | P |
| Magnesium | 3700 | | 3680 | | .612 | | | P |
| Manganese | 2 | U | 10 | U | | | | P |
| Potassium | 1210 | | 1320 | | 8.88 | | | P |
| Silica | 74900 | | 73100 | | 2.4 | | 10 | P |
| Sodium | 9930 | | 10500 | | 5.47 | | 10 | P |
| Strontium | 58.8 | | 56.9 | | 3.16 | | 10 | P |
| Tin | 2.5 | U | 12.5 | U | | | | P |
| Vanadium | 5.58 | | 6.2 | J | 11.1 | | | P |
| Zinc | 3.3 | U | 16.5 | U | | | | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−865 **Client ID** CAMO−13−30594L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325649002 **Serial Dilution ID:** 1202883958

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Antimony | 1 | U | 5 | U | | | | MS |
| Arsenic | 1.7 | U | 8.5 | U | | | | MS |
| Cadmium | .11 | U | .55 | U | | | | MS |
| Chromium | 17.5 | | 16.6 | J | 5.12 | | | MS |
| Lead | .5 | U | 2.5 | U | | | | MS |
| Molybdenum | .849 | | 1.15 | J | 35.5 | | | MS |
| Nickel | 2.22 | | 2.5 | U | 100 | | | MS |
| Selenium | 1.5 | U | 7.5 | U | | | | MS |
| Silver | .2 | U | 1 | U | | | | MS |
| Thallium | .45 | U | 2.25 | U | | | | MS |
| Uranium | .429 | | .53 | J | 23.5 | | | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

# General Chem Analysis

# Case Narrative

**General Chemistry Narrative**
**ARS International (ARSL)**
**SDG 2013-865**

## Method/Analysis Information

**Product:** **Carbon, Total Organic**

**Analytical Batch:** 1302796 **Method:** SW 9060 Total Organic Carbon

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9060:

| Sample ID | Client ID |
|---|---|
| 326018001 | CASA-13-30543 |
| 1202878485 | Method Blank (MB) |
| 1202878486 | 325847001(CASA-13-30547) Sample Duplicate (DUP) |
| 1202878488 | 325847001(CASA-13-30547) Post Spike (PS) |
| 1202878490 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-093 REV# 12.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Carbon analysis was performed on a O-I Analytical Model 1010 Total Organic Carbon Analyzer.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

## Quality Control (QC) Information

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325847001 (CASA-13-30547).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

## Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

## Miscellaneous Information

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Specific Conductivity** | | |
| **Analytical Batch:** | 1305450 | **Method:** | EPA120.1 Specific Conductivity |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 120.1:

| Sample ID | Client ID |
|---|---|
| 326018002 | CASA-13-30551 |
| 1202885569 | 325847002(CASA-13-30555) Sample Duplicate (DUP) |
| 1202885571 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-009 REV# 11.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Conductivity analysis was performed on a Orion 160 Conductivity Meter.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325847002 (CASA-13-30555).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

**Product:** **pH**

**Analytical Batch:** 1302797 **Method:** EPA 150.1 pH

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 150.1:

| Sample ID | Client ID |
|---|---|
| 326018002 | CASA-13-30551 |
| 1202878491 | 325736002(CASA-13-30550) Sample Duplicate (DUP) |
| 1202878493 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-008 REV# 21.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Electrode analysis was performed on a PerpHect pH Meter Orion 370.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**

The following sample was selected for QC analysis: 325736002 (CASA-13-30550).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
The following sample from this sample group was received by the lab outside of the method specified holding time: 326018002 (CASA-13-30551).

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1188061 326018002 (CASA-13-30551).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Ion Chromatography** | | |
| **Analytical Batch:** | 1303846 | **Method:** | EPA 300.0 Anions Liquid 28 day |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

| Sample ID | Client ID |
|---|---|
| 326018002 | CASA-13-30551 |
| 1202881256 | Method Blank (MB) |
| 1202881257 | 325847002(CASA-13-30555) Sample Duplicate (DUP) |
| 1202881258 | 325847002(CASA-13-30555) Post Spike (PS) |
| 1202881259 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 21.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-3000 Ion Chromatograph.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325847002 (CASA-13-30555).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The spike recovery falls outside of the established acceptance limits due to matrix interference: 1202881258 (CASA-13-30555).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1193509 1202881258 (CASA-13-30555).

**Manual Integrations**
The following samples from this sample group had to be manually integrated due to errors in the instrument software peak integration: 1202881257 (CASA-13-30555), 1202881258 (CASA-13-30555) and 326018002 (CASA-13-30551).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an

effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Ammonia Nitrogen** | | |
| **Analytical Batch:** | 1302881 | **Method:** | EPA 350.1 Nitrogen and Ammonia L |
| **Prep Batch :** | 1302880 | **Method:** | EEPA 350.2 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 350.1:

| Sample ID | Client ID |
|---|---|
| 326018002 | CASA-13-30551 |
| 1202878736 | Method Blank (MB) |
| 1202878737 | 325847002(CASA-13-30555) Sample Duplicate (DUP) |
| 1202878739 | 325847002(CASA-13-30555) Matrix Spike (MS) |
| 1202878741 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-106 REV# 9.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325847002 (CASA-13-30555).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
One or more of the values for the sample and/or duplicate are less than 5 times the Practical Quantitation Limit (PQL), and the difference is within one PQL value; therefore, the RPD is not applicable. 1202878737 (CASA-13-30555).

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Total Kjeldahl Nitrogen** | | |
| **Analytical Batch:** | 1302893 | **Method:** | Nitrogen and Total Kjeldahl (TKN) |
| **Prep Batch :** | 1302892 | **Method:** | EEPA 351.2 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 351.2:

| Sample ID | Client ID |
|---|---|
| 326018001 | CASA-13-30543 |
| 1202878782 | Method Blank (MB) |
| 1202878783 | 325733001(CAMO-13-31070) Sample Duplicate (DUP) |
| 1202878784 | 326427001(SWWS46-13-33497) Sample Duplicate (DUP) |
| 1202878785 | 325733001(CAMO-13-31070) Matrix Spike (MS) |
| 1202878786 | 326427001(SWWS46-13-33497) Matrix Spike (MS) |
| 1202878787 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-104 REV# 14.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following samples were selected for QC analysis: 325733001 (CAMO-13-31070) and 326427001 (SWWS46-13-33497).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The spike recovery falls outside of the GEL acceptance limits but within the client specified limits. 1202878786 (SWWS46-13-33497).

**Duplicate Relative Percent Difference (RPD) Statement**
The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample: 1202878783 (CAMO-13-31070).

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1190664 1202878783 (CAMO-13-31070) and 1202878786 (SWWS46-13-33497).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Nitrate Nitrite by Cadmium Reduction** | | |
| **Analytical Batch:** | 1302905 | **Method:** | EPA 353.2 Nitrogen and Nitrate/Nitrite |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 353.2:

| Sample ID | Client ID |
|---|---|
| 326018002 | CASA-13-30551 |
| 1202878825 | Method Blank (MB) |
| 1202878827 | 325922002(CAMO-13-30618) Sample Duplicate (DUP) |
| 1202878830 | 325922002(CAMO-13-30618) Post Spike (PS) |
| 1202878832 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-128 REV# 8.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8500 Series.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within

acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325922002 (CAMO-13-30618).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recoveries for this sample set were within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an

effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Total Phosphorus** | | |
| **Analytical Batch:** | 1303593 | **Method:** | EPA 365.4 Phosphorus and Total in |
| **Prep Batch :** | 1303592 | **Method:** | EEPA 365.4 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 365.4:

| Sample ID | Client ID |
|---|---|
| 326018002 | CASA-13-30551 |
| 1202880624 | Method Blank (MB) |
| 1202880625 | 326018002(CASA-13-30551) Sample Duplicate (DUP) |
| 1202880627 | 326018002(CASA-13-30551) Matrix Spike (MS) |
| 1202880629 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-103 REV# 10.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

## Quality Control (QC) Information

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 326018002 (CASA-13-30551).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

## Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

## Miscellaneous Information

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will

always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Solids, Total Dissolved** | | |
| **Analytical Batch:** | 1303373 | **Method:** | EPA 160.1 Solids and Dissolved-F |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 160.1:

| Sample ID | Client ID |
|---|---|
| 326018002 | CASA-13-30551 |
| 1202880068 | Method Blank (MB) |
| 1202880070 | 326056004(CASA-13-30556) Sample Duplicate (DUP) |
| 1202880071 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-001 REV# 13.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Solids analysis was performed on a Sartorius Balance BAL216. Solids lab

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

## Quality Control (QC) Information

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**

The following sample was selected for QC analysis: 326056004 (CASA-13-30556).

**Duplicate Relative Percent Difference (RPD) Statement**
The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample: 1202880070 (CASA-13-30556).

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Sample Aliquot**
A sufficient amount of sample was provided by the client for analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1190030 1202880070 (CASA-13-30556).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

**Product:** **Alkalinity**

**Analytical Batch:** 1304792 **Method:** EPA 310.1 Total Alkalinity

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 310.1:

| Sample ID | Client ID |
|---|---|
| 326018002 | CASA-13-30551 |
| 1202883809 | Laboratory Control Sample (LCS) |
| 1202883815 | 326018002(CASA-13-30551) Sample Duplicate (DUP) |
| 1202883816 | 326018002(CASA-13-30551) Matrix Spike (MS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-033 REV# 10.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Titration analysis was performed on a Manually operated buret.

**Initial Standardization**
The titrant was properly standardized

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 326018002 (CASA-13-30551).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**

The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

**Review Validation:**

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

**The following data validator verified the information presented in this case narrative:**

**Reviewer:_____ Date:_____**

# Sample Data Summary

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-865  GEL Work Order: 326018

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

**  Analyte is a Tracer compound

**  Analyte is a surrogate compound

H  Analytical holding time was exceeded

J  Value is estimated

N  Metals--The Matrix spike sample recovery is not within specified control limits

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: June 11, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-865

Client Sample ID: CASA-13-30543
Sample ID: 326018001
Matrix: W
Collect Date: 17-MAY-13 14:16
Receive Date: 18-MAY-13
Collector: Client
Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon Analysis | | | | | | | | | | | |
| SW 9060 Total Organic Carbon "As Received" | | | | | | | | | | | |
| Total Organic Carbon Average | | 1.09 | 0.330 | 1.00 | mg/L | 1 | TSM | 05/20/13 | 2036 | 1302796 | 1 |
| Nutrient Analysis | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl (TKN) "As Received" | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | U | ND | 0.033 | 0.100 | mg/L | 1 | KLP1 | 05/30/13 | 1147 | 1302893 | 2 |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 351.2 Prep | EPA 351.2 Total Kjeldahl Nitrogen Prep | KLP1 | 05/29/13 | 1700 | 1302892 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | SW846 9060 | |
| 2 | EPA 351.2 | |

**Notes:**

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: June 11, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-865

Client Sample ID: CASA-13-30551
Sample ID: 326018002
Matrix: W
Collect Date: 17-MAY-13 14:16
Receive Date: 18-MAY-13
Collector: Client
Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Conductivity Analysis | | | | | | | | | | | |
| EPA120.1 Specific Conductivity "As Received" | | | | | | | | | | | |
| Conductivity | | 242 | 1.00 | 1.00 | umhos/cm | 1 | LXA1 | 06/03/13 | 1604 | 1305450 | 1 |
| Electrode Analysis | | | | | | | | | | | |
| EPA 150.1 pH "As Received" | | | | | | | | | | | |
| pH at Temp 10.9C | H | 8.08 | 0.010 | 0.100 | SU | 1 | LYG1 | 05/20/13 | 0909 | 1302797 | 2 |
| Ion Chromatography | | | | | | | | | | | |
| EPA 300.0 Anions Liquid 28 day "As Received" | | | | | | | | | | | |
| Bromide | U | ND | 0.067 | 0.200 | mg/L | 1 | MAR1 | 06/09/13 | 1702 | 1303846 | 3 |
| Chloride | | 6.79 | 0.067 | 0.200 | mg/L | 1 | | | | | |
| Fluoride | | 0.318 | 0.033 | 0.100 | mg/L | 1 | | | | | |
| Sulfate | | 5.72 | 0.133 | 0.400 | mg/L | 1 | | | | | |
| Nutrient Analysis | | | | | | | | | | | |
| EPA 350.1 Nitrogen, Ammonia L "As Received" | | | | | | | | | | | |
| Nitrogen, Ammonia | | 0.0699 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/22/13 | 1059 | 1302881 | 4 |
| EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received" | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | 0.444 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/24/13 | 1414 | 1302905 | 5 |
| EPA 365.4 Phosphorus, Total in "As Received" | | | | | | | | | | | |
| Phosphorus, Total as P | J | 0.030 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 06/04/13 | 1239 | 1303593 | 6 |
| Solids Analysis | | | | | | | | | | | |
| EPA 160.1 Solids, Dissolved-F "As Received" | | | | | | | | | | | |
| Total Dissolved Solids | | 184 | 3.40 | 14.3 | mg/L | | LYG1 | 05/22/13 | 0920 | 1303373 | 7 |
| Titration Analysis | | | | | | | | | | | |
| EPA 310.1 Total Alkalinity "As Received" | | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | 104 | 0.725 | 1.00 | mg/L | | LXA1 | 05/30/13 | 1727 | 1304792 | 8 |
| Carbonate alkalinity (CaCO3) | U | ND | 0.725 | 1.00 | mg/L | | | | | | |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 350.2 Prep | EPA 350.1 Ammonia Nitrogen Prep | KLP1 | 05/21/13 | 1550 | 1302880 |
| EPA 365.4 Prep | EPA 365.4 Phosphorus, Total in liquid PR | KLP1 | 06/03/13 | 1700 | 1303592 |

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: June 11, 2013

| | | | |
|---|---|---|---|
| Company : | Los Alamos National Laboratory | | |
| Address : | PO Box 1663<br>TA-03, SM271, Drop Pt. 02U, Rm111<br>Los Alamos, New Mexico 87545 | | |
| Contact: | Keith Greene | Client SDG: | 2013-865 |
| Project: | LANL-WQH Water Samples | | |

| | | | |
|---|---|---|---|
| Client Sample ID: | CASA-13-30551 | Project: | ESHL00210 |
| Sample ID: | 326018002 | Client ID: | ARSL001 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | EPA 120.1 | |
| 2 | EPA 150.1 | |
| 3 | EPA 300.0 | |
| 4 | EPA 350.1 | |
| 5 | EPA 353.2 | |
| 6 | EPA 365.4 | |
| 7 | EPA 160.1 | |
| 8 | EPA 310.1 | |

**Notes:**

# Quality Control Summary

# GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

## QC Summary

**Report Date: June 11, 2013**


**Los Alamos National Laboratory**
**PO Box 1663**
**TA-03, SM271, Drop Pt. 02U, Rm111**
**Los Alamos, New Mexico**

**Contact:** **Keith Greene**

**Workorder:** **326018**

| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Carbon Analysis** | | | | | | | | | | | | |
| Batch 1302796 | | | | | | | | | | | | |
| QC1202878486 325847001 DUP | | | | | | | | | | | | |
| Total Organic Carbon Average | | J | 0.772 | J | 0.796 | mg/L | 3.06 | ^ | | (+/-1.00) | TSM | 05/20/13 19:31 |
| QC1202878490 LCS | | | | | | | | | | | | |
| Total Organic Carbon Average | 10.0 | | | | 9.46 | mg/L | | | 94.6 | (85%-115%) | | 05/20/13 14:41 |
| QC1202878485 MB | | | | | | | | | | | | |
| Total Organic Carbon Average | | | | U | ND | mg/L | | | | | | 05/20/13 14:32 |
| QC1202878488 325847001 PS | | | | | | | | | | | | |
| Total Organic Carbon Average | 10.0 | J | 0.772 | | 10.5 | mg/L | | | 97.2 | (65%-120%) | | 05/20/13 19:51 |
| **Conductivity Analysis** | | | | | | | | | | | | |
| Batch 1305450 | | | | | | | | | | | | |
| QC1202885569 325847002 DUP | | | | | | | | | | | | |
| Conductivity | | | 192 | | 191 | umhos/cm | 0.575 | | | (0%-10%) | LXA1 | 06/03/13 16:03 |
| QC1202885571 LCS | | | | | | | | | | | | |
| Conductivity | 1410 | | | | 1450 | umhos/cm | | | 102 | (95%-105%) | | 06/03/13 15:57 |
| **Electrode Analysis** | | | | | | | | | | | | |
| Batch 1302797 | | | | | | | | | | | | |
| QC1202878491 325736002 DUP | | | | | | | | | | | | |
| pH | | H | 7.98 | H | 8.01 | SU | 0.375 | | | (0%-10%) | LYG1 | 05/20/13 08:50 |
| QC1202878493 LCS | | | | | | | | | | | | |
| pH | 7.00 | | | | 6.96 | SU | | | 99.4 | (99%-101%) | | 05/20/13 08:39 |
| **Ion Chromatography** | | | | | | | | | | | | |
| Batch 1303846 | | | | | | | | | | | | |
| QC1202881257 325847002 DUP | | | | | | | | | | | | |
| Bromide | | J | 0.0687 | U | ND | mg/L | N/A | ^ | | | MAR1 | 06/09/13 15:03 |
| Chloride | | | 4.23 | | 4.18 | mg/L | 1.07 | | | (0%-20%) | | |
| Fluoride | | | 0.319 | | 0.306 | mg/L | 4.45 | ^ | | (+/-0.100) | | |
| Sulfate | | | 4.82 | | 4.95 | mg/L | 2.59 | | | (0%-20%) | | |
| QC1202881259 LCS | | | | | | | | | | | | |
| Bromide | 1.25 | | | | 1.29 | mg/L | | | 103 | (90%-110%) | | 06/09/13 14:03 |

## QC Summary

**Workorder: 326018**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Ion Chromatography** | | | | | | | | | | | |
| Batch 1303846 | | | | | | | | | | | |
| Chloride | 5.00 | | | | 5.22 | mg/L | | 104 | (90%-110%) | MAR1 | 06/09/13 14:03 |
| Fluoride | 2.50 | | | | 2.66 | mg/L | | 106 | (90%-110%) | | |
| Sulfate | 10.0 | | | | 10.3 | mg/L | | 103 | (90%-110%) | | |
| QC1202881256 MB | | | | | | | | | | | |
| Bromide | | | | U | ND | mg/L | | | | | 06/09/13 13:33 |
| Chloride | | | | U | ND | mg/L | | | | | |
| Fluoride | | | | U | ND | mg/L | | | | | |
| Sulfate | | | | U | ND | mg/L | | | | | |
| QC1202881258 325847002 PS | | | | | | | | | | | |
| Bromide | 1.25 | J | 0.0687 | | 1.33 | mg/L | | 101 | (90%-110%) | | 06/09/13 15:33 |
| Chloride | 5.00 | | 4.23 | | 9.90 | mg/L | | 113* | (90%-110%) | | |
| Fluoride | 2.50 | | 0.319 | | 2.87 | mg/L | | 102 | (90%-110%) | | |
| Sulfate | 10.0 | | 4.82 | | 15.3 | mg/L | | 104 | (90%-110%) | | |
| **Nutrient Analysis** | | | | | | | | | | | |
| Batch 1302881 | | | | | | | | | | | |
| QC1202878737 325847002 DUP | | | | | | | | | | | |
| Nitrogen, Ammonia | | | 0.0526 | | 0.0684 | mg/L | 26.1 ^ | | (+/-0.050) | KLP1 | 05/22/13 10:47 |
| QC1202878741 LCS | | | | | | | | | | | |
| Nitrogen, Ammonia | 1.00 | | | | 1.10 | mg/L | | 110 | (90%-110%) | | 05/22/13 10:34 |
| QC1202878736 MB | | | | | | | | | | | |
| Nitrogen, Ammonia | | | | J | 0.0344 | mg/L | | | | | 05/22/13 10:33 |
| QC1202878739 325847002 MS | | | | | | | | | | | |
| Nitrogen, Ammonia | 1.00 | | 0.0526 | | 1.06 | mg/L | | 101 | (90%-110%) | | 05/22/13 10:48 |
| Batch 1302893 | | | | | | | | | | | |
| QC1202878783 325733001 DUP | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | | 0.183 | J | 0.081 | mg/L | 77.3*^ | | (+/-0.100) | KLP1 | 05/30/13 11:35 |
| QC1202878784 326427001 DUP | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | | 0.388 | | 0.373 | mg/L | 3.94 ^ | | (+/-0.100) | | 05/30/13 11:51 |

## QC Summary

**Workorder: 326018**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Nutrient Analysis** | | | | | | | | | | | |
| Batch 1302893 | | | | | | | | | | | |
| QC1202878787 LCS | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | | | | 0.967 | mg/L | | 96.7 | (90%-110%) | KLP1 | 05/30/13 11:33 |
| QC1202878782 MB | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | | | U | ND | mg/L | | | | | 05/30/13 11:32 |
| QC1202878785 325733001 MS | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | | 0.183 | | 1.17 | mg/L | | 98.7 | (90%-110%) | | 05/30/13 11:35 |
| QC1202878786 326427001 MS | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | | 0.388 | | 1.54 | mg/L | | 115* | (90%-110%) | | 05/30/13 11:52 |
| Batch 1302905 | | | | | | | | | | | |
| QC1202878827 325922002 DUP | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | | 0.446 | | 0.435 | mg/L | 2.50 | | (0%-20%) | KLP1 | 05/24/13 14:06 |
| QC1202878832 LCS | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | 1.00 | | | | 1.06 | mg/L | | 106 | (90%-110%) | | 05/24/13 13:34 |
| QC1202878825 MB | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | | | U | ND | mg/L | | | | | 05/24/13 13:33 |
| QC1202878830 325922002 PS | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | 1.00 | | 0.446 | | 1.47 | mg/L | | 102 | (90%-110%) | | 05/24/13 14:07 |
| Batch 1303593 | | | | | | | | | | | |
| QC1202880625 326018002 DUP | | | | | | | | | | | |
| Phosphorus, Total as P | | J | 0.030 | J | 0.0277 | mg/L | 7.97 ^ | | (+/-0.050) | KLP1 | 06/04/13 12:40 |
| QC1202880629 LCS | | | | | | | | | | | |
| Phosphorus, Total as P | 1.00 | | | | 0.993 | mg/L | | 99.3 | (76%-120%) | | 06/04/13 12:38 |
| QC1202880624 MB | | | | | | | | | | | |
| Phosphorus, Total as P | | | | U | ND | mg/L | | | | | 06/04/13 12:37 |
| QC1202880627 326018002 MS | | | | | | | | | | | |
| Phosphorus, Total as P | 1.00 | J | 0.030 | | 0.965 | mg/L | | 93.5 | (62%-139%) | | 06/04/13 12:41 |
| **Solids Analysis** | | | | | | | | | | | |
| Batch 1303373 | | | | | | | | | | | |
| QC1202880070 326056004 DUP | | | | | | | | | | | |
| Total Dissolved Solids | | | 357 | | 409 | mg/L | 13.4* | | (0%-10%) | LYG1 | 05/22/13 09:20 |
| QC1202880071 LCS | | | | | | | | | | | |
| Total Dissolved Solids | 300 | | | | 290 | mg/L | | 96.7 | (95%-105%) | | 05/22/13 09:20 |

## QC Summary

**Workorder: 326018**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Solids Analysis** | | | | | | | | | | |
| Batch 1303373 | | | | | | | | | | |
| QC1202880068 MB | | | | | | | | | | |
| Total Dissolved Solids | | | U | ND | mg/L | | | | LYG1 | 05/22/13 09:20 |
| **Titration Analysis** | | | | | | | | | | |
| Batch 1304792 | | | | | | | | | | |
| QC1202883815 326018002 DUP | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | 104 | | 104 | mg/L | 0.489 | | (0%-20%) | LXA1 | 05/30/13 17:28 |
| Carbonate alkalinity (CaCO3) | U | ND | U | ND | mg/L | N/A | | | | |
| QC1202883809 LCS | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | 50.0 | | | 50.8 | mg/L | | 102 | (90%-110%) | | 05/30/13 11:10 |
| QC1202883816 326018002 MS | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | 50.0 | 104 | | 155 | mg/L | | 103 | (80%-120%) | | 05/30/13 17:29 |

**Notes:**

| | |
|---|---|
| < | Result is less than value reported |
| > | Result is greater than value reported |
| B | The target analyte was detected in the associated blank. |
| E | %difference of sample and SD is >10%. Sample concentration must meet flagging criteria |
| E | General Chemistry--Concentration of the target analyte exceeds the instrument calibration range |
| FB | Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies |
| H | Analytical holding time was exceeded |
| J | Value is estimated |
| N | Metals--The Matrix spike sample recovery is not within specified control limits |
| N/A | RPD or %Recovery limits do not apply. |
| N1 | See case narrative |
| ND | Analyte concentration is not detected above the detection limit |
| NJ | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| Q | One or more quality control criteria have not been met. Refer to the applicable narrative or DER. |
| R | Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes. |
| R | Sample results are rejected |
| U | Analyte was analyzed for, but not detected above the MDL, MDA, or LOD. |
| X | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |

## QC Summary

**Workorder:** **326018**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|

| | |
|---|---|
| Y | Other specific qualifiers were required to properly define the results. Consult case narrative. |
| Z | Paint Filter Test--Particulates passed through the filter, however no free liquids were observed. |
| ^ | RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry. |
| d | 5-day BOD--The 2:1 depletion requirement was not met for this sample |
| h | Preparation or preservation holding time was exceeded |

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

# Miscellaneous

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 21-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| ELECTRODE | EPA 150.1 | Liquid | BETT, ESHL, GELC, UCOR |
| **Batch ID:** | **Sample Numbers:** | | |
| 1302797 | See below. | | |

**Potentially affected work order(s)(SDG):** **325724,325736(2013-840),325739(2013-841),325752,325759,325847(2013-847),325922(2013-855),325923(2013-856),326018(2013-865),326020(2013-866)**

**Application Issues:**

Sample received out of holding

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Sample received out of holding:<br>325724 001,002<br>325736 002,004<br>325739 002<br>325752 002,006,010<br>325759 007,013,019,025,031<br>325847 002<br>325922 002<br>325923 002<br>326018 002<br>326020 002 | 1. Samples were received out of holding. |

**Originator's Name:**
Lisa Gregory 22-MAY-13

**Data Validator/Group Leader:**
Julia Hamilton 29-MAY-13

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 29-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| BALANCE | EPA 160.1 | Liquid | ESHL, SUBR, UCOR |
| **Batch ID:** | **Sample Numbers:** | | |
| 1303373 | See below. | | |

**Potentially affected work order(s)(SDG): 325936,325982,326018(2013-865),326020(2013-866),326024,326056(2013-868)**

**Application Issues:**

Failed RPD for DUP

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed RPD for DUP:<br><br>QC 1202880070DUP<br><br>2. Consecutive weight check criteria not met:<br><br>325936009, 325982004, 325982005, 325982006, 325982010,<br><br>QC 1202880069, and QC 1202880070DUP | 1. The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample.<br><br>2. In order to meet consecutive weight check criteria, weight events must be within 0.0005g of each other. After initial weight checks failed this criteria, the analyst performed two additional weight events for Total Dissolved Solids. After four weight events, the analyst was unable to get the samples to conform to the criteria. The failure to meet weighback criteria is attributed to the matrix of the samples. |

**Originator's Name:**

Lisa Gregory 29-MAY-13

**Data Validator/Group Leader:**

Julia Hamilton 31-MAY-13

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 30-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| LACHAT Flow Injection Analyzer | EPA 351.2 | Liquid | BETT, ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1302893 | See below. | | |

**Potentially affected work order(s)(SDG):** **325733(2013-838),325736(2013-840),325739(2013-841),325752,325847(2013-847),325922(2013-855),325923(2013-856),326018(2013-865),326056(2013-868),326427(2013-887)**

**Application Issues:**

Failed Recovery for MS/PS

Failed RPD for DUP

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed Recovery for MS:<br>QC 1202878786MS<br>2. Failed RPD for DUP:<br>QC 1202878783DUP | 1. The spike recovery falls outside of the GEL acceptance limits but within the client specified limits.<br>2. The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample. |

**Originator's Name:**

Kristen Parson 30-MAY-13

**Data Validator/Group Leader:**

Julia Hamilton 30-MAY-13

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 11-JUN-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| IC | EPA 300.0 | Liquid | ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1303846 | See Below | | |

**Potentially affected work order(s)(SDG):** **325847(2013-847),325922(2013-855),325923(2013-856),326018(2013-865),326020(2013-866),326056(2013-868),326057(2013-869),326213(2013-873),326214(2013-874),326426(2013-886)**

**Application Issues:**

Failed Recovery for MS/PS

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed Recovery for MS/PS:<br><br>QC 1202881258PS | 1. The MS/PS mixture contains seven anions of interest. Of those, all requested anions except chloride met normal acceptance criteria for recovery (90 - 110%). This failure is attributed to the matrix of the sample because the successful recovery of the other compounds indicate that the laboratory process was in control. This variance is judged to have no negative impact on the data. The deviation is noted in the Case Narrative and DER, and the data has been reported. |

**Originator's Name:**
Mary Sherwood 11-JUN-13

**Data Validator/Group Leader:**
Virginia Wininger 11-JUN-13

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

# Chain of Custody/Analysis Request

COC/Lab Request #: 2013-856



**Client Contact:**

**Lab Agreement # :** 126310011

**Project Number :**

**Analysis Turnaround Time:**

- 24 Hour - ☐ Other - ☐
- 7 Day - ☐
- 14 Day - ☐
- 21 Day - ☐
- 28 Day - ☒

**Site Name:** Los Alamos National Laboratory

**Rad Screening Info:** Yes, Below Background

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | WSP-CL04 | WSP-GENINORG | WSP-Met+B+SN+SR+U | WSP-NH3+NO3/NO2+PO4 | WSP-TKN+TOC | Special Instructions: |
|---|---|---|---|---|---|---|---|---|---|
| CASA-13-30546 | May 15 2013 | 12:56 | W | | | | | 1 | |
| CASA-13-30554 | May 15 2013 | 12:56 | W | 1 | 1 | 1 | 1 | | |

Special Instructions:

| Relinquished by: | | Date/Time: | Received by: | |
|---|---|---|---|---|
| Melissa Montoya | | 5/16/13 3:00 | | |
| Relinquished by: | | Date/Time: | Received by: | |
| Relinquished by: | | Date/Time: | Received by: | |

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4194

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_SANDIA

**SAMPLE ID:** CASA-13-30546

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| **DATE COLLECTED (MM/DD/YYYY):** | | 05/15/2013 | **FIELD MATRIX:** | WG | ok |
| **TIME COLLECTED (HH:MM):** | | 1256 | **MEDIA:** | UA | ↓ |
| **PRS ID:** | | ok | **SAMPLE TECH CODE:** | UA | GSP |
| **LOCATION ID:** | R-43 S1 | ↓ | **FIELD PREP:** | UF | ok |
| **LOCATION TYPE:** | MON | ↓ | **FIELD QC TYPE:** | REG | ↓ |
| **PORT:** | P1A | ↓ | **SAMPLE USAGE:** | INV | ↓ |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-TKN+TOC | 500 ML AMBER GLASS | 1 | H2SO4 | Y | NA |

**SAMPLE COMMENTS:**

NA

**LOCATION COMMENTS:**

diesel generator running 40' away

**FIELD PARAMETERS:**

Dissolved Oxygen NA mg/L Oxidation-Reduction Potential NA MV pH NA SU

Specific Conductance NA uS/cm Temperature NA deg C Turbidity NA NTU

**COLLECTED BY (PRINT)** W. Stein

| | | | |
|---|---|---|---|
| **RELINQUISHED BY (Printed Name) (Signature)** Andrew Stokes | **Date/Time** 5/15/13 1355 | **RECEIVED BY (Printed Name) (Signature)** M. Montoya | **Date/Time** 5/15/13 1355 |
| **RELINQUISHED BY (Printed Name) (Signature)** | **Date/Time** | **RECEIVED BY (Printed Name) (Signature)** | **Date/Time** |

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4194

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_SANDIA

**SAMPLE ID:** CASA-13-30554

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | 05/15/2013 | FIELD MATRIX: | WG | ok |
| TIME COLLECTED (HH:MM): | | 1256 | MEDIA: | UA | ↓ |
| PRS ID: | | ok | SAMPLE TECH CODE: | UA | GSP |
| LOCATION ID: | R-43 S1 | ↓ | FIELD PREP: | F | ok |
| LOCATION TYPE: | MON | ↓ | FIELD QC TYPE: | REG | ↓ |
| PORT: | P1A | ↓ | SAMPLE USAGE: | INV | ↓ |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-CL04 | 250 ML POLY | 1 | ICE | Y | NA |
| ↓ | WSP-GENINORG | 1 LITER POLY | 1 | ICE | ↓ | ↓ |
| ↓ | WSP-Met+B+SN+SR+U | 1 LITER POLY | 1 | HNO3 | ↓ | ↓ |
| ↓ | WSP-NH3+NO3/NO2+PO4 | 500 ML AMBER GLASS | 1 | H2SO4 | ↓ | ↓ |

**SAMPLE COMMENTS:**

NA

**LOCATION COMMENTS:** diesel generator running 40' away

**FIELD PARAMETERS:**

Dissolved Oxygen 6.81 mg/L  Oxidation-Reduction Potential 223.4 MV  pH 8.17 SU

Specific Conductance 183 uS/cm  Temperature 20.16 deg C  Turbidity 1.88 NTU

**COLLECTED BY (PRINT)** W Straw

| RELINQUISHED BY (Printed Name) (Signature) | Date/Time | RECEIVED BY (Printed Name) (Signature) | Date/Time |
|---|---|---|---|
| Andrew Stokes | 5/15/13 1355 | A. Montoya | 5/15/13 1355 |
| RELINQUISHED BY (Printed Name) (Signature) | Date/Time | RECEIVED BY (Printed Name) (Signature) | Date/Time |
| | | | |

Report Date 04/30/2013

Data Validation Report

Chain Of Custody No. 2013-856

**1. Distribution Of Samples In EDD.**

| SDG | Analytical Method | Regular Samples | Field Duplicates | Trip Blanks | Field Blanks | Equipment Blanks |
|---|---|---|---|---|---|---|
| 325923 | EPA:120.1 | 1 | | | | |
| 325923 | EPA:150.1 | 1 | | | | |
| 325923 | EPA:160.1 | 1 | | | | |
| 325923 | EPA:245.2 | 1 | | | | |
| 325923 | EPA:300.0 | 1 | | | | |
| 325923 | EPA:310.1 | 1 | | | | |
| 325923 | EPA:350.1 | 1 | | | | |
| 325923 | EPA:351.2 | 1 | | | | |
| 325923 | EPA:353.2 | 1 | | | | |
| 325923 | EPA:365.4 | 1 | | | | |
| 325923 | SM:A2340B | 1 | | | | |
| 325923 | SW-846:6010B | 1 | | | | |
| 325923 | SW-846:6020 | 1 | | | | |
| 325923 | SW-846:6850 | 1 | | | | |
| 325923 | SW-846:9060 | 1 | | | | |

| SDG | Analytical Method | Analysis Lot ID | Prep Lot ID | Regular Samples | Field Duplicates | Trip Blanks | Field Blanks | Equipment Blanks | Method Blanks | Matrix Spikes | Matrix Spike Dups |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 325923 | EPA:120.1 | 1305450 | 1305450 | 1 | | | | | | | |
| 325923 | EPA:150.1 | 1302797 | 1302797 | 1 | | | | | | | |
| 325923 | EPA:160.1 | 1302792 | 1302792 | 1 | | | | | 1 | | |
| 325923 | EPA:245.2 | 1304495 | 1304494 | 1 | | | | | 1 | 1 | |
| 325923 | EPA:300.0 | 1303846 | 1303846 | 1 | | | | | 1 | | |
| 325923 | EPA:310.1 | 1304276 | 1304276 | 1 | | | | | 2 | 1 | |
| 325923 | EPA:350.1 | 1302881 | 1302880 | 1 | | | | | 1 | 1 | |
| 325923 | EPA:351.2 | 1302893 | 1302892 | 1 | | | | | 1 | 2 | |
| 325923 | EPA:353.2 | 1302905 | 1302905 | 1 | | | | | 1 | | |
| 325923 | EPA:365.4 | 1303593 | 1303592 | 1 | | | | | 1 | 1 | |
| 325923 | SM:A2340B | 1306982 | 1306982 | 1 | | | | | | | |
| 325923 | SW-846:6010B | 1304837 | 1304836 | 1 | | | | | 1 | 1 | |
| 325923 | SW-846:6020 | 1304840 | 1304838 | 1 | | | | | 1 | 1 | |
| 325923 | SW-846:6850 | 1302799 | 1302798 | 1 | | | | | 1 | 2 | 2 |
| 325923 | SW-846:9060 | 1302796 | 1302796 | 1 | | | | | 1 | | |

**2. Distribution Of Analytes In EDD.**

| Analytical Method | Method Category | Field Sample ID | Lab Sample ID | Sample Purpose | Target Analytes | Surrogates | Spikes | TICS |
|---|---|---|---|---|---|---|---|---|
| EPA:120.1 | GENERAL CHEMISTRY | CASA-13-30554 | 325923002 | REG | 1 | 0 | 0 | 0 |
| EPA:120.1 | GENERAL CHEMISTRY | CASA-13-30555 | 1202885569 | DUP | 1 | 0 | 0 | 0 |
| EPA:120.1 | GENERAL CHEMISTRY | LCS | 1202885571 | LCS | 0 | 0 | 1 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | CASA-13-30550 | 1202878491 | DUP | 1 | 0 | 0 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | CASA-13-30554 | 325923002 | REG | 1 | 0 | 0 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | LCS | 1202878493 | LCS | 0 | 0 | 1 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | CAMO-13-30618 | 1202878468 | DUP | 1 | 0 | 0 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | CASA-13-30554 | 325923002 | REG | 1 | 0 | 0 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | LCS | 1202878471 | LCS | 0 | 0 | 1 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | MB | 1202878466 | MB | 1 | 0 | 0 | 0 |

Data Validation Report for:

Chain Of Custody No. 2013-856

| Analytical Spikes | Post-Digestion Spikes | Lab Control Samples | Lab Control Sample Dups | Blank Spikes | Blank Spike Dups | Lab Duplicates | Storage Blanks | Preparation Blanks | Reagent Blanks |
|---|---|---|---|---|---|---|---|---|---|
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 2 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 2 | | | |
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| | | | | | | | | | |
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| | | 1 | | | | 1 | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| EPA:245.2 | INORGANIC | CASA-13-30554 | 1202883025 | DUP | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CASA-13-30554 | 1202883026 | MS | 0 | 0 | 1 | 0 |
| EPA:245.2 | INORGANIC | CASA-13-30554 | 325923002 | REG | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | LCS | 1202883024 | LCS | 0 | 0 | 1 | 0 |
| EPA:245.2 | INORGANIC | MB | 1202883023 | MB | 1 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | CASA-13-30554 | 325923002 | REG | 4 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | CASA-13-30555 | 1202881257 | DUP | 4 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | LCS | 1202881259 | LCS | 0 | 0 | 4 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | MB | 1202881256 | MB | 4 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CASA-13-30554 | 1202882525 | DUP | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CASA-13-30554 | 1202882526 | MS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CASA-13-30554 | 325923002 | REG | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | LCS | 1202882521 | LCS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | LCS | 1202882819 | LCS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | MB | 1202882520 | MB | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | MB | 1202882818 | MB | 2 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CASA-13-30554 | 325923002 | REG | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CASA-13-30555 | 1202878737 | DUP | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CASA-13-30555 | 1202878739 | MS | 0 | 0 | 1 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | LCS | 1202878741 | LCS | 0 | 0 | 1 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | MB | 1202878736 | MB | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-31070 | 1202878783 | DUP | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-31070 | 1202878785 | MS | 0 | 0 | 1 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CASA-13-30546 | 325923001 | REG | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | LCS | 1202878787 | LCS | 0 | 0 | 1 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | MB | 1202878782 | MB | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | SWWS46-13-33497 | 1202878784 | DUP | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | SWWS46-13-33497 | 1202878786 | MS | 0 | 0 | 1 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CAMO-13-30618 | 1202878827 | DUP | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CASA-13-30554 | 325923002 | REG | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | LCS | 1202878832 | LCS | 0 | 0 | 1 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | MB | 1202878825 | MB | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CASA-13-30551 | 1202880625 | DUP | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CASA-13-30551 | 1202880627 | MS | 0 | 0 | 1 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CASA-13-30554 | 325923002 | REG | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | LCS | 1202880629 | LCS | 0 | 0 | 1 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | MB | 1202880624 | MB | 1 | 0 | 0 | 0 |
| SM:A2340B | INORGANIC | CASA-13-30554 | 325923002 | REG | 1 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30594 | 1202883951 | DUP | 17 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30594 | 1202883952 | MS | 0 | 0 | 17 | 0 |
| SW-846:6010B | INORGANIC | CASA-13-30554 | 325923002 | REG | 17 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | LCS | 1202883950 | LCS | 0 | 0 | 17 | 0 |
| SW-846:6010B | INORGANIC | MB | 1202883949 | MB | 17 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30594 | 1202883956 | DUP | 11 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30594 | 1202883957 | MS | 0 | 0 | 11 | 0 |
| SW-846:6020 | INORGANIC | CASA-13-30554 | 325923002 | REG | 11 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | LCS | 1202883955 | LCS | 0 | 0 | 11 | 0 |
| SW-846:6020 | INORGANIC | MB | 1202883954 | MB | 11 | 0 | 0 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | CAMO-13-30600 | 1202878496 | MS | 0 | 0 | 1 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | CAMO-13-30600 | 1202878497 | MSD | 0 | 0 | 1 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | CASA-13-30554 | 325923002 | REG | 1 | 0 | 0 | 0 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| SW-846:6850 | LCMS/MS PERCHLORATE | LCS | 1202878495 | LCS | 0 | 0 | 1 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | MB | 1202878494 | MB | 1 | 0 | 0 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | SWWS46-13-33504 | 1202882336 | MS | 0 | 0 | 1 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | SWWS46-13-33504 | 1202882337 | MSD | 0 | 0 | 1 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | CASA-13-30546 | 325923001 | REG | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | CASA-13-30547 | 1202878486 | DUP | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | LCS | 1202878490 | LCS | 0 | 0 | 1 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | MB | 1202878485 | MB | 1 | 0 | 0 | 0 |

**3. Are any analytes missing?**

No.

**4. Were any holding times exceeded?**

No.

**5. Any contaminants in blanks?**

| Field Sample ID | Lab Sample ID | Type Of Blank | Analytical Method | Sample Matrix | Parameter Name | Lab Result | Lab Qualifier | Units | Lab Detection Limit |
|---|---|---|---|---|---|---|---|---|---|
| MB | 1202878736 | METHOD BLANK | EPA:350.1 | W | Ammonia as Nitrogen | 0.0344 | J | mg/L | 0.05 |

**Any samples affected by the presence of contaminants in blanks?**

| Field Sample ID | Blank Field Sample ID | Blank Lab Sample ID | Blank Type | Analytical Method | Parameter Name | Units | Blank Result | Sample Result | Lab Qualifier | Detect Limit | Detected |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CASA-13-30554 | MB | 1202878736 | METHOD BLANK | EPA:350.1 | Ammonia as Nitrogen | mg/L | 0.0344 | 0.0911 | | 0.05 | Y |

**6. Any surrogate recoveries outside the control limits?**

No.

**7. Any MS/MSD recoveries or RPDs outside the control limits?**

| Field Sample ID | Matrix Spike ID | Matrix Spike Dup ID | Analytical Method | Parameter Name | Analysis Lot ID | Analysis Date | Sample Matrix | MS % Recvry | MSD % Recvry | Upper Limit | Lower Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SWWS46-13-33497 | 1202878786 | | EPA:351.2 | Total Kjeldahl Nitrogen | 1302892 | 5/30/2013 | W | 115 | | 110 | 90 |
| CAMO-13-30594 | 1202883952 | | SW-846:6010B | Silicon Dioxide | 1304836 | 6/6/2013 | W | 62.8 | | 125 | 75 |

**8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?**

No.

**9. Any Field Duplicate RPDs outside the desired limits?**

No.

**10. Any Lab Duplicate RPDs outside the desired limits?**

Data Validation Report for:

Chain Of Custody No. 2013-856

| Correction Factor (ND) | Correction Factor (J) | Use Factors |
|---|---|---|
| 5 | | Y |

| Rejection Limit | RPD | RPD Limit |
|---|---|---|
| 10 | | |
| 10 | | |

No.

**11. Any required reporting limits exceeded?**

No.

**12. Additional Validator's Coments.**

None.

**13. Display Flagged Data.**

| Location ID | Chain Of Custody No | Field Sample ID | Sample Purpose | Analysis Type Code | Analytical Suite | Analytical Method | Parameter Name | Lab Qualifier | Validation Qualifier | Validation Reason Codes | Detected |
|---|---|---|---|---|---|---|---|---|---|---|---|
| R-43 S1 | 2013-856 | CASA-13-30554 | REG | INIT | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | | U | I4 | N |

| Reason Code | Description |
|---|---|
| I4 | the sample result is =<5x the concentration of related analyte in the method blank. |
| J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL |
| NQ | The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample. |
| U_LAB | The analytical laboratory qualified the analyte as not detected. |

**14. Useable Result Count.**

| Field Sample ID | Location ID | Sample Purpose | Analytical Method | No. Unuseable Records | Total No. Of Records |
|---|---|---|---|---|---|
| CASA-13-30546 | R-43 S1 | REG | EPA:351.2 | 0 | 1 |
| CASA-13-30546 | R-43 S1 | REG | SW-846:9060 | 0 | 1 |
| CASA-13-30554 | R-43 S1 | REG | EPA:120.1 | 0 | 1 |
| CASA-13-30554 | R-43 S1 | REG | EPA:150.1 | 0 | 1 |
| CASA-13-30554 | R-43 S1 | REG | EPA:160.1 | 0 | 1 |
| CASA-13-30554 | R-43 S1 | REG | EPA:245.2 | 0 | 1 |
| CASA-13-30554 | R-43 S1 | REG | EPA:300.0 | 0 | 4 |
| CASA-13-30554 | R-43 S1 | REG | EPA:310.1 | 0 | 2 |
| CASA-13-30554 | R-43 S1 | REG | EPA:350.1 | 0 | 1 |
| CASA-13-30554 | R-43 S1 | REG | EPA:353.2 | 0 | 1 |
| CASA-13-30554 | R-43 S1 | REG | EPA:365.4 | 0 | 1 |
| CASA-13-30554 | R-43 S1 | REG | SM:A2340B | 0 | 1 |
| CASA-13-30554 | R-43 S1 | REG | SW-846:6010B | 0 | 17 |
| CASA-13-30554 | R-43 S1 | REG | SW-846:6020 | 0 | 11 |
| CASA-13-30554 | R-43 S1 | REG | SW-846:6850 | 0 | 1 |

Data Validation Report for:

Chain Of Custody No. 2013-856

| Lab Result | Lab Units | Report Result | Report Units | Report MDA | Report Uncertainty | Lab Matrix | Sample Date | Percent Moisture | Analysis Lot ID | Validation Status Code | Use Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0911 | mg/L | 0.0911 | mg/L | | | W | 5/15/2013 | | 1302881 | VAL | Y |

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178
www.gel.com

June 13, 2013

Keith Greene
Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Re: LANL-WQH Water Samples
Work Order: 325923
SDG: 2013-856

Dear Keith Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on May 17, 2013, and analyzed for General Chemistry, Metals and Perchlorates by LCMSMS. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,

for
Valerie Davis
Project Manager

Purchase Order: 63641-10
Chain of Custody: 2013-856
Enclosures

**ARS International (63641-10)**
**LANL-WQH Water Samples**
**Work Order #: 325923**
**SDG: 2013-856**

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# Case Narrative

**Case Narrative for**
**ARS International (63641-10)**
**LANL-WQH Water Samples**
**Workorder #: 325923**
**SDG # : 2013-856**

**June 13, 2013**

**Laboratory Identification:**

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

**Summary**

**Sample receipt** The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on May 17, 2013 for analysis. The samples were delivered with proper chain of custody documentation and signatures. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. Containers were checked for pH, where appropriate, and matched the preservative as documented on the accompanying chain of custody. Shipping container temperature was within specification (0 - 6C). Shipping container temperatures were checked, documented, and within specifications. There are no additional comments concerning sample receipt.

**Sample Identification** The laboratory received the following samples:

| Laboratory ID | Client ID |
|---|---|
| 325923001 | CASA-13-30546 |
| 325923002 | CASA-13-30554 |

**Case Narrative**

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

**Data Package**

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: General Chemistry, Metals and Perchlorates by LCMSMS.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.

for

Valerie Davis
Project Manager

**List of current GEL Certifications as of 13 June 2013**

| State | Certification |
|---|---|
| Alaska | UST−110 |
| Arkansas | 88−0651 |
| CLIA | 42D0904046 |
| California NELAP | 01151CA |
| Colorado | SC00012 |
| Connecticut | PH−0169 |
| Delaware | SC00012 |
| DoD ELAP A2LA ISO 17025 | 2567.01 |
| Florida NELAP | E87156 |
| Foreign Soils Permit | P330−12−00283, P330−12−00284 |
| Georgia | SC00012 |
| Georgia SDWA | 967 |
| Hawaii | SC00012 |
| Idaho | SC00012 |
| Illinois NELAP | 200029 |
| Indiana | C−SC−01 |
| Kansas NELAP | E−10332 |
| Kentucky | 90129 |
| Louisiana NELAP | 03046 (AI33904) |
| Louisiana SDWA | LA130005 |
| Maryland | 270 |
| Massachusetts | M−SC012 |
| Nevada | SC000122011−1 |
| New Hampshire NELAP | 2054 |
| New Jersey NELAP | SC002 |
| New Mexico | SC00012 |
| New York NELAP | 11501 |
| North Carolina | 233 |
| North Carolina SDWA | 45709 |
| Oklahoma | 9904 |
| Pennsylvania NELAP | 68−00485 |
| Plant Material Permit | PDEP−12−00260 |
| South Carolina Chemistry | 10120001 |
| South Carolina Radiochemi | 10120002 |
| Tennessee | TN 02934 |
| Texas NELAP | T104704235−13−8 |
| Utah NELAP | SC000122013−8 |
| Vermont | VT87156 |
| Virginia NELAP | 460202 |
| Washington | C780−12 |
| Wisconsin | 999887790 |

# Chain of Custody and Supporting Documentation

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

# Chain of Custody/Analysis Request

325923

**COC/Lab Request #:** 2013-856

Page 1 of 1

**Client Contact:**

**Lab Agreement # :** 126310011

**Project Number :**

**Analysis Turnaround Time:**

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

**Site Name:** Los Alamos National Laboratory

**Rad Screening Info:** Yes, Below Background

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | WSP-CL04 | WSP-GENINORG | WSP-Met+B+SN+SR+U | WSP-NH3+NO3/NO2+PO4 | WSP-TKN+TOC |
|---|---|---|---|---|---|---|---|---|
| CASA-13-30546 | May 15 2013 | 12:56 | W | | | | | 1 |
| CASA-13-30554 | May 15 2013 | 12:56 | W | 1 | 1 | 1 | 1 | |

**Special Instructions:**

Special Instructions:

| | | | | |
|---|---|---|---|---|
| Relinquished by: Melissa Montoya | | Date/Time: 5/16/13 3:00 | Received by: P. Ulent | 5-17-13 0900 |
| Relinquished by: | | Date/Time: | Received by: | |
| Relinquished by: | | Date/Time: | Received by: | |

GEL Laboratories LLC

# SAMPLE RECEIPT & REVIEW FORM

| | |
|---|---|
| Client: LANL | SDG/AR/COC/Work Order: 2013-856 |
| Received By: P. Ident | Date Received: 5-17-13 |

| Suspected Hazard Information | Yes | No | *If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation. |
|---|---|---|---|
| COC/Samples marked as radioactive? | | X | Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 CPM |
| Classified Radioactive II or III by RSO? | | X | If yes, Were swipes taken of sample contatiners < action levels? |
| COC/Samples marked containing PCBs? | | X | |
| Package, COC, and/or Samples marked as beryllium or asbestos containing? | | X | If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group. |
| Shipped as a DOT Hazardous? | | X | Hazard Class Shipped: UN#: |
| Samples identified as Foreign Soil? | | X | |

| | Sample Receipt Criteria | Yes | NA | No | Comments/Qualifiers (Required for Non-Conforming Items) |
|---|---|---|---|---|---|
| 1 | Shipping containers received intact and sealed? | X | | | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) 5C |
| 2 | Samples requiring cold preservation within (0 ≤ 6 deg. C)?* | X | | | Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius |
| 2a | Daily check performed and passed on IR temperature gun? | X | | | Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable): 61524649 |
| 3 | Chain of custody documents included with shipment? | X | | | |
| 4 | Sample containers intact and sealed? | X | | | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 5 | Samples requiring chemical preservation at proper pH? | X | | | Sample ID's, containers affected and observed pH: If Preservation added, Lot#: |
| 6 | VOA vials free of headspace (defined as < 6mm bubble)? | | X | | Sample ID's and containers affected: |
| 7 | Are Encore containers present? | | | X | (If yes, immediately deliver to Volatiles laboratory) |
| 8 | Samples received within holding time? | X | | | ID's and tests affected: |
| 9 | Sample ID's on COC match ID's on bottles? | X | | | Sample ID's and containers affected: |
| 10 | Date & time on COC match date & time on bottles? | X | | | Sample ID's affected: |
| 11 | Number of containers received match number indicated on COC? | | | X | Sample ID's affected: WST50-13-34627 the Lab rec'd 1 container for 8082 chain indicates 2. |
| 12 | Are sample containers identifiable as GEL provided? | | | X | Clients |
| 13 | COC form is properly signed in relinquished/received sections? | X | | | |
| 14 | Carrier and tracking number. | X | | | Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other 5462 9833 0230-5 |

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials HH Date 052013 Page 1 of 1

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 16MAY13
ACTWGT: 44.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: X5D10010AW10

5C

5BDC1/9983/18BC

FedEx Express

J1113110606012 5

2 of 2

MPS# 0263 5462 9833 0230
Mstr# 5462 9833 0229

FRI - 17 MAY 10:30A
PRIORITY OVERNIGHT

0201

XX CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 08/10 ®

# Data Review Qualifier Flag Definition Sheet

## Data Review Qualifier Definitions

| Qualifier | Explanation |
|---|---|
| * | A quality control analyte recovery is outside of specified acceptance criteria |
| ** | Analyte is a surrogate compound |
| < | Result is less than value reported |
| > | Result is greater than value reported |
| ^ | RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL |
| A | The TIC is a suspected aldol-condensation product |
| B | Target analyte was detected in the associated blank |
| B | Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL |
| BD | Results are either below the MDC or tracer recovery is low |
| C | Analyte has been confirmed by GC/MS analysis |
| D | Results are reported from a diluted aliquot of the sample |
| d | 5-day BOD-The 2:1 depletion requirement was not met for this sample |
| E | Organics-Concentration of the target analyte exceeds the instrument calibration range |
| E | Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria |
| H | Analytical holding time was exceeded |
| h | Preparation or preservation holding time was exceeded |
| J | Value is estimated |
| N | Metals-The Matrix spike sample recovery is not within specified control limits |
| N | Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N/A | Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more |
| ND | Analyte concentration is not detected above the reporting limit |
| UI | Gamma Spectroscopy-Uncertain identification |
| X | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| Y | QC Samples were not spiked with this compound |
| Z | Paint Filter Test-Particulates passed through the filter, however no free liquids were observed. |

# Perchlorates by LCMSMS Analysis

# Case Narrative

## Method/Analysis Information

| | |
|---|---|
| **Procedure:** | **Definitive Low Level Perchlorate Analysis Utilizing Liquid Chromatography/Mass Spectrometry/Mass Spectrometry (LC/MS/MS) by EPA Method 6850 Modified (6850M)** |
| Analytical Method: | SW846 6850 Modified |
| Prep Method: | SW846 6850 Modified |
| Analytical Batch Number: | 1302799 |
| Prep Batch Number: | 1302798 |

## Sample Analysis

| Sample ID | Client ID |
|---|---|
| 325923002 | CASA-13-30554 |
| 1202878498 | Interference Check Sample (ICS) |
| 1202878494 | Method Blank (MB) |
| 1202878495 | Laboratory Control Sample (LCS) |
| 1202878496 | 326020002(CAMO-13-30600) Matrix Spike (MS) |
| 1202878497 | 326020002(CAMO-13-30600) Matrix Spike Duplicate (MSD) |

The samples in this SDG were analyzed on an "as received" basis.

## Preparation/Analytical Method Verification

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-067 REV# 10.

## Calibration Information

**Initial Calibration**
All initial calibration requirements have been met for this SDG. Due to software constraints, all Initial Calibration Blanks must be designated as IPB001.

**ICV Requirements**
All associated initial calibration verification standard(s) (ICV) met the acceptance criteria.

**CCB Requirements**
All continuing calibration blanks (CCB) bracketing the analyses associated with this batch were within acceptance criteria.

**CCV Requirements**
All continuing calibration checks (CCV) requirements were met by all bracketing CCV standards.

**Low Level Standard (CRI) Requirements**
All low level calibration verification (CRI) requirements were met by all bracketing CRI standards.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Interference Check Sample (ICS)**
The ICS met all recovery acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recoveries met the acceptance limits.

**QC Sample Designation**
Client sample 326020002 (CAMO-13-30600) was chosen for matrix spike and matrix spike duplicate analysis.

**Matrix Spike (MS) Recovery Statement**
The Perchlorate recovery in the matrix spike 1202878496 (CAMO-13-30600) was below the acceptance limits. The recovery for Perchlorate was 35% and with an acceptance range of 75-125%. The low recovery was attributed to a significant background concentration of Perchlorate in the parent sample and sample dilutions needed to analyze the extracts. Data were reported with the appropriate Data Exception Report (DER).

**Matrix Spike Duplicate (MSD) Recovery Statement**
The Perchlorate and Perchlorate-101 recoveries in the matrix spike duplicate 1202878497 (CAMO-13-30600) were below the acceptance limits. The recovery for Perchlorate was 29% and with an acceptance range of 75-125%. The low recovery was attributed to a significant background concentration of Perchlorate in the parent sample and sample dilutions needed to analyze the extracts. Data were reported with the appropriate Data Exception Report (DER).

**MS/MSD Relative Percent Difference (RPD) Statement**
The RPD(s) between the MS and MSD met the acceptance limits.

**Retention Time Standard Area Acceptance**
The retention time standard areas were within the required acceptance criteria for all samples and QC.

**Retention Time**
During the analysis of Perchlorate by LC/MS/MS, retention time shifts are commonly observed. These retention time shifts, which are caused by fouling of the column by the sample matrices, are problematic when the retention time is used as one of the criterion for confirmation. To overcome this problem, a known amount of O(18) labeled Perchlorate was added to each sample as a retention time standard. The presence of Perchlorate was confirmed by the relative retention time (RRT) of the Perchlorate peak and the O(18) standard. A RRT window of 0.98 to 1.02, as required by Method 332.0, has been used. In addition to the isotopic ratio, the presence of Perchlorate in the samples associated with this data package have been confirmed using the relative retention criteria stated above, not the absolute retention time.

## Technical Information

### Holding Time Specifications
All samples in this SDG in this analytical batch met the specified holding time. GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

### Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

### Sample Dilutions
Samples 1202878496 (CAMO-13-30600) and 1202878497 (CAMO-13-30600) were diluted due to over range target analytes.

### Sample Re-extraction/Re-analysis
The samples in this batch were initially analyzed on 05/28/13, however the batch was re-analyzed due to unacceptable responses in the calibration verification standards bracketing the samples. The samples were re-analyzed the following day and data were reported.

## Miscellaneous Information

### Data Exception (DER) Documentation
The following DER was generated for this SDG: 1190616.

### Manual Integrations
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations.

### Method Comments
The samples in this SDG were not originally analyzed using EPA Method 314.0.

### Additional Comments
The Perchlorate Isotope Ratio on the Form I may differ slightly from the ratio on the corresponding raw data due to rounding rules and/or significant figures or due to software limitations when there are manual integrations, dilutions or other factors. The ratio value of the Form I is the correct value. The retention time marker, Perchlorate-O (18), is added to all samples, instrument blanks, and standards prior to injection. It is used to verify the retention time of Perchlorate and Perchlorate-101 and to insure an accurate injection occurred. Due to various anions affecting the recovery of Perchlorate-O (18) and not Perchlorate and Perchlorate-101, the calibration curves of Perchlorate and Perchlorate-101 are not internally corrected for using Perchlorate-O (18). They are external calibrations.

### Perchlorate Isotope Ratio
The Perchlorate isotope ratio met acceptance criteria for all samples and QC samples. Please see the isotope ratio criteria in the Miscellaneous Section.

## System Configuration

The laboratory utilizes a Waters LC 2795 liquid chromatography instrument for Perchlorate analysis. It is coupled with either a Micromass Quattro Micro Mass Spectrometer/ Mass Spectrometer, or a Micromass Quattro Ultima Mass Spectrometer/ Mass Spectrometer. Each being designated as LCMSMS #1 and LCMSMS #2, respectively. It is fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis. The laboratory may also utilize an Agilent 1100 liquid chromatography instrument for Perchlorate analysis. It is coupled with an Applied Biosystems 4000 Mass Spectrometer/ Mass Spectrometer, designated as LCMSMS #3 or LCMSMS #4. It is also fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Chromatographic Columns**

Chromatographic separation of Perchlorate is accomplished through analysis on the following anion column:

Dionex: IonPac AG-16 2 x 50 mm.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-856 GEL Work Order: 325923

**The Qualifiers in this report are defined as follows:**

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

**Review/Validation**

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

**Signature:** Pat Steele **Name: Patricia Steele**

**Date: 03 JUN 2013** **Title: Data Validator**

# Sample Data Summary

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1302798

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CASA-13-30554

**Date Received:** 17-MAY-13

**GEL Job No (SDG):** 2013-856

**GEL Sample ID:** 325923002

**Date Filtered:** 28-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.895 | ug/L | | 1 | 29-MAY-13 18:20 | per0529020a |
| | Perchlorate Isotope Ratio | | | 3.15 | | | 1 | 29-MAY-13 18:20 | per0529020a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.885 | ug/L | | 1 | 29-MAY-13 18:20 | per0529020a |
| | Perchlorate-O(18) | | | 0.494 | ug/L | | 1 | 29-MAY-13 18:20 | per0529020a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Quality Control Summary

## Perchlorate Laboratory Control Sample

**Lab Name:** General Engineering Laboratories

**Lab Code:** GEL

**GEL Job No. (SDG):** 2013-856

**Extract Batch Code:** 1302798

**Date Filtered:** 28-MAY-13

**Matrix:** WATER

**Sample ID:** 1202878495

| Analyte^ | True | Found | Units | %Rec | Q | Control Limits |
|---|---|---|---|---|---|---|
| Perchlorate | 0.200 | .196 | ug/L | 98.2 | | 85 - 115 |
| Perchlorate Isotope Ratio | | 2.91 | | | | - |
| Perchlorate-101 | 0.200 | .21 | ug/L | 105 | | 85 - 115 |
| Perchlorate-O(18) | | .479 | ug/L | | | - |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

## Perchlorate Spike/Spike Duplicate Summary

**Lab Name:** General Engineering Laboratories

**Lab Code:** GEL

**GEL Job No (SDG):** 2013-856

**Extract Batch Code:** 1302798

**Date Extracted:** 28-MAY-13

**GEL MS/PS ID:** 1202878496

**Client ID:** CAMO-13-30600

**GEL MSD/PSD ID:** 1202878497

**QC Type:** MS

| Compound^ | Spike Added | Sample Conc | Units | MS Conc | MS Rec | # | MSD Conc | MSD Rec | # | RPD | # | RPD Limit | Recovery Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Perchlorate | 0.200 | 5.82 | ug/L | 5.89 | 34.9 | * | 5.88 | 29.4 | * | .186 | | 30 | 75 - 125 |
| Perchlorate Isotope Ratio | 0 | 3.16 | | 3.1 | | | 3.15 | | | 1.64 | | | - |
| Perchlorate-101 | 0.200 | 5.73 | ug/L | 5.91 | 89.3 | | 5.8 | 35.8 | * | 1.83 | | 30 | 75 - 125 |
| Perchlorate-O(18) | 0 | 4.70 | ug/L | 4.77 | | | 4.72 | | | 1.05 | | | - |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

# Quality Control Data

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** EPA 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1302798

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
MB

**Date Received:** 28-MAY-13

**GEL Job No (SDG):** 2013-856

**GEL Sample ID:** 1202878494

**Date Filtered:** 28-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.200 | ug/L | U | 1 | 29-MAY-13 17:16 | per0529012a |
| | Perchlorate Isotope Ratio | | | | | | 1 | 29-MAY-13 17:16 | per0529012a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.200 | ug/L | U | 1 | 29-MAY-13 17:16 | per0529012a |
| | Perchlorate-O(18) | | | 0.504 | ug/L | | 1 | 29-MAY-13 17:16 | per0529012a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** EPA 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1302798

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
LCS

**Date Received:** 28-MAY-13

**GEL Job No (SDG):** 2013-856

**GEL Sample ID:** 1202878495

**Date Filtered:** 28-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.196 | ug/L | J | 1 | 29-MAY-13 17:24 | per0529013a |
| | Perchlorate Isotope Ratio | | | 2.91 | | | 1 | 29-MAY-13 17:24 | per0529013a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.210 | ug/L | | 1 | 29-MAY-13 17:24 | per0529013a |
| | Perchlorate-O(18) | | | 0.479 | ug/L | | 1 | 29-MAY-13 17:24 | per0529013a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1302798

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
ICS

**Date Received:**

**GEL Job No (SDG):** 2013-856

**GEL Sample ID:** 1202878498

**Date Filtered:** 28-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.205 | ug/L | | 1 | 29-MAY-13 17:32 | per0529014a |
| | Perchlorate Isotope Ratio | | | 3.23 | | | 1 | 29-MAY-13 17:32 | per0529014a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.198 | ug/L | J | 1 | 29-MAY-13 17:32 | per0529014a |
| | Perchlorate-O(18) | | | 0.503 | ug/L | | 1 | 29-MAY-13 17:32 | per0529014a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1302798

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CAMO-13-30600MS

**Date Received:** 18-MAY-13

**GEL Job No (SDG):** 2013-856

**GEL Sample ID:** 1202878496

**Date Filtered:** 28-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .5 | 2 | 5.89 | ug/L | | 10 | 29-MAY-13 19:00 | per0529025a |
| | Perchlorate Isotope Ratio | | | 3.1 | | | 10 | 29-MAY-13 19:00 | per0529025a |
| 14797-73-0 | Perchlorate-101 | .5 | 2 | 5.91 | ug/L | | 10 | 29-MAY-13 19:00 | per0529025a |
| | Perchlorate-O(18) | | | 4.77 | ug/L | | 10 | 29-MAY-13 19:00 | per0529025a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1302798

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CAMO-13-30600MSD

**Date Received:** 18-MAY-13

**GEL Job No (SDG):** 2013-856

**GEL Sample ID:** 1202878497

**Date Filtered:** 28-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .5 | 2 | 5.88 | ug/L | | 10 | 29-MAY-13 19:08 | per0529026a |
| | Perchlorate Isotope Ratio | | | 3.15 | | | 10 | 29-MAY-13 19:08 | per0529026a |
| 14797-73-0 | Perchlorate-101 | .5 | 2 | 5.80 | ug/L | | 10 | 29-MAY-13 19:08 | per0529026a |
| | Perchlorate-O(18) | | | 4.72 | ug/L | | 10 | 29-MAY-13 19:08 | per0529026a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Miscellaneous

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 30-MAY-13 | Federal | | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| LC-MS/MS | SW846 6850 Modified | Liquid | ARSL001 |
| **Batch ID:** | **Sample Numbers:** | | |
| 1302799 | See below | | |

**Potentially affected work order(s)(SDG):** **325733(2013-838),325736(2013-840),325739(2013-841),325847(2013-847),325923(2013-856),326020(2013-866),326056(2013-868),326427(2013-887)**

**Application Issues:**

Failed Recovery for MS/PS

Failed Recovery for MSD/PSD

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Low recovery for Perchlorate was observed in 1202878496 (MS). The recovery was 35% and the acceptance range is 75-125%.<br><br>2. Low recoveries for Perchlorate and Perchlorate-101 were observed in 1202878497 (MSD). The recoveries were 29% and 36%, respectively. The acceptance range is 75-125%. | 1. & 2. The low recoveries may be the result of the background concentration present in the parent sample, 326020002, and the need to dilute all at a 1:10 dilution prior to analysis. The data are reported with the appropriate DER. |

**Originator's Name:**

Charles Wilson 30-MAY-13

**Data Validator/Group Leader:**

Michael Penny 30-MAY-13

# Metals Analysis

# Case Narrative

**Metals Fractional Narrative**
**ARS International (ARSL)**
**SDG 2013-856**

## Sample Analysis

| Sample ID | Client ID |
|---|---|
| 325923002 | CASA-13-30554 |
| 1202883949 | Method Blank (MB) **ICP** |
| 1202883950 | Laboratory Control Sample (LCS) |
| 1202883953 | 325649002(CAMO-13-30594L) Serial Dilution (SD) |
| 1202883951 | 325649002(CAMO-13-30594D) Sample Duplicate (DUP) |
| 1202883952 | 325649002(CAMO-13-30594S) Matrix Spike (MS) |
| 1202883954 | Method Blank (MB) **ICP-MS** |
| 1202883955 | Laboratory Control Sample (LCS) |
| 1202883958 | 325649002(CAMO-13-30594L) Serial Dilution (SD) |
| 1202883956 | 325649002(CAMO-13-30594D) Sample Duplicate (DUP) |
| 1202883957 | 325649002(CAMO-13-30594S) Matrix Spike (MS) |
| 1202883023 | Method Blank (MB) **CVAA** |
| 1202883024 | Laboratory Control Sample (LCS) |
| 1202883027 | 325923002(CASA-13-30554L) Serial Dilution (SD) |
| 1202883025 | 325923002(CASA-13-30554D) Sample Duplicate (DUP) |
| 1202883026 | 325923002(CASA-13-30554S) Matrix Spike (MS) |

## Method/Analysis Information

| | |
|---|---|
| **Analytical Batch:** | 1304837, 1304840, 1304495 and 1306982 |
| **Prep Batch :** | 1304836, 1304838 and 1304494 |
| **Standard Operating Procedures:** | GL-MA-E-013 REV# 22, GL-MA-E-006 REV# 9, GL-MA-E-014 REV# 25, GL-MA-E-010 REV# 26 and GL-GC-E-107 REV# 8 |
| **Analytical Method:** | SW846 3005/6010B, SW846 3005/6020 DOE-AL, EPA 245.1/245.2 and SM 2340 B |
| **Prep Method :** | SW846 3005A and EPA 245.1/245.2 Prep |

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

**System Configuration**

The Hardness as CaCO3 is calculated from Calcium and Magnesium results.

The Metals analysis-ICP was performed on a P E 5300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis-ICP was performed on a PE 7300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN 9000 inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadruple mass spectrometer, and dual mode electron multiplier detector. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum. Operating conditions are set at 1400W power and combined argon pressures of 360+/-7 kPa for the plasma and auxiliary gases, and 0.85 L/min carrier gas flow, and an initial lens voltage of 5.2.

The Metals analysis-Mercury was performed on a Perkin-Elmer Flow Injection Mercury System (FIMS-100) automated mercury analyzer. The instrument consists of a cold vapor atomic absorption spectrometer set to detect mercury at a wavelength of 253.7 nm. Sample introduction through the flow injection system is performed via a peristaltic pump at 9 mL/min and nitrogen carrier gas rate of 80 mL/min.

**Calibration Information**

**Instrument Calibration**
All initial calibration requirements have been met for this sample delivery group (SDG).

**CRDL Requirements**
All CRDL standard(s) met the referenced advisory control limits.

**ICSA/ICSAB Statement**
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

**Continuing Calibration Blank (CCB) Requirements**
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

**Continuing Calibration Verification (CCV) Requirements**
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MBs analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recoveries met the acceptance limits.

**Quality Control (QC) Sample Statement**
The following samples were selected as the quality control (QC) samples for this SDG: 325649002 (CAMO-13-30594)-ICP and ICP-MS and 325923002 (CASA-13-30554)-CVAA.

**Matrix Spike (MS) Recovery Statement**
The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. All applicable elements met the acceptance criteria.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. All applicable analytes met these requirements.

**Serial Dilution % Difference Statement**
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations that are 25X the IDL/MDL for CVAA, 50X the IDL/MDL for ICP, and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the acceptance criteria of less than 10% difference (%D).

## Technical Information

### Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

### Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

### Sample Dilutions
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. The samples in this SDG did not require dilutions.

### Preparation Information
The samples in this SDG were prepared exactly according to the cited SOP.

## Miscellaneous Information

### Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

### Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

### Additional Comments
Additional comments were not required for this SDG.
Total Hardness by Calculation is determined using the results of Total Calcium (Ca) and Total Magnesium (Mg) determined by ICP or ICP-MS.

Hardness = 2.497 (Ca) + 4.118 (Mg)

Please refer to the Total Ca and Total Mg data to validate results appearing on the Hardness Summary sheet. Both results are in the Inorganic/metals section of the package. There is no Batch QC for calculated results, and thus no QC Summary for the Hardness by Calculation Batch. The MDLs and PQLs are calculated using the higher of the two calculated values of Ca or Mg.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

**Review Validation:**

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

**The following data validator verified the information presented in this case narrative:**

**Reviewer:**_____ **Date:** 06/12/13

# Sample Data Summary

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-856  GEL Work Order: 325923

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

J  Value is estimated

N  Metals--The Matrix spike sample recovery is not within specified control limits

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____ 06/12/13

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−856 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

**SAMPLE ID:** 325923002 **BASIS:** As Received **DATE COLLECTED** 15−MAY−13

**CLIENT ID:** CASA−13−30554 **LEVEL:** Low **DATE RECEIVED** 17−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7439−97−6 | Mercury | 0.20 | ug/L | U | 0.067 | 0.2 | 0.2 | 1 | AV | NOR1 | 05/30/13 10:52 | 053013W1−6 | 1304495 |

# METALS
## −1−
## INORGANICS ANALYSIS DATA PACKAGE

**SDG No:** 2013−856 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

**SAMPLE ID:** 325923002 **BASIS:** As Received **DATE COLLECTED** 15−MAY−13

**CLIENT ID:** CASA−13−30554 **LEVEL:** Low **DATE RECEIVED** 17−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7429−90−5 | Aluminum | 200 | ug/L | U | 68 | 200 | 200 | 1 | P | HSC | 06/06/13 15:56 | 060613−1 | 1304837 |
| 7440−36−0 | Antimony | 3 | ug/L | U | 1 | 3 | 3 | 1 | MS | PRB | 06/08/13 03:31 | 130607−5 | 1304840 |
| 7440−38−2 | Arsenic | 5 | ug/L | U | 1.7 | 5 | 5 | 1 | MS | BAJ | 06/07/13 08:07 | 130606−3 | 1304840 |
| 7440−39−3 | Barium | 23.8 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:56 | 060613−1 | 1304837 |
| 7440−41−7 | Beryllium | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:56 | 060613−1 | 1304837 |
| 7440−42−8 | Boron | 50 | ug/L | U | 15 | 50 | 50 | 1 | P | HSC | 06/06/13 15:56 | 060613−1 | 1304837 |
| 7440−43−9 | Cadmium | 1 | ug/L | U | 0.11 | 1 | 1 | 1 | MS | BAJ | 06/07/13 08:07 | 130606−3 | 1304840 |
| 7440−70−2 | Calcium | 18300 | ug/L | | 50 | 200 | 200 | 1 | P | HSC | 06/06/13 15:56 | 060613−1 | 1304837 |
| 7440−47−3 | Chromium | 50.5 | ug/L | | 2 | 10 | 10 | 1 | MS | BAJ | 06/07/13 08:07 | 130606−3 | 1304840 |
| 7440−48−4 | Cobalt | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:56 | 060613−1 | 1304837 |
| 7440−50−8 | Copper | 10 | ug/L | U | 3 | 10 | 10 | 1 | P | HSC | 06/06/13 15:56 | 060613−1 | 1304837 |
| 7439−89−6 | Iron | 100 | ug/L | U | 30 | 100 | 100 | 1 | P | HSC | 06/06/13 15:56 | 060613−1 | 1304837 |
| 7439−92−1 | Lead | 2 | ug/L | U | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/07/13 08:07 | 130606−3 | 1304840 |
| 7439−95−4 | Magnesium | 3980 | ug/L | | 110 | 300 | 300 | 1 | P | HSC | 06/07/13 10:57 | 060713B−2 | 1304837 |
| 7439−96−5 | Manganese | 10 | ug/L | U | 2 | 10 | 10 | 1 | P | HSC | 06/06/13 15:56 | 060613−1 | 1304837 |
| 7439−98−7 | Molybdenum | 1.05 | ug/L | | 0.165 | 0.5 | 0.5 | 1 | MS | BAJ | 06/07/13 16:35 | 130607−4 | 1304840 |
| 7440−02−0 | Nickel | 4.36 | ug/L | | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/07/13 08:07 | 130606−3 | 1304840 |
| 7440−09−7 | Potassium | 1460 | ug/L | | 50 | 150 | 150 | 1 | P | HSC | 06/06/13 15:56 | 060613−1 | 1304837 |
| 7782−49−2 | Selenium | 2.37 | ug/L | J | 1.5 | 5 | 5 | 1 | MS | BAJ | 06/07/13 08:07 | 130606−3 | 1304840 |
| 7631−86−9 | Silica | 78000 | ug/L | | 53 | 213 | 213 | 1 | P | HSC | 06/06/13 15:56 | 060613−1 | 1304837 |
| 7440−22−4 | Silver | 1 | ug/L | U | 0.2 | 1 | 1 | 1 | MS | BAJ | 06/07/13 08:07 | 130606−3 | 1304840 |
| 7440−23−5 | Sodium | 10700 | ug/L | | 100 | 300 | 300 | 1 | P | HSC | 06/07/13 10:57 | 060713B−2 | 1304837 |
| 7440−24−6 | Strontium | 71.9 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:56 | 060613−1 | 1304837 |
| 7440−28−0 | Thallium | 2 | ug/L | U | 0.45 | 2 | 2 | 1 | MS | BAJ | 06/07/13 08:07 | 130606−3 | 1304840 |
| 7440−31−5 | Tin | 10 | ug/L | U | 2.5 | 10 | 10 | 1 | P | HSC | 06/07/13 10:57 | 060713B−2 | 1304837 |
| 7440−61−1 | Uranium | 0.095 | ug/L | J | 0.067 | 0.2 | 0.2 | 1 | MS | BAJ | 06/07/13 16:35 | 130607−4 | 1304840 |
| 7440−62−2 | Vanadium | 7.01 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:56 | 060613−1 | 1304837 |
| 7440−66−6 | Zinc | 3.67 | ug/L | J | 3.3 | 10 | 10 | 1 | P | HSC | 06/06/13 15:56 | 060613−1 | 1304837 |

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−856 **CONTRACT:** ESHL00210 **METHOD TYPE:**

**SAMPLE ID:** 325923002 **BASIS:** As Received **DATE COLLECTED** 15−MAY−13

**CLIENT ID:** CASA−13−30554 **LEVEL:** Low **DATE RECEIVED** 17−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Hardness as CaCO3 | 62 | mg/L | | 0.453 | 1.24 | 1.24 | 1 | | JJ2 | 06/10/13 14:16 | | 1306982 |

**Prep Information:**

| Analytical Batch | Prep Batch | Prep Method | Initial wt./vol. | Units | Final wt./vol. | Units | Date | Analyst |
|---|---|---|---|---|---|---|---|---|
| 1304495 | 1304494 | EPA 245.1/245.2 Prep | 20 | mL | 20 | mL | 05/29/13 | AXS5 |
| 1304837 | 1304836 | SW846 3005A | 50 | mL | 50 | mL | 06/06/13 | AXG2 |
| 1304840 | 1304838 | SW846 3005A | 50 | mL | 50 | mL | 06/06/13 | AXG2 |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**
**P** **SW846 3005/6010B**
**AV** **EPA 245.1/245.2**

# Quality Control Summary

**METALS**
**−3b−**
**PREPARATION BLANK SUMMARY**

**SDG NO.** 2013−856

**Contract:** ESHL00210

**Matrix:** W

| Sample ID | Analyte | Result | Units | Acceptance Window | Conc Qual | M* | MDL | RDL |
|---|---|---|---|---|---|---|---|---|
| 1202883023 | | | | | | | | |
| | Mercury | 0.067 | ug/L | +/−0.2 | U | AV | 0.067 | 0.2 |
| 1202883949 | | | | | | | | |
| | Aluminum | 68 | ug/L | +/−200 | U | P | 68 | 200 |
| | Barium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Calcium | 50 | ug/L | +/−200 | U | P | 50 | 200 |
| | Copper | 3 | ug/L | +/−10 | U | P | 3 | 10 |
| | Magnesium | 110 | ug/L | +/−300 | U | P | 110 | 300 |
| | Potassium | 50 | ug/L | +/−150 | U | P | 50 | 150 |
| | Sodium | 100 | ug/L | +/−300 | U | P | 100 | 300 |
| | Tin | 2.5 | ug/L | +/−10 | U | P | 2.5 | 10 |
| | Zinc | 3.3 | ug/L | +/−10 | U | P | 3.3 | 10 |
| | Vanadium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Strontium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Silica | 53 | ug/L | +/−213 | U | P | 53 | 213 |
| | Manganese | 2 | ug/L | +/−10 | U | P | 2 | 10 |
| | Iron | 30 | ug/L | +/−100 | U | P | 30 | 100 |
| | Cobalt | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Beryllium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Boron | 15 | ug/L | +/−50 | U | P | 15 | 50 |
| 1202883954 | | | | | | | | |
| | Antimony | 1 | ug/L | +/−3 | U | MS | 1 | 3 |
| | Arsenic | 1.7 | ug/L | +/−5 | U | MS | 1.7 | 5 |
| | Cadmium | 0.11 | ug/L | +/−1 | U | MS | 0.11 | 1 |
| | Chromium | 2 | ug/L | +/−10 | U | MS | 2 | 10 |
| | Lead | 0.5 | ug/L | +/−2 | U | MS | 0.5 | 2 |
| | Molybdenum | 0.165 | ug/L | +/−0.5 | U | MS | 0.165 | 0.5 |
| | Nickel | 0.5 | ug/L | +/−2 | U | MS | 0.5 | 2 |
| | Selenium | 1.5 | ug/L | +/−5 | U | MS | 1.5 | 5 |
| | Silver | 0.2 | ug/L | +/−1 | U | MS | 0.2 | 1 |
| | Thallium | 0.45 | ug/L | +/−2 | U | MS | 0.45 | 2 |
| | Uranium | 0.067 | ug/L | +/−0.2 | U | MS | 0.067 | 0.2 |

***Analytical Methods:**

| | |
|---|---|
| **MS** | **SW846 3005/6020 DOE−AL** |
| **P** | **SW846 3005/6010B** |
| **AV** | **EPA 245.1/245.2** |

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−856 **Client ID** CASA−13−30554S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 325923002 **Spike ID:** 1202883026

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | ug/L | 75−125 | 2 | | 0.067 | U | 2 | 100 | | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−856 **Client ID** CAMO−13−30594S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 325649002 **Spike ID:** 1202883952

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | ug/L | 75−125 | 5060 | | 68 | U | 5000 | 101 | | P |
| Barium | ug/L | 75−125 | 513 | | 21.9 | | 500 | 98.3 | | P |
| Beryllium | ug/L | 75−125 | 498 | | 1 | U | 500 | 99.5 | | P |
| Boron | ug/L | 75−125 | 491 | | 15 | U | 500 | 97.5 | | P |
| Calcium | ug/L | 75−125 | 17600 | | 13300 | | 5000 | 86.2 | | P |
| Cobalt | ug/L | 75−125 | 496 | | 1 | U | 500 | 99.2 | | P |
| Copper | ug/L | 75−125 | 532 | | 3 | U | 500 | 106 | | P |
| Iron | ug/L | 75−125 | 5140 | | 30 | U | 5000 | 103 | | P |
| Magnesium | ug/L | 75−125 | 8390 | | 3700 | | 5000 | 93.7 | | P |
| Manganese | ug/L | 75−125 | 492 | | 2 | U | 500 | 98.3 | | P |
| Potassium | ug/L | 75−125 | 5990 | | 1210 | | 5000 | 95.6 | | P |
| Silica | ug/L | | 81700 | | 74900 | | 10700 | 62.8 | N/A | P |
| Sodium | ug/L | 75−125 | 14200 | | 9930 | | 5000 | 85.2 | | P |
| Strontium | ug/L | 75−125 | 560 | | 58.8 | | 500 | 100 | | P |
| Tin | ug/L | 75−125 | 470 | | 2.5 | U | 500 | 94 | | P |
| Vanadium | ug/L | 75−125 | 507 | | 5.58 | | 500 | 100 | | P |
| Zinc | ug/L | 75−125 | 490 | | 3.3 | U | 500 | 97.4 | | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−856 **Client ID** CAMO−13−30594S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 325649002 **Spike ID:** 1202883957

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ug/L | 75−125 | 55 | | 1 | U | 50 | 110 | | MS |
| Arsenic | ug/L | 75−125 | 52.4 | | 1.7 | U | 50 | 102 | | MS |
| Cadmium | ug/L | 75−125 | 54.8 | | 0.11 | U | 50 | 110 | | MS |
| Chromium | ug/L | 75−125 | 68.1 | | 17.5 | | 50 | 101 | | MS |
| Lead | ug/L | 75−125 | 51.2 | | 0.5 | U | 50 | 102 | | MS |
| Molybdenum | ug/L | 75−125 | 51.8 | | 0.849 | | 50 | 102 | | MS |
| Nickel | ug/L | 75−125 | 53.4 | | 2.22 | | 50 | 102 | | MS |
| Selenium | ug/L | 75−125 | 59.2 | | 1.5 | U | 50 | 116 | | MS |
| Silver | ug/L | 75−125 | 54 | | 0.2 | U | 50 | 108 | | MS |
| Thallium | ug/L | 75−125 | 47.3 | | 0.45 | U | 50 | 94.6 | | MS |
| Uranium | ug/L | 75−125 | 51.9 | | 0.429 | | 50 | 103 | | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−856 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CASA−13−30554D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325923002 **Duplicate ID:** 1202883025 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | ug/L | | 0.067 | U | 0.067 | U | | | AV |

***Analytical Methods:**

**AV EPA 245.1/245.2**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−856 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CAMO−13−30594D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325649002 **Duplicate ID:** 1202883951 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | ug/L | | 68 | U | 68 | U | | | P |
| Barium | ug/L | +/−5 | 21.9 | | 20.8 | | 5.14 | | P |
| Beryllium | ug/L | | 1 | U | 1 | U | | | P |
| Boron | ug/L | | 15 | U | 15 | U | | | P |
| Calcium | ug/L | +/−20% | 13300 | | 12900 | | 3.27 | | P |
| Cobalt | ug/L | | 1 | U | 1 | U | | | P |
| Copper | ug/L | | 3 | U | 3 | U | | | P |
| Iron | ug/L | | 30 | U | 30 | U | | | P |
| Magnesium | ug/L | +/−20% | 3700 | | 3510 | | 5.41 | | P |
| Manganese | ug/L | | 2 | U | 2 | U | | | P |
| Potassium | ug/L | +/−20% | 1210 | | 1170 | | 3.01 | | P |
| Silica | ug/L | +/−20% | 74900 | | 72500 | | 3.29 | | P |
| Sodium | ug/L | +/−20% | 9930 | | 9590 | | 3.45 | | P |
| Strontium | ug/L | +/−20% | 58.8 | | 56.4 | | 4.05 | | P |
| Tin | ug/L | | 2.5 | U | 2.5 | U | | | P |
| Vanadium | ug/L | +/−5 | 5.58 | | 4.98 | J | 11.3 | | P |
| Zinc | ug/L | | 3.3 | U | 3.3 | U | | | P |

***Analytical Methods:**

**P SW846 3005/6010B**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−856 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CAMO−13−30594D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325649002 **Duplicate ID:** 1202883956 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Antimony | ug/L | | 1 | U | 1 | U | | | MS |
| Arsenic | ug/L | | 1.7 | U | 1.7 | U | | | MS |
| Cadmium | ug/L | | 0.11 | U | 0.11 | U | | | MS |
| Chromium | ug/L | +/−10 | 17.5 | | 16 | | 9.39 | | MS |
| Lead | ug/L | | 0.5 | U | 0.5 | U | | | MS |
| Molybdenum | ug/L | +/−.5 | 0.849 | | 0.877 | | 3.24 | | MS |
| Nickel | ug/L | +/−2 | 2.22 | | 1.9 | J | 15.5 | | MS |
| Selenium | ug/L | | 1.5 | U | 1.5 | U | | | MS |
| Silver | ug/L | | 0.2 | U | 0.2 | U | | | MS |
| Thallium | ug/L | | 0.45 | U | 0.45 | U | | | MS |
| Uranium | ug/L | +/−.2 | 0.429 | | 0.42 | | 2.12 | | MS |

***Analytical Methods:**

**MS SW846 3005/6020 DOE−AL**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−856

**Contract:** ESHL00210

**Aqueous LCS Source:** GEL **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202883024 | | | | | | | | |
| | Mercury | ug/L | 2 | 2.04 | | 102 | 85−115 | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−856

**Contract:** ESHL00210

**Aqueous LCS Source:** OS2I **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202883950 | | | | | | | | |
| | Aluminum | ug/L | 5000 | 5200 | | 104 | 80−120 | P |
| | Barium | ug/L | 500 | 510 | | 102 | 80−120 | P |
| | Beryllium | ug/L | 500 | 508 | | 102 | 80−120 | P |
| | Boron | ug/L | 500 | 488 | | 97.7 | 80−120 | P |
| | Calcium | ug/L | 5000 | 5150 | | 103 | 80−120 | P |
| | Cobalt | ug/L | 500 | 508 | | 102 | 80−120 | P |
| | Copper | ug/L | 500 | 533 | | 107 | 80−120 | P |
| | Iron | ug/L | 5000 | 5300 | | 106 | 80−120 | P |
| | Magnesium | ug/L | 5000 | 5140 | | 103 | 80−120 | P |
| | Manganese | ug/L | 500 | 517 | | 103 | 80−120 | P |
| | Potassium | ug/L | 5000 | 5100 | | 102 | 80−120 | P |
| | Silica | ug/L | 10700 | 10800 | | 101 | 80−120 | P |
| | Sodium | ug/L | 5000 | 5040 | | 101 | 80−120 | P |
| | Strontium | ug/L | 500 | 527 | | 105 | 80−120 | P |
| | Tin | ug/L | 500 | 496 | | 99.2 | 80−120 | P |
| | Vanadium | ug/L | 500 | 517 | | 103 | 80−120 | P |
| | Zinc | ug/L | 500 | 493 | | 98.5 | 80−120 | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−856

**Contract:** ESHL00210

**Aqueous LCS Source:** O2Si **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202883955 | | | | | | | | |
| | Antimony | ug/L | 50 | 55.6 | | 111 | 80−120 | MS |
| | Arsenic | ug/L | 50 | 51.7 | | 103 | 80−120 | MS |
| | Cadmium | ug/L | 50 | 54.4 | | 109 | 80−120 | MS |
| | Chromium | ug/L | 50 | 52.9 | | 106 | 80−120 | MS |
| | Lead | ug/L | 50 | 51.4 | | 103 | 80−120 | MS |
| | Molybdenum | ug/L | 50 | 50.2 | | 100 | 80−120 | MS |
| | Nickel | ug/L | 50 | 52.7 | | 105 | 80−120 | MS |
| | Selenium | ug/L | 50 | 59.7 | | 119 | 80−120 | MS |
| | Silver | ug/L | 50 | 53.8 | | 108 | 80−120 | MS |
| | Thallium | ug/L | 50 | 46.7 | | 93.5 | 80−120 | MS |
| | Uranium | ug/L | 50 | 49.6 | | 99.3 | 80−120 | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−856 **Client ID** CASA−13−30554L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325923002 **Serial Dilution ID:** 1202883027

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Mercury | .067 | U | .335 | U | | | | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−856 **Client ID** CAMO−13−30594L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325649002 **Serial Dilution ID:** 1202883953

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Aluminum | 68 | U | 340 | U | | | | P |
| Barium | 21.9 | | 25.2 | | 14.8 | | | P |
| Beryllium | 1 | U | 5 | U | | | | P |
| Boron | 15 | U | 75 | U | | | | P |
| Calcium | 13300 | | 13000 | | 2.28 | | 10 | P |
| Cobalt | 1 | U | 5 | U | | | | P |
| Copper | 3 | U | 15 | U | | | | P |
| Iron | 30 | U | 150 | U | | | | P |
| Magnesium | 3700 | | 3680 | | .612 | | | P |
| Manganese | 2 | U | 10 | U | | | | P |
| Potassium | 1210 | | 1320 | | 8.88 | | | P |
| Silica | 74900 | | 73100 | | 2.4 | | 10 | P |
| Sodium | 9930 | | 10500 | | 5.47 | | 10 | P |
| Strontium | 58.8 | | 56.9 | | 3.16 | | 10 | P |
| Tin | 2.5 | U | 12.5 | U | | | | P |
| Vanadium | 5.58 | | 6.2 | J | 11.1 | | | P |
| Zinc | 3.3 | U | 16.5 | U | | | | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−856 **Client ID** CAMO−13−30594L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325649002 **Serial Dilution ID:** 1202883958

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Antimony | 1 | U | 5 | U | | | | MS |
| Arsenic | 1.7 | U | 8.5 | U | | | | MS |
| Cadmium | .11 | U | .55 | U | | | | MS |
| Chromium | 17.5 | | 16.6 | J | 5.12 | | | MS |
| Lead | .5 | U | 2.5 | U | | | | MS |
| Molybdenum | .849 | | 1.15 | J | 35.5 | | | MS |
| Nickel | 2.22 | | 2.5 | U | 100 | | | MS |
| Selenium | 1.5 | U | 7.5 | U | | | | MS |
| Silver | .2 | U | 1 | U | | | | MS |
| Thallium | .45 | U | 2.25 | U | | | | MS |
| Uranium | .429 | | .53 | J | 23.5 | | | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

# General Chem Analysis

# Case Narrative

**General Chemistry Narrative**
**ARS International (ARSL)**
**SDG 2013-856**

## Method/Analysis Information

**Product:** **Carbon, Total Organic**

**Analytical Batch:** 1302796 **Method:** SW 9060 Total Organic Carbon

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9060:

| Sample ID | Client ID |
|---|---|
| 325923001 | CASA-13-30546 |
| 1202878485 | Method Blank (MB) |
| 1202878486 | 325847001(CASA-13-30547) Sample Duplicate (DUP) |
| 1202878488 | 325847001(CASA-13-30547) Post Spike (PS) |
| 1202878490 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-093 REV# 12.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Carbon analysis was performed on a O-I Analytical Model 1010 Total Organic Carbon Analyzer.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

## Quality Control (QC) Information

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325847001 (CASA-13-30547).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

## Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

## Miscellaneous Information

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Specific Conductivity** | | |
| **Analytical Batch:** | 1305450 | **Method:** | EPA120.1 Specific Conductivity |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 120.1:

| Sample ID | Client ID |
|---|---|
| 325923002 | CASA-13-30554 |
| 1202885569 | 325847002(CASA-13-30555) Sample Duplicate (DUP) |
| 1202885571 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-009 REV# 11.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Conductivity analysis was performed on a Orion 160 Conductivity Meter.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325847002 (CASA-13-30555).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

**Product:** **pH**

**Analytical Batch:** 1302797 **Method:** EPA 150.1 pH

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 150.1:

| Sample ID | Client ID |
|---|---|
| 325923002 | CASA-13-30554 |
| 1202878491 | 325736002(CASA-13-30550) Sample Duplicate (DUP) |
| 1202878493 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-008 REV# 21.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Electrode analysis was performed on a PerpHect pH Meter Orion 370.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**

The following sample was selected for QC analysis: 325736002 (CASA-13-30550).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
The following sample from this sample group was received by the lab outside of the method specified holding time: 325923002 (CASA-13-30554).

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1188061 325923002 (CASA-13-30554).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Ion Chromatography** | | |
| **Analytical Batch:** | 1303846 | **Method:** | EPA 300.0 Anions Liquid 28 day |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

| Sample ID | Client ID |
|---|---|
| 325923002 | CASA-13-30554 |
| 1202881256 | Method Blank (MB) |
| 1202881257 | 325847002(CASA-13-30555) Sample Duplicate (DUP) |
| 1202881258 | 325847002(CASA-13-30555) Post Spike (PS) |
| 1202881259 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 21.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-3000 Ion Chromatograph.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325847002 (CASA-13-30555).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The spike recovery falls outside of the established acceptance limits due to matrix interference: 1202881258 (CASA-13-30555).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1193509 1202881258 (CASA-13-30555).

**Manual Integrations**
The following samples from this sample group had to be manually integrated due to errors in the instrument software peak integration: 1202881257 (CASA-13-30555), 1202881258 (CASA-13-30555) and 325923002 (CASA-13-30554).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an

effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Ammonia Nitrogen** | | |
| **Analytical Batch:** | 1302881 | **Method:** | EPA 350.1 Nitrogen and Ammonia L |
| **Prep Batch :** | 1302880 | **Method:** | EEPA 350.2 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 350.1:

| Sample ID | Client ID |
|---|---|
| 325923002 | CASA-13-30554 |
| 1202878736 | Method Blank (MB) |
| 1202878737 | 325847002(CASA-13-30555) Sample Duplicate (DUP) |
| 1202878739 | 325847002(CASA-13-30555) Matrix Spike (MS) |
| 1202878741 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-106 REV# 9.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325847002 (CASA-13-30555).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
One or more of the values for the sample and/or duplicate are less than 5 times the Practical Quantitation Limit (PQL), and the difference is within one PQL value; therefore, the RPD is not applicable. 1202878737 (CASA-13-30555).

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Total Kjeldahl Nitrogen** | | |
| **Analytical Batch:** | 1302893 | **Method:** | Nitrogen and Total Kjeldahl (TKN) |
| **Prep Batch :** | 1302892 | **Method:** | EEPA 351.2 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 351.2:

| Sample ID | Client ID |
|---|---|
| 325923001 | CASA-13-30546 |
| 1202878782 | Method Blank (MB) |
| 1202878783 | 325733001(CAMO-13-31070) Sample Duplicate (DUP) |
| 1202878784 | 326427001(SWWS46-13-33497) Sample Duplicate (DUP) |
| 1202878785 | 325733001(CAMO-13-31070) Matrix Spike (MS) |
| 1202878786 | 326427001(SWWS46-13-33497) Matrix Spike (MS) |
| 1202878787 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-104 REV# 14.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following samples were selected for QC analysis: 325733001 (CAMO-13-31070) and 326427001 (SWWS46-13-33497).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The spike recovery falls outside of the GEL acceptance limits but within the client specified limits. 1202878786 (SWWS46-13-33497).

**Duplicate Relative Percent Difference (RPD) Statement**
The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample: 1202878783 (CAMO-13-31070).

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1190664 1202878783 (CAMO-13-31070) and 1202878786 (SWWS46-13-33497).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Nitrate Nitrite by Cadmium Reduction** | | |
| **Analytical Batch:** | 1302905 | **Method:** | EPA 353.2 Nitrogen and Nitrate/Nitrite |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 353.2:

| Sample ID | Client ID |
|---|---|
| 325923002 | CASA-13-30554 |
| 1202878825 | Method Blank (MB) |
| 1202878827 | 325922002(CAMO-13-30618) Sample Duplicate (DUP) |
| 1202878830 | 325922002(CAMO-13-30618) Post Spike (PS) |
| 1202878832 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-128 REV# 8.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8500 Series.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within

acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325922002 (CAMO-13-30618).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recoveries for this sample set were within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The following sample in this sample group was diluted due to high concentration: 325923002 (CASA-13-30554).

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an

effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Total Phosphorus** | | |
| **Analytical Batch:** | 1303593 | **Method:** | EPA 365.4 Phosphorus and Total in |
| **Prep Batch :** | 1303592 | **Method:** | EEPA 365.4 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 365.4:

| Sample ID | Client ID |
|---|---|
| 325923002 | CASA-13-30554 |
| 1202880624 | Method Blank (MB) |
| 1202880625 | 326018002(CASA-13-30551) Sample Duplicate (DUP) |
| 1202880627 | 326018002(CASA-13-30551) Matrix Spike (MS) |
| 1202880629 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-103 REV# 10.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

## Quality Control (QC) Information

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 326018002 (CASA-13-30551).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

## Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

## Miscellaneous Information

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will

always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

**Product:** **Solids, Total Dissolved**

**Analytical Batch:** 1302792 **Method:** EPA 160.1 Solids and Dissolved-F

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 160.1:

| Sample ID | Client ID |
|---|---|
| 325923002 | CASA-13-30554 |
| 1202878466 | Method Blank (MB) |
| 1202878468 | 325922002(CAMO-13-30618) Sample Duplicate (DUP) |
| 1202878471 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-001 REV# 13.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Solids analysis was performed on a Sartorius Balance BAL216. Solids lab

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

## Quality Control (QC) Information

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**

The following sample was selected for QC analysis: 325922002 (CAMO-13-30618).

**Duplicate Relative Percent Difference (RPD) Statement**
The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample: 1202878468 (CAMO-13-30618).

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Sample Aliquot**
A sufficient amount of sample was provided by the client for analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1189794 1202878468 (CAMO-13-30618).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

**Product:** **Alkalinity**

**Analytical Batch:** 1304276 **Method:** EPA 310.1 Total Alkalinity

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 310.1:

| Sample ID | Client ID |
|---|---|
| 325923002 | CASA-13-30554 |
| 1202882521 | Laboratory Control Sample (LCS) |
| 1202882525 | 325923002(CASA-13-30554) Sample Duplicate (DUP) |
| 1202882526 | 325923002(CASA-13-30554) Matrix Spike (MS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-033 REV# 10.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Titration analysis was performed on a Manually operated buret.

**Initial Standardization**
The titrant was properly standardized

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325923002 (CASA-13-30554).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**

The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

**Review Validation:**

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

**The following data validator verified the information presented in this case narrative:**

**Reviewer:**_____ **Date:**_____13Jun13_____

# Sample Data Summary

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-856  GEL Work Order: 325923

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

**  Analyte is a Tracer compound

**  Analyte is a surrogate compound

H  Analytical holding time was exceeded

J  Value is estimated

N  Metals--The Matrix spike sample recovery is not within specified control limits

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: June 11, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-856

Client Sample ID: CASA-13-30546
Sample ID: 325923001
Matrix: W
Collect Date: 15-MAY-13 12:56
Receive Date: 17-MAY-13
Collector: Client
Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon Analysis | | | | | | | | | | | |
| SW 9060 Total Organic Carbon "As Received" | | | | | | | | | | | |
| Total Organic Carbon Average | J | 0.756 | 0.330 | 1.00 | mg/L | 1 | TSM | 05/20/13 | 1806 | 1302796 | 1 |
| Nutrient Analysis | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl (TKN) "As Received" | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | U | ND | 0.033 | 0.100 | mg/L | 1 | KLP1 | 05/30/13 | 1147 | 1302893 | 2 |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 351.2 Prep | EPA 351.2 Total Kjeldahl Nitrogen Prep | KLP1 | 05/29/13 | 1700 | 1302892 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | SW846 9060 | |
| 2 | EPA 351.2 | |

**Notes:**

# GEL LABORATORIES LLC

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## Certificate of Analysis

Report Date: June 11, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-856

Client Sample ID: CASA-13-30554
Sample ID: 325923002
Matrix: W
Collect Date: 15-MAY-13 12:56
Receive Date: 17-MAY-13
Collector: Client
Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Conductivity Analysis | | | | | | | | | | | |
| EPA120.1 Specific Conductivity "As Received" | | | | | | | | | | | |
| Conductivity | | 187 | 1.00 | 1.00 | umhos/cm | 1 | LXA1 | 06/03/13 | 1604 | 1305450 | 1 |
| Electrode Analysis | | | | | | | | | | | |
| EPA 150.1 pH "As Received" | | | | | | | | | | | |
| pH at Temp 10.6C | H | 8.07 | 0.010 | 0.100 | SU | 1 | LYG1 | 05/20/13 | 0908 | 1302797 | 2 |
| Ion Chromatography | | | | | | | | | | | |
| EPA 300.0 Anions Liquid 28 day "As Received" | | | | | | | | | | | |
| Bromide | J | 0.0979 | 0.067 | 0.200 | mg/L | 1 | MAR1 | 06/09/13 | 1632 | 1303846 | 3 |
| Chloride | | 7.03 | 0.067 | 0.200 | mg/L | 1 | | | | | |
| Fluoride | | 0.367 | 0.033 | 0.100 | mg/L | 1 | | | | | |
| Sulfate | | 14.3 | 0.133 | 0.400 | mg/L | 1 | | | | | |
| Nutrient Analysis | | | | | | | | | | | |
| EPA 350.1 Nitrogen, Ammonia L "As Received" | | | | | | | | | | | |
| Nitrogen, Ammonia | | 0.0911 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/22/13 | 1058 | 1302881 | 4 |
| EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received" | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | 5.38 | 0.170 | 0.500 | mg/L | 10 | KLP1 | 05/24/13 | 1442 | 1302905 | 5 |
| EPA 365.4 Phosphorus, Total in "As Received" | | | | | | | | | | | |
| Phosphorus, Total as P | J | 0.0316 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 06/04/13 | 1238 | 1303593 | 6 |
| Solids Analysis | | | | | | | | | | | |
| EPA 160.1 Solids, Dissolved-F "As Received" | | | | | | | | | | | |
| Total Dissolved Solids | | 136 | 3.40 | 14.3 | mg/L | | LYG1 | 05/20/13 | 1129 | 1302792 | 7 |
| Titration Analysis | | | | | | | | | | | |
| EPA 310.1 Total Alkalinity "As Received" | | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | 41.1 | 0.725 | 1.00 | mg/L | | LXA1 | 05/28/13 | 1630 | 1304276 | 8 |
| Carbonate alkalinity (CaCO3) | U | ND | 0.725 | 1.00 | mg/L | | | | | | |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 350.2 Prep | EPA 350.1 Ammonia Nitrogen Prep | KLP1 | 05/21/13 | 1550 | 1302880 |
| EPA 365.4 Prep | EPA 365.4 Phosphorus, Total in liquid PR | KLP1 | 06/03/13 | 1700 | 1303592 |

# GEL LABORATORIES LLC

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## Certificate of Analysis

Report Date: June 11, 2013

| | | | |
|---|---|---|---|
| Company : | Los Alamos National Laboratory | | |
| Address : | PO Box 1663<br>TA-03, SM271, Drop Pt. 02U, Rm111<br>Los Alamos, New Mexico 87545 | | |
| Contact: | Keith Greene | Client SDG: | 2013-856 |
| Project: | LANL-WQH Water Samples | | |

| | | | |
|---|---|---|---|
| Client Sample ID: | CASA-13-30554 | Project: | ESHL00210 |
| Sample ID: | 325923002 | Client ID: | ARSL001 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | EPA 120.1 | |
| 2 | EPA 150.1 | |
| 3 | EPA 300.0 | |
| 4 | EPA 350.1 | |
| 5 | EPA 353.2 | |
| 6 | EPA 365.4 | |
| 7 | EPA 160.1 | |
| 8 | EPA 310.1 | |

**Notes:**

# Quality Control Summary

# GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

## QC Summary

**Report Date: June 11, 2013**


**Los Alamos National Laboratory**
**PO Box 1663**
**TA-03, SM271, Drop Pt. 02U, Rm111**
**Los Alamos, New Mexico**

**Contact:** **Keith Greene**

**Workorder:** **325923**

| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Carbon Analysis** | | | | | | | | | | | | |
| Batch 1302796 | | | | | | | | | | | | |
| QC1202878486 325847001 DUP | | | | | | | | | | | | |
| Total Organic Carbon Average | | J | 0.772 | J | 0.796 | mg/L | 3.06 | ^ | | (+/-1.00) | TSM | 05/20/13 19:31 |
| QC1202878490 LCS | | | | | | | | | | | | |
| Total Organic Carbon Average | 10.0 | | | | 9.46 | mg/L | | | 94.6 | (85%-115%) | | 05/20/13 14:41 |
| QC1202878485 MB | | | | | | | | | | | | |
| Total Organic Carbon Average | | | | U | ND | mg/L | | | | | | 05/20/13 14:32 |
| QC1202878488 325847001 PS | | | | | | | | | | | | |
| Total Organic Carbon Average | 10.0 | J | 0.772 | | 10.5 | mg/L | | | 97.2 | (65%-120%) | | 05/20/13 19:51 |
| **Conductivity Analysis** | | | | | | | | | | | | |
| Batch 1305450 | | | | | | | | | | | | |
| QC1202885569 325847002 DUP | | | | | | | | | | | | |
| Conductivity | | | 192 | | 191 | umhos/cm | 0.575 | | | (0%-10%) | LXA1 | 06/03/13 16:03 |
| QC1202885571 LCS | | | | | | | | | | | | |
| Conductivity | 1410 | | | | 1450 | umhos/cm | | | 102 | (95%-105%) | | 06/03/13 15:57 |
| **Electrode Analysis** | | | | | | | | | | | | |
| Batch 1302797 | | | | | | | | | | | | |
| QC1202878491 325736002 DUP | | | | | | | | | | | | |
| pH | | H | 7.98 | H | 8.01 | SU | 0.375 | | | (0%-10%) | LYG1 | 05/20/13 08:50 |
| QC1202878493 LCS | | | | | | | | | | | | |
| pH | 7.00 | | | | 6.96 | SU | | | 99.4 | (99%-101%) | | 05/20/13 08:39 |
| **Ion Chromatography** | | | | | | | | | | | | |
| Batch 1303846 | | | | | | | | | | | | |
| QC1202881257 325847002 DUP | | | | | | | | | | | | |
| Bromide | | J | 0.0687 | U | ND | mg/L | N/A | ^ | | | MAR1 | 06/09/13 15:03 |
| Chloride | | | 4.23 | | 4.18 | mg/L | 1.07 | | | (0%-20%) | | |
| Fluoride | | | 0.319 | | 0.306 | mg/L | 4.45 | ^ | | (+/-0.100) | | |
| Sulfate | | | 4.82 | | 4.95 | mg/L | 2.59 | | | (0%-20%) | | |
| QC1202881259 LCS | | | | | | | | | | | | |
| Bromide | 1.25 | | | | 1.29 | mg/L | | | 103 | (90%-110%) | | 06/09/13 14:03 |

## QC Summary

**Workorder: 325923**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Ion Chromatography** | | | | | | | | | | | |
| Batch 1303846 | | | | | | | | | | | |
| Chloride | 5.00 | | | | 5.22 | mg/L | | 104 | (90%-110%) | MAR1 | 06/09/13 14:03 |
| Fluoride | 2.50 | | | | 2.66 | mg/L | | 106 | (90%-110%) | | |
| Sulfate | 10.0 | | | | 10.3 | mg/L | | 103 | (90%-110%) | | |
| QC1202881256 MB | | | | | | | | | | | |
| Bromide | | | | U | ND | mg/L | | | | | 06/09/13 13:33 |
| Chloride | | | | U | ND | mg/L | | | | | |
| Fluoride | | | | U | ND | mg/L | | | | | |
| Sulfate | | | | U | ND | mg/L | | | | | |
| QC1202881258 325847002 PS | | | | | | | | | | | |
| Bromide | 1.25 | J | 0.0687 | | 1.33 | mg/L | | 101 | (90%-110%) | | 06/09/13 15:33 |
| Chloride | 5.00 | | 4.23 | | 9.90 | mg/L | | 113* | (90%-110%) | | |
| Fluoride | 2.50 | | 0.319 | | 2.87 | mg/L | | 102 | (90%-110%) | | |
| Sulfate | 10.0 | | 4.82 | | 15.3 | mg/L | | 104 | (90%-110%) | | |
| **Nutrient Analysis** | | | | | | | | | | | |
| Batch 1302881 | | | | | | | | | | | |
| QC1202878737 325847002 DUP | | | | | | | | | | | |
| Nitrogen, Ammonia | | | 0.0526 | | 0.0684 | mg/L | 26.1 ^ | | (+/-0.050) | KLP1 | 05/22/13 10:47 |
| QC1202878741 LCS | | | | | | | | | | | |
| Nitrogen, Ammonia | 1.00 | | | | 1.10 | mg/L | | 110 | (90%-110%) | | 05/22/13 10:34 |
| QC1202878736 MB | | | | | | | | | | | |
| Nitrogen, Ammonia | | | | J | 0.0344 | mg/L | | | | | 05/22/13 10:33 |
| QC1202878739 325847002 MS | | | | | | | | | | | |
| Nitrogen, Ammonia | 1.00 | | 0.0526 | | 1.06 | mg/L | | 101 | (90%-110%) | | 05/22/13 10:48 |
| Batch 1302893 | | | | | | | | | | | |
| QC1202878783 325733001 DUP | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | | 0.183 | J | 0.081 | mg/L | 77.3*^ | | (+/-0.100) | KLP1 | 05/30/13 11:35 |
| QC1202878784 326427001 DUP | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | | 0.388 | | 0.373 | mg/L | 3.94 ^ | | (+/-0.100) | | 05/30/13 11:51 |

## QC Summary

**Workorder: 325923**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Nutrient Analysis** | | | | | | | | | | | |
| Batch 1302893 | | | | | | | | | | | |
| QC1202878787 LCS | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | | | | 0.967 | mg/L | | 96.7 | (90%-110%) | KLP1 | 05/30/13 11:33 |
| QC1202878782 MB | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | | | U | ND | mg/L | | | | | 05/30/13 11:32 |
| QC1202878785 325733001 MS | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | | 0.183 | | 1.17 | mg/L | | 98.7 | (90%-110%) | | 05/30/13 11:35 |
| QC1202878786 326427001 MS | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | | 0.388 | | 1.54 | mg/L | | 115* | (90%-110%) | | 05/30/13 11:52 |
| Batch 1302905 | | | | | | | | | | | |
| QC1202878827 325922002 DUP | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | | 0.446 | | 0.435 | mg/L | 2.50 | | (0%-20%) | KLP1 | 05/24/13 14:06 |
| QC1202878832 LCS | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | 1.00 | | | | 1.06 | mg/L | | 106 | (90%-110%) | | 05/24/13 13:34 |
| QC1202878825 MB | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | | | U | ND | mg/L | | | | | 05/24/13 13:33 |
| QC1202878830 325922002 PS | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | 1.00 | | 0.446 | | 1.47 | mg/L | | 102 | (90%-110%) | | 05/24/13 14:07 |
| Batch 1303593 | | | | | | | | | | | |
| QC1202880625 326018002 DUP | | | | | | | | | | | |
| Phosphorus, Total as P | | J | 0.030 | J | 0.0277 | mg/L | 7.97 ^ | | (+/-0.050) | KLP1 | 06/04/13 12:40 |
| QC1202880629 LCS | | | | | | | | | | | |
| Phosphorus, Total as P | 1.00 | | | | 0.993 | mg/L | | 99.3 | (76%-120%) | | 06/04/13 12:38 |
| QC1202880624 MB | | | | | | | | | | | |
| Phosphorus, Total as P | | | | U | ND | mg/L | | | | | 06/04/13 12:37 |
| QC1202880627 326018002 MS | | | | | | | | | | | |
| Phosphorus, Total as P | 1.00 | J | 0.030 | | 0.965 | mg/L | | 93.5 | (62%-139%) | | 06/04/13 12:41 |
| **Solids Analysis** | | | | | | | | | | | |
| Batch 1302792 | | | | | | | | | | | |
| QC1202878468 325922002 DUP | | | | | | | | | | | |
| Total Dissolved Solids | | | 121 | | 100 | mg/L | 19.4* | | (0%-10%) | LYG1 | 05/20/13 11:29 |
| QC1202878471 LCS | | | | | | | | | | | |
| Total Dissolved Solids | 300 | | | | 291 | mg/L | | 97.1 | (95%-105%) | | 05/20/13 11:29 |

## QC Summary

**Workorder: 325923**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Solids Analysis** | | | | | | | | | | | |
| Batch 1302792 | | | | | | | | | | | |
| QC1202878466 MB | | | | | | | | | | | |
| Total Dissolved Solids | | | U | ND | mg/L | | | | LYG1 | 05/20/13 | 11:29 |
| **Titration Analysis** | | | | | | | | | | | |
| Batch 1304276 | | | | | | | | | | | |
| QC1202882525 325923002 DUP | | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | 41.1 | | 41.6 | mg/L | 1.23 | | (0%-20%) | LXA1 | 05/28/13 | 16:33 |
| Carbonate alkalinity (CaCO3) | U | ND | U | ND | mg/L | N/A | | | | | |
| QC1202882521 LCS | | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | 50.0 | | | 51.3 | mg/L | | 103 | (90%-110%) | | 05/28/13 | 15:57 |
| QC1202882526 325923002 MS | | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | 50.0 | 41.1 | | 90.3 | mg/L | | 98.5 | (80%-120%) | | 05/28/13 | 16:37 |

**Notes:**

| | |
|---|---|
| ** | Analyte is a surrogate compound |
| < | Result is less than value reported |
| > | Result is greater than value reported |
| A | The TIC is a suspected aldol-condensation product |
| B | The target analyte was detected in the associated blank. |
| C | Analyte has been confirmed by GC/MS analysis |
| D | Results are reported from a diluted aliquot of the sample |
| E | %difference of sample and SD is >10%. Sample concentration must meet flagging criteria |
| E | Concentration of the target analyte exceeds the instrument calibration range |
| E | General Chemistry--Concentration of the target analyte exceeds the instrument calibration range |
| FB | Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies |
| H | Analytical holding time was exceeded |
| J | Value is estimated |
| JNX | Non Calibrated Compound |
| N | Metals--The Matrix spike sample recovery is not within specified control limits |
| N | Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N | Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N/A | RPD or %Recovery limits do not apply. |

## QC Summary

**Workorder:** **325923**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|

| | |
|---|---|
| N1 | See case narrative |
| ND | Analyte concentration is not detected above the detection limit |
| NJ | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| P | Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70% |
| Q | One or more quality control criteria have not been met. Refer to the applicable narrative or DER. |
| R | Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes. |
| R | Sample results are rejected |
| U | Analyte was analyzed for, but not detected above the MDL, MDA, or LOD. |
| UJ | Compound cannot be extracted |
| X | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| Y | Other specific qualifiers were required to properly define the results. Consult case narrative. |
| Y | QC Samples were not spiked with this compound |
| Z | Paint Filter Test--Particulates passed through the filter, however no free liquids were observed. |
| ^ | RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry. |
| d | 5-day BOD--The 2:1 depletion requirement was not met for this sample |
| h | Preparation or preservation holding time was exceeded |

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

# Miscellaneous

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 21-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| ELECTRODE | EPA 150.1 | Liquid | BETT, ESHL, GELC, UCOR |
| **Batch ID:** | **Sample Numbers:** | | |
| 1302797 | See below. | | |

**Potentially affected work order(s)(SDG):** **325724,325736(2013-840),325739(2013-841),325752,325759,325847(2013-847),325922(2013-855),325923(2013-856),326018(2013-865),326020(2013-866)**

**Application Issues:**

Sample received out of holding

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Sample received out of holding:<br>325724 001,002<br>325736 002,004<br>325739 002<br>325752 002,006,010<br>325759 007,013,019,025,031<br>325847 002<br>325922 002<br>325923 002<br>326018 002<br>326020 002 | 1. Samples were received out of holding. |

**Originator's Name:**
Lisa Gregory 22-MAY-13

**Data Validator/Group Leader:**
Julia Hamilton 29-MAY-13

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 28-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| BALANCE | EPA 160.1 | Liquid | ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1302792 | See below. | | |

**Potentially affected work order(s)(SDG): 325842,325899,325922(2013-855),325923(2013-856),325965(13055299),326009(13055326)**

**Application Issues:**

Failed RPD for DUP

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed RPD for DUP:<br><br>QC 1202878468DUP | 1. The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample. |

**Originator's Name:**

Lisa Gregory 28-MAY-13

**Data Validator/Group Leader:**

Julia Hamilton 28-MAY-13

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 30-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| LACHAT Flow Injection Analyzer | EPA 351.2 | Liquid | BETT, ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1302893 | See below. | | |

**Potentially affected work order(s)(SDG):** **325733(2013-838),325736(2013-840),325739(2013-841),325752,325847(2013-847),325922(2013-855),325923(2013-856),326018(2013-865),326056(2013-868),326427(2013-887)**

**Application Issues:**

Failed Recovery for MS/PS

Failed RPD for DUP

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed Recovery for MS:<br>QC 1202878786MS<br>2. Failed RPD for DUP:<br>QC 1202878783DUP | 1. The spike recovery falls outside of the GEL acceptance limits but within the client specified limits.<br>2. The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample. |

**Originator's Name:**

Kristen Parson 30-MAY-13

**Data Validator/Group Leader:**

Julia Hamilton 30-MAY-13

**DER Report No.: 1193509**
**Revision No.:**

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 11-JUN-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| IC | EPA 300.0 | Liquid | ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1303846 | See Below | | |

**Potentially affected work order(s)(SDG): 325847(2013-847),325922(2013-855),325923(2013-856),326018(2013-865),326020(2013-866),326056(2013-868),326057(2013-869),326213(2013-873),326214(2013-874),326426(2013-886)**

**Application Issues:**

Failed Recovery for MS/PS

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed Recovery for MS/PS:<br><br>QC 1202881258PS | 1. The MS/PS mixture contains seven anions of interest. Of those, all requested anions except chloride met normal acceptance criteria for recovery (90 - 110%). This failure is attributed to the matrix of the sample because the successful recovery of the other compounds indicate that the laboratory process was in control. This variance is judged to have no negative impact on the data. The deviation is noted in the Case Narrative and DER, and the data has been reported. |

**Originator's Name:**
Mary Sherwood 11-JUN-13

**Data Validator/Group Leader:**
Virginia Wininger 11-JUN-13

American Radiation Services - Primary

1726 Wooddale Court
Baton Rouge LA 70806

# Chain of Custody/Analysis Request

**COC/Lab Request #:** 2013-849



**Client Contact:**

**Lab Agreement # :** 63641-001-10

**Project Number :**

**Analysis Turnaround Time:**

- 24 Hour - ☐ Other - ☐
- 7 Day - ☐
- 14 Day - ☐
- 21 Day - ☐
- 28 Day - ☒

**Site Name:** Los Alamos National Laboratory

**Rad Screening Info:** Yes, Below Background

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | WSP-LL-H-3 |
|---|---|---|---|---|
| CAMO-13-30582 | May 10 2013 | 12:05 | W | 1 |
| CAMO-13-30583 | May 13 2013 | 14:10 | W | 1 |

**Special Instructions:**

Special Instructions:

| | | | |
|---|---|---|---|
| Relinquished by: Melissa Montoya | | Date/Time: 5/15/13 3:00 | Received by: |
| Relinquished by: | | Date/Time: | Received by: |
| Relinquished by: | | Date/Time: | Received by: |

**Greene, Keith R**

**From:** Susan Leese [sleese@amrad.com]
**Sent:** Thursday, June 06, 2013 1:35 PM
**To:** Greene, Keith R
**Cc:** Project Managers
**Subject:** LL3H Samples - Please Advise

Hi Keith,
Re: CAMO-13-30583 from RN 2013-849 – Canceled KRG 6/6/13
CAMO-13-30613 from RN 2013-850 - Canceled
Paige was about to start the final count on these, following primary distillation, addition of Na Peroxide, enrichment, and cryodistillation; but it reacted to the scintillation fluid by turning white. pH of samples was 14 – pH of parent samples was 10. Other samples in batch are fine with neutral pH.
Do you know if someone inadvertantly preserved this sample?

Sincerely,

*Susan Leese*
Project Manager
sleese@amrad.com

ARS INTERNATIONAL

☎ 225.381.2991 Office
225.381.2996 Fax

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30582

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | 05/10/2013 | FIELD MATRIX: WG | | OK |
| TIME COLLECTED (HH:MM): | | 1205 | MEDIA: UA | | OK |
| PRS ID: | | OK | SAMPLE TECH CODE: UA | | GSP |
| LOCATION ID: R-50 S1 | | | FIELD PREP: UF | | OK |
| LOCATION TYPE: MON | | | FIELD QC TYPE: REG | | |
| PORT: P1A | | | SAMPLE USAGE: INV | | |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-LL-H-3 | 1 LITER POLY | 1 | NONE | Y | NA |
| NA | WSP-TKN+TOC | 500 ML AMBER GLASS | 1 | H2SO4 | Y | NA |

**SAMPLE COMMENTS:** Samples taken within 75 feet of a running diesel generator

**LOCATION COMMENTS:** None

**FIELD PARAMETERS:**

Dissolved Oxygen 5.48 mg/L  Oxidation-Reduction Potential 248.8 MV  pH 7.66 SU

Specific Conductance 192 uS/cm  Temperature 20.81 deg C  Turbidity 0.7 NTU

**COLLECTED BY (PRINT)** A Stocker

| RELINQUISHED BY | Date/Time | RECEIVED BY | Date/Time |
|---|---|---|---|
| (Printed Name) D Woody<br>(Signature) David Woody | 05/10/13 1310 | (Printed Name) K. Grace<br>(Signature) | 05/10/13 1310 |
| RELINQUISHED BY<br>(Printed Name)<br>(Signature) | Date/Time | RECEIVED BY<br>(Printed Name)<br>(Signature) | Date/Time |

Report Date 04/30/2013

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30583

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| **DATE COLLECTED (MM/DD/YYYY):** | | 05/13/2013 | **FIELD MATRIX:** | WG | o/c |
| **TIME COLLECTED (HH:MM):** | | 1410 | **MEDIA:** | UA | ↓ |
| **PRS ID:** | | o/c | **SAMPLE TECH CODE:** | UA | GSP |
| **LOCATION ID:** | R-50 S2 | ↓ | **FIELD PREP:** | UF | o/c |
| **LOCATION TYPE:** | MON | ↓ | **FIELD QC TYPE:** | REG | ↓ |
| **PORT:** | P2A | ↓ | **SAMPLE USAGE:** | INV | ↓ |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-LL-H-3 | 1 LITER POLY | 1 | NONE | Y | NA |
| NA | WSP-TKN+TOC | 500 ML AMBER GLASS | 1 | H2SO4 | Y | NA |

**SAMPLE COMMENTS:** Sampled R-50 S2 with generator Running 50' Away.

**LOCATION COMMENTS:** NA

**FIELD PARAMETERS:**

Dissolved Oxygen 7.29 mg/L  Oxidation-Reduction Potential 117.0 MV  pH 8.07 SU

Specific Conductance 131 uS/cm  Temperature 22.85 deg C  Turbidity 1.0 NTU

**COLLECTED BY (PRINT)** D. Fellenz

| RELINQUISHED BY | Date/Time | RECEIVED BY | Date/Time |
|---|---|---|---|
| (Printed Name) Maurice Shendo<br>(Signature) [signature] | 05/13/13 1520 | (Printed Name) S. Sherwood<br>(Signature) Sheri Sherwood | 5/13/13 1520 |
| **RELINQUISHED BY**<br>**(Printed Name)**<br>**(Signature)** | **Date/Time** | **RECEIVED BY**<br>**(Printed Name)**<br>**(Signature)** | **Date/Time** |

Report Date 04/30/2013

Data Validation Report

Chain Of Custody No. 2013-849

**1. Distribution Of Samples In EDD.**

| SDG | Analytical Method | Regular Samples | Field Duplicates | Trip Blanks | Field Blanks | Equipment Blanks |
|---|---|---|---|---|---|---|
| ARS1-13-00980 | Generic:Low_Level_Tritium | 1 | | | | |

| SDG | Analytical Method | Analysis Lot ID | Prep Lot ID | Regular Samples | Field Duplicates | Trip Blanks | Field Blanks | Equipment Blanks | Method Blanks | Matrix Spikes | Matrix Spike Dups |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ARS1-13-00980 | Generic:Low_Level_Tritium | ARS1-B13-01030 | ARS1-B13-01030 | 1 | | | | | 1 | | |

**2. Distribution Of Analytes In EDD.**

| Analytical Method | Method Category | Field Sample ID | Lab Sample ID | Sample Purpose | Target Analytes | Surrogates | Spikes | TICS |
|---|---|---|---|---|---|---|---|---|
| Generic:Low_Level_Tritium | RAD | CAMO-13-30582 | ARS1-B13-01030-06 | REG | 1 | 0 | 0 | 0 |
| Generic:Low_Level_Tritium | RAD | LCS | ARS1-B13-01030-01 | LCS | 0 | 0 | 1 | 0 |
| Generic:Low_Level_Tritium | RAD | LCSD | ARS1-B13-01030-02 | LCSD | 0 | 0 | 1 | 0 |
| Generic:Low_Level_Tritium | RAD | MB | ARS1-B13-01030-03 | MB | 1 | 0 | 0 | 0 |

**3. Are any analytes missing?**

No.

**4. Were any holding times exceeded?**

No.

**5. Any contaminants in blanks?**

No.

**Any samples affected by the presence of contaminants in blanks?**

No.

**6. Any surrogate recoveries outside the control limits?**

No.

**7. Any MS/MSD recoveries or RPDs outside the control limits?**

No.

**8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?**

| LCS | LCSD | Analytical | Parameter | Lab | Analysis | Sample | LCS | LCSD | Upper | Lower | Lower Reject |
|---|---|---|---|---|---|---|---|---|---|---|---|

Data Validation Report for:

Chain Of Custody No. 2013-849

| Analytical Spikes | Post-Digestion Spikes | Lab Control Samples | Lab Control Sample Dups | Blank Spikes | Blank Spike Dups | Lab Duplicates | Storage Blanks | Preparation Blanks | Reagent Blanks |
|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 1 | | | | | | |

| | | |
|---|---|---|
| Upper Reject | | RPD |

| Sample ID | Sample ID | Method | Name | Lot ID | Date | Matrix | Recovery | Recovery | Limit | Limit | Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ARS1-B13-01030-01 | ARS1-B13-01030-02 | Generic:Low_Level_Tritium | Tritium | ARS1-B13-01030 | 6/8/2013 | W | 53 | 73 | 120 | 80 | 10 |

**9. Any Field Duplicate RPDs outside the desired limits?**

No.

**10. Any Lab Duplicate RPDs outside the desired limits?**

No.

**11. Any required reporting limits exceeded?**

No.

**12. Additional Validator's Coments.**

None.

**13. Display Flagged Data.**

| Location ID | Chain Of Custody No | Field Sample ID | Sample Purpose | Analysis Type Code | Analytical Suite | Analytical Method | Parameter Name | Lab Qualifier | Validation Qualifier | Validation Reason Codes | Detected |
|---|---|---|---|---|---|---|---|---|---|---|---|
| R-50 S1 | 2013-849 | CAMO-13-30582 | REG | INIT | RAD | Generic:Low_Level_Tritium | Tritium | | J- | R12a | Y |

| Reason Code | Description |
|---|---|
| R12a | The LCS percent recovery was <the LAL but >10%. Follow the external laboratory limits located within the associated data package. |

**14. Useable Result Count.**

| Field Sample ID | Location ID | Sample Purpose | Analytical Method | No. Unuseable Records | Total No. Of Records |
|---|---|---|---|---|---|
| CAMO-13-30582 | R-50 S1 | REG | Generic:Low_Level_Tritium | 0 | 1 |

Data Validation Report for:

Chain Of Custody No. 2013-849

| Limit | RPD | Limit |
|---|---|---|
| | 30.4926 | |

| Lab Result | Lab Units | Report Result | Report Units | Report MDA | Report Uncertainty | Lab Matrix | Sample Date | Percent Moisture | Analysis Lot ID | Validation Status Code | Use Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 20.514 | pCi/L | 20.514 | pCi/L | 2.41 | 3.252 | W | 5/10/2013 | | ARS1-B13-01030 | VAL | Y |

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

# American Radiation Services Analytical Reports

for

# Los Alamos National Laboratory

# Request Number: 2013-849/850

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

# American Radiation Services Analytical Reports

for

# Los Alamos National Laboratory Request: 2013-849/850

# Original COC

American Radiation Services - Primary
1726 Wooddale Court
Baton Rouge LA 70806

# Chain of Custody/Analysis Request

COC/Lab Request #: 2013-849



Client Contact:

Lab Agreement # : 63641-001-10
Project Number :
Analysis Turnaround Time:
24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | WSP-LL-H-3 |
|---|---|---|---|---|
| CAMO-13-30582 | May 10 2013 | 12:05 | W | 1 |
| CAMO-13-30583 | May 13 2013 | 14:10 | W | 1 |

Special Instructions:

Special Instructions:

| Relinquished by: | | Date/Time: | Received by: | |
|---|---|---|---|---|
| Melissa Montoya | | 5/15/13 3:00 | | 5/16/13 / 1100 |
| Relinquished by: | | Date/Time: | Received by: | |
| Relinquished by: | | Date/Time: | Received by: | |

American Radiation Services - Primary
1726 Wooddale Court
Baton Rouge LA 70806

# Chain of Custody/Analysis Request

COC/Lab Request #: 2013-850



**Client Contact:**

**Lab Agreement #:** 63641-001-10

**Project Number:**

**Analysis Turnaround Time:**

- 24 Hour - ☐
- Other - ☐
- 7 Day - ☐
- 14 Day - ☐
- 21 Day - ☐
- 28 Day - ☒

**Site Name:** Los Alamos National Laboratory

**Rad Screening Info:** Yes, Below Background

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | WSP-LL-H-3 | Special Instructions: |
|---|---|---|---|---|---|
| CAMO-13-30613 | May 14 2013 | 11:39 | W | 1 | |

**Special Instructions:**

| Relinquished by: | | Date/Time: | Received by: | |
|---|---|---|---|---|
| Melissa Montoya | | 5/15/13 3:00 | [illegible] | 5-16-13/1100 |
| Relinquished by: | | Date/Time: | Received by: | |
| Relinquished by: | | Date/Time: | Received by: | |

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# American Radiation Services Analytical Reports

for

# Los Alamos National Laboratory Request: 2013-849/850

# Case Narrative

ARS INTERNATIONAL

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

June 12, 2013

LANL
Keith Greene
PO Box 1663 MS M992
Los Alamos, NM 87545

Request Number: **2013-849**
LANL Sample ID: **CAMO-13-30582; CAMO-13-30583.**
Request Number: **2013-850**
LANL Sample ID: **CAMO-13-30613.**

Dear Mr. Greene;

On May 16, 2013, ARS International received two (2) water samples associated with RN 2013-849 and one (1) sample associated with RN 2013-850 to be analyzed for Low Level Tritium.

The samples underwent enrichment, but only CAMO-13-30582 was counted, along with the QA/QC samples (please see "Analytical Results" on following page). The appropriate counting equipment and QA/QC for this type of analysis was used, and results of the analysis and QA/QC are attached in the data package. Samples were counted with a count time sufficient to meet quality control parameters for counting equipment and were within acceptance criteria and statistical sound detection limits.

If you have any questions please do not hesitate to call at 225.381.2991 or email LANL@amrad.com.

Sincerely,

Eugene Mulligan

Laboratory Management
**ARS International**

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

# COVER PAGE

**PROJECT SAMPLE IDENTIFICATION**
**CROSS-REFERENCE**
**TO ARS SAMPLE LABORATORY IDs**
Subcontract (LANL Agreement Number) 63641-001-10

| Request Number | LANL PROJECT SAMPLE ID NUMBER | American Radiation Services SAMPLE ID NUMBER(S) |
|---|---|---|
| 2013-849 | CAMO-13-30582 | ARS1-13-00980-001 |
| 2013-849 | CAMO-13-30583 | ARS1-13-00980-002 |
| 2013-850 | CAMO-13-30613 | ARS1-13-00981-001 |

**ANALYTICAL METHODS**
Tritium analyses were performed using **ARS-040 Tritium Assay in Water Samples Using Electrolytic Enrichment.**

**ANALYTICAL RESULTS**
Samples B13-01030-07 and B13-01030-08 (CAMO-13-30583 and CAMO-13-30613) had a milky appearance after addition of the cocktail (see technical note). The pH of post-enrichment samples was 14, while parent samples had a pH of approximately 11. Since both seem to have been preserved before shipping, client cancelled analysis for these 2 samples.
LCS/LCSD recovery was biased low, and percent RPD was elevated; all other QC criteria were met.
The result data that are flagged with "U" indicate that the activity is below the MDC.

**American Radiation Services Project Manager/Laboratory Director's Comments:**
*"I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this sample data package and the computer-readable EDD, as applicable, submitted on diskette or by modem, has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature."*

*"I certify that this electronic image and all hardcopies produced from this image accurately represent the data and is in compliance with the LANL specific requirements, both technically and for completeness, other than the conditions detailed above or in the sample data package narrative. Release, by submission through email, the data contained in this electronic image and the computer-readable EDD (as applicable), has been authorized by the laboratory Manager/Technical Director or the Manager's designee."*

| Eugene Mellegan | Laboratory Management, ARS International | 6-12-13 |
|---|---|---|
| **Signature** | **Title** | **Date** |

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# American Radiation Services Analytical Reports

for

## Los Alamos National Laboratory

# Low Level Tritium by Low Level Liquid Scintillation Counting

AMRAD
AMERICAN RADIATION SERVICES, LLC

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

| | | | |
|---|---|---|---|
| **ARS Sample Delivery Group:** | ARS1-13-00980 | **Request or PO Number:** | 2013-849 |
| **Client Sample ID:** | CAMO-13-30582 | **ARS Sample ID:** | ARS1-13-00980-001 |
| **Sample Collection Date:** | 05/10/13 | **Date Received:** | 05/16/13 |
| **Sample Matrix:** | Aqueous | **Report Date:** | 06/11/13 |

| Analysis Description | Analysis Results | Analysis Error +/- 1 s | MDC | DLC | Qual | Analysis Units | Analysis Test Method | Analysis Date/Time | Analysis Technician | Tracer/Chem Recovery |
|---|---|---|---|---|---|---|---|---|---|---|
| Enriched H-3 | 20.514 | 3.252 | 2.410 | 1.165 | | pCi/L | ARS-040 | 06/09/13 00:19 | PDS | NA |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

**NOTES:**

Project Manager Review

***Notes:*** *American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the American Radiation Services, Inc.*

LELAP Certificate# 01949

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# QC Results Report

**Sample Delivery Group:** ARS1-13-00980
**Date Received:** 5/16/2013

## Laboratory Control Sample Evaluation

| Analysis Batch | QC Type | Analyte | Analysis Results | CSU 1 (1s) | MDC | Expected Value | Qual | Report Units | Analysis Test Method | Analysis Date/Time | Analysis Technician | Percent Recovery (%) | LCS Acceptance Range |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ARS1-B13-01030 | LCS | H3 | 18.236 | 2.892 | 2.155 | 24.938 | | pCi/L | ARS-040 | 6/8/13 1:23 | PDS | 73 | 80%-120% |

## Blank Evaluation

| Analysis Batch | QC Type | Analyte | Analysis Results | CSU 1 (1s) | MDC | Expected Value | Qual | Report Units | Analysis Test Method | Analysis Date/Time | Analysis Technician |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ARS1-B13-01030 | MBL | H3 | -0.643 | 0.699 | 2.403 | NA | U | pCi/L | ARS-040 | 6/8/13 1:23 | PDS |

## Sample RER Duplicate Evaluation

| Analysis Batch | QC Type | Analysis Description | Result 1 | CSU 1 (1s) | Result 2 | CSU 2 (1s) | Qual | Analysis Units | Analysis Test Method | Analysis Date/Time | Analysis Technician | RER | RER AcceptanceRange |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ARS1-B13-01030 | LCSD | H3 | 18.236 | 2.892 | 13.411 | 2.232 | | pCi/L | ARS-040 | 6/8/13 1:23 | PDS | 0.94 | < 1 |

## Sample DER Duplicate Evaluation

| Analysis Batch | QC Type | Analysis Description | Result 1 | CSU 1 (1s) | Result 2 | CSU 2 (1s) | Qual | Analysis Units | Analysis Test Method | Analysis Date/Time | Analysis Technician | DER | DER AcceptanceRange |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ARS1-B13-01030 | LCSD | H3 | 18.236 | 2.892 | 13.411 | 2.232 | | pCi/L | ARS-040 | 6/8/13 1:23 | PDS | 2.64 | < 3 |

Project Manager Review

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of ARS International.

LELAP Certificate# 01949 NELAP Certificate # E87558

# QC Evaluation

**EPA Method: ARS-040**
**Batch ID: ARS1-B13-01030**
**SDG's: ARS1-13-00980; 981**

| | | | |
|---|---|---|---|
| **LCS** | 13.4110 | **CSU (2s)** | 4.3750 |
| **LCSD** | 18.2360 | **CSU-D (2s)** | 5.6690 |

**DER =** $\frac{\text{abs(LSC-LSCD)}}{\text{sqr((2s CSU/2)^2)+(( 2s CSU-D/2)^2)}}$ = **< 3**

*at 1 sigma*

**DER** $\frac{4.825}{3.580439}$ = 1.3476 **< 3**

**% RPD=** $\frac{\text{ABS( LCS - LSCD)}}{\text{(LCS+LCSD)/2}}$ * 100 = **< 25%**

**%RPD** $\frac{4.825}{15.8235}$ *100 = 30.49262 **< 25%**

The *RPD* shall be less than 25% or other client-applied criteria

**RER=** $\frac{\text{abs((LCS-LCSD))}}{\text{(CSU)+(CSD)}}$ = **<1** ***<--LANL Requirement***

*at 2 sigma*

**RER =** $\frac{4.825}{10.0440}$ 0.4803863 **<1**

**Blank Information**

| | Act | CSU(2s) | MDA | Act>MDA |
|---|---|---|---|---|
| **AM-241** | | | | |
| **U-234** | | | | |
| **U-235** | | | | |
| **U-238** | | | | |
| **Pu-238** | | | | |
| **Pu-239/240** | | | | |
| **Th-228** | | | | |
| **Th-230** | | | | |
| **Th-232** | | | | |
| **H3** | -0.643 | 1.371 | 2.403 | |
| **Ra-226** | | | | |
| **Ra-228** | | | | |
| **Total U** | | | | |
| **Pb-210** | | | | |
| **Po-209** | | | | |
| **Sr-90** | | | | |
| **TC-99** | | | | |
| **NI-63** | | | | |

*MDA should be below RDL
*Blank activity must be below MDA
*Blank activity must be < 1.65*CSU (DOE only)

ACT = -0.643
CSU = 1.371
Is ACT<1.65*CSU? YES

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# American Radiation Services Analytical Reports

for

# Los Alamos National Laboratory

# Low Level Tritium by Low Level Liquid Scintillation Counting

# Laboratory Records

# Analysis Batch Report



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**Analysis Batch ID** **ARS1-B13-01030**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | **Method** | **ARS-040** | **Analysis** | | **LSC-A-022** | **Matrix** | **AQ** |
| | | | | **Description** | **Low Level Tritium by Electrolytic Enrichment** | | | | | |
| **ABatch Sample ID** | **Type** | **Blind Iso1** | **Blind Iso2** | **Blind Iso3** | **SDG** | **FR** | **Run** | **Client ID** | **Isotope Group** | **Lab Deadline** |
| ARS1-B13-01030-01 | LCS | B-15444 | | | | | | | | |
| ARS1-B13-01030-02 | LCSD | B-15445 | | | | | | | | |
| ARS1-B13-01030-03 | MBL | | | | | | | | | |
| ARS1-B13-01030-04 | MS | | | | | | | | | |
| ARS1-B13-01030-05 | MSD | | | | | | | | | |
| ARS1-B13-01030-06 | TRG | | | | **ARS1-13-00980** | 001 | 1 | CAMO-13-30582 | STD | 06/11/13 |
| ARS1-B13-01030-07 | TRG | | | | **ARS1-13-00980** | 002 | 1 | CAMO-13-30583 | STD | 06/11/13 |
| ARS1-B13-01030-08 | TRG | | | | **ARS1-13-00981** | 001 | 1 | CAMO-13-30613 | STD | 06/11/13 |
| ARS1-B13-01030-09 | DMSO | | | | **ARS1-13-01019** | 001 | 1 | 206-051613-3 | STD | 06/28/13 |
| ARS1-B13-01030-10 | TRG | | | | **ARS1-13-01019** | 002 | 1 | 206-051613-4 | STD | 06/28/13 |

American Radiation Services
Baton Rouge Laboratory

# LCS Report
## Analytical Batch: ARS1-B13-01030



| BlindID | ABatch | ABatchSampleID | BlindGroup | StdID | Isotope | ExpectedAddition | ExpectedValue | EmptyWt | GrossWt | NetWt | UserID | ModDate | ExpectedValue_CT | MidPointCountDate | KnownValue |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B-15444 | ARS1-B13-01030 | ARS1-B13-01030-01 | B-H3 | S-0279 | H-3 | 5 | 2.478935714 | 13.3298 | 18.3995 | 5.0697 | BSTEFFENS | 5/22/2013 | 2.472452687 | 6/8/2013 | 12.53459339 |
| B-15445 | ARS1-B13-01030 | ARS1-B13-01030-02 | B-H3 | S-0279 | H-3 | 5 | 2.478935714 | 13.2759 | 18.3359 | 5.06 | BSTEFFENS | 5/22/2013 | 2.472452687 | 6/8/2013 | 12.5106106 |

## ARS-040 Calculation Results

### ARS1-B13-01030

| | |
|---|---|
| ACF | 1 |
| UCF | 2.22 |
| Sys Error | 0.15 |

| AnalysisCode | ABatchSampleID | Total_Bkg_Count | Duration_min | DF | Sample_Activity_Conc | Standard_Counting_Uncertainty | CU_1 | CSU_1 | CU_1_96 | CSU_1_96 | MDC | DLC | ActivityReportUnits |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LSC-A-022 | ARS1-B13-01030-01 | | 240.000 | 0.95867 | 13.411 | 0.967 | 0.967 | 2.232 | 1.896 | 4.375 | 2.475 | 1.196 | pCi |
| LSC-A-022 | ARS1-B13-01030-02 | | 240.000 | 0.95867 | 18.236 | 0.939 | 0.939 | 2.892 | 1.841 | 5.669 | 2.155 | 1.042 | pCi |
| LSC-A-022 | ARS1-B13-01030-03 | | 240.000 | 0.99969 | -0.643 | 0.693 | 0.693 | 0.699 | 1.358 | 1.371 | 2.403 | 1.162 | pCi |
| LSC-A-022 | ARS1-B13-01030-04 | | 240.000 | | | | | | | | | | pCi |
| LSC-A-022 | ARS1-B13-01030-05 | | 240.000 | | | | | | | | | | pCi |
| LSC-A-022 | ARS1-B13-01030-06 | | 240.000 | 0.99539 | 20.514 | 1.052 | 1.052 | 3.252 | 2.062 | 6.374 | 2.410 | 1.165 | pCi |
| LSC-A-022 | ARS1-B13-01030-07 | | 240.000 | | | | | | | | | | pCi |
| LSC-A-022 | ARS1-B13-01030-08 | | 240.000 | | | | | | | | | | pCi |
| LSC-A-022 | ARS1-B13-01030-09 | | 240.000 | 0.99631 | 0.762 | 0.714 | 0.714 | 0.724 | 1.400 | 1.418 | 2.378 | 1.149 | pCi |
| LSC-A-022 | ARS1-B13-01030-10 | | 240.000 | 0.99631 | 0.758 | 0.698 | 0.698 | 0.707 | 1.368 | 1.386 | 2.322 | 1.122 | pCi |

## ARS-040 Calculation Results

### ARS1-B13-01030

| | |
|---|---|
| ACF | 1 |
| UCF | 2.22 |
| Sys Error | 0.15 |

| AnalysisCode | ABatchSampleID | Average_Sample_CPM | Bkg_CPM | tSIE | Detector_Eff_decimal | Aliquot | AliqUnits | Activity_reference_date | Start_Date_of_Count | Sample_Count_Duration_min |
|---|---|---|---|---|---|---|---|---|---|---|
| LSC-A-022 | ARS1-B13-01030-01 | 3.042 | 1.199 | 376.380 | 0.245 | 0.01002 | L | 9/7/2012 | 6/8/2013 | 240.000 |
| LSC-A-022 | ARS1-B13-01030-02 | 4.078 | 1.199 | 375.330 | 0.245 | 0.01002 | L | 9/7/2012 | 6/8/2013 | 240.000 |
| LSC-A-022 | ARS1-B13-01030-03 | 1.108 | 1.199 | 363.190 | 0.240 | 0.01006 | L | 6/6/2013 | 6/8/2013 | 240.000 |
| LSC-A-022 | ARS1-B13-01030-04 | 3.187 | 1.199 | 384.370 | 0.248 | 0.01000 | L | | 6/8/2013 | 240.000 |
| LSC-A-022 | ARS1-B13-01030-05 | 3.107 | 1.199 | 367.460 | 0.242 | 0.01003 | L | | 6/8/2013 | 240.000 |
| LSC-A-022 | ARS1-B13-01030-06 | 4.094 | 1.199 | 372.240 | 0.244 | 0.01002 | L | 5/10/2013 | 6/8/2013 | 240.000 |
| LSC-A-022 | ARS1-B13-01030-07 | | 1.199 | | | 0.01006 | L | 5/13/2013 | | |
| LSC-A-022 | ARS1-B13-01030-08 | | 1.199 | | | 0.01000 | L | 5/14/2013 | | |
| LSC-A-022 | ARS1-B13-01030-09 | 1.308 | 1.199 | 373.530 | 0.244 | 0.01001 | L | 5/16/2013 | 6/9/2013 | 240.000 |
| LSC-A-022 | ARS1-B13-01030-10 | 1.310 | 1.199 | 369.450 | 0.243 | 0.01003 | L | 5/16/2013 | 6/9/2013 | 240.000 |

## ARS-040 Calculation Results

### ARS1-B13-01030

| | |
|---|---|
| ACF | 1 |
| UCF | 2.22 |
| Sys Error | 0.15 |

| AnalysisCode | ABatchSampleID | Initial_Mass_sample_g | Mass_Na2O2_added_g | Final_mass_electrolyzed_sample_NaOH_g | Mass_equivalent_NaOH_g | Final_Mass_Electrolyzed_sample_g | VolumeFactor_X | Enrichment_Factor_Y |
|---|---|---|---|---|---|---|---|---|
| LSC-A-022 | ARS1-B13-01030-01 | 500.000 | 2.000 | 16.950 | 2.052 | 14.898 | 0.030 | 26.282 |
| LSC-A-022 | ARS1-B13-01030-02 | 501.670 | 2.030 | 15.000 | 2.083 | 12.917 | 0.026 | 30.242 |
| LSC-A-022 | ARS1-B13-01030-03 | 500.020 | 2.020 | 16.900 | 2.073 | 14.827 | 0.030 | 26.404 |
| LSC-A-022 | ARS1-B13-01030-04 | 500.000 | 2.040 | 17.060 | 2.093 | 14.967 | 0.030 | 26.166 |
| LSC-A-022 | ARS1-B13-01030-05 | 500.010 | 2.050 | 17.010 | 2.103 | 14.907 | 0.030 | 26.268 |
| LSC-A-022 | ARS1-B13-01030-06 | 500.000 | 2.010 | 17.030 | 2.062 | 14.968 | 0.030 | 26.165 |
| LSC-A-022 | ARS1-B13-01030-07 | 500.070 | 2.000 | 17.010 | 2.052 | 14.958 | 0.030 | 26.185 |
| LSC-A-022 | ARS1-B13-01030-08 | 500.000 | 2.030 | 16.110 | 2.083 | 14.027 | 0.028 | 27.849 |
| LSC-A-022 | ARS1-B13-01030-09 | 500.000 | 2.000 | 16.840 | 2.052 | 14.788 | 0.030 | 26.470 |
| LSC-A-022 | ARS1-B13-01030-10 | 500.040 | 2.000 | 16.410 | 2.052 | 14.358 | 0.029 | 27.234 |

## ARS-040 Calculation Results

### ARS1-B13-01030

| | |
|---|---|
| ACF | 1 |
| UCF | 2.22 |
| Sys Error | 0.15 |

| AnalysisCode | ABatchSampleID | AliquotReportUnits | UserID | ModDate |
|---|---|---|---|---|
| LSC-A-022 | ARS1-B13-01030-01 | L | AMRAD\PSIMS | 6/10/2013 |
| LSC-A-022 | ARS1-B13-01030-02 | L | AMRAD\PSIMS | 6/10/2013 |
| LSC-A-022 | ARS1-B13-01030-03 | L | AMRAD\PSIMS | 6/10/2013 |
| LSC-A-022 | ARS1-B13-01030-04 | L | AMRAD\PSIMS | 6/10/2013 |
| LSC-A-022 | ARS1-B13-01030-05 | L | AMRAD\PSIMS | 6/10/2013 |
| LSC-A-022 | ARS1-B13-01030-06 | L | AMRAD\PSIMS | 6/10/2013 |
| LSC-A-022 | ARS1-B13-01030-07 | L | AMRAD\PSIMS | 6/10/2013 |
| LSC-A-022 | ARS1-B13-01030-08 | L | AMRAD\PSIMS | 6/10/2013 |
| LSC-A-022 | ARS1-B13-01030-09 | L | AMRAD\PSIMS | 6/10/2013 |
| LSC-A-022 | ARS1-B13-01030-10 | L | AMRAD\PSIMS | 6/10/2013 |

# ARS-040



| ID_31001_040 | ABatch | AnalysisCode | ABatchSampleID | ClientID | IC_ID | S01_1_EnrichCellNo |
|---|---|---|---|---|---|---|
| 646 | ARS1-B13-01030 | LSC-A-022 | ARS1-B13-01030-01 | | | 42 |
| 647 | ARS1-B13-01030 | LSC-A-022 | ARS1-B13-01030-02 | | | 97 |
| 648 | ARS1-B13-01030 | LSC-A-022 | ARS1-B13-01030-03 | | | 4 |
| 649 | ARS1-B13-01030 | LSC-A-022 | ARS1-B13-01030-04 | | | 87 |
| 650 | ARS1-B13-01030 | LSC-A-022 | ARS1-B13-01030-05 | | | 93 |
| 651 | ARS1-B13-01030 | LSC-A-022 | ARS1-B13-01030-06 | CAMO-13-30582 | | 0 |
| 652 | ARS1-B13-01030 | LSC-A-022 | ARS1-B13-01030-07 | CAMO-13-30583 | | 84 |
| 653 | ARS1-B13-01030 | LSC-A-022 | ARS1-B13-01030-08 | CAMO-13-30613 | | 69 |
| 654 | ARS1-B13-01030 | LSC-A-022 | ARS1-B13-01030-09 | 206-051613-3 | | 80 |
| 655 | ARS1-B13-01030 | LSC-A-022 | ARS1-B13-01030-10 | 206-051613-4 | | 1 |

| S01_2_TareCell | S01_3_TareResv | S02_GrossWtResv | S03_1_WtNa2O2 | C_GrossSampleAdded | S04_1_ElectrolSD |
|---|---|---|---|---|---|
| 331.92 | 208.83 | 708.83 | 2 | 500 | 05/23/2013 14:42:00 |
| 332.91 | 210.8 | 712.47 | 2.03 | 501.67 | 05/23/2013 14:42:00 |
| 332.65 | 211.45 | 711.47 | 2.02 | 500.02 | 05/23/2013 14:42:00 |
| 330.74 | 196.7 | 696.7 | 2.04 | 500 | 05/23/2013 14:42:00 |
| 337.14 | 194.85 | 694.86 | 2.05 | 500.01 | 05/23/2013 14:42:00 |
| 329.42 | 197.8 | 697.8 | 2.01 | 500 | 05/23/2013 14:42:00 |
| 329.45 | 200.84 | 700.91 | 2 | 500.07 | 05/23/2013 14:42:00 |
| 334.49 | 204.8 | 704.8 | 2.03 | 500 | 05/23/2013 14:42:00 |
| 337.39 | 197.22 | 697.22 | 2 | 500 | 05/23/2013 14:42:00 |
| 326.96 | 208.45 | 708.49 | 2 | 500.04 | 05/23/2013 14:42:00 |

| S04_2_StartAmp | S04_3_StartBathC | S05_1_ElectrolED | S05_2_EndBathC | S05_3_EndCellWt | C_GrossSmplRec |
|---|---|---|---|---|---|
| 5 | 2 | 06/06/2013 07:05:00 | 2 | 557.7 | 16.95 |
| 5 | 2 | 06/06/2013 07:08:00 | 2 | 558.71 | 15 |
| 5 | 2 | 06/05/2013 14:14:00 | 2 | 561 | 16.9 |
| 5 | 2 | 06/06/2013 07:10:00 | 2 | 544.5 | 17.06 |
| 5 | 2 | 06/06/2013 10:41:00 | 2 | 549 | 17.01 |
| 5 | 2 | 06/06/2013 10:43:00 | 2 | 544.25 | 17.03 |
| 5 | 2 | 06/06/2013 10:45:00 | 2 | 547.3 | 17.01 |
| 5 | 2 | 06/06/2013 10:47:00 | 2 | 555.4 | 16.11 |
| 5 | 2 | 06/07/2013 07:02:00 | 2 | 551.45 | 16.84 |
| 5 | 2 | 06/07/2013 07:04:00 | 2 | 551.82 | 16.41 |

| C_EnrichmentF | S06_TareWt | S07_GrossWt | C_RecoveredWa | S08_TearWtLSCVial | S09_VialPlusSmpl | C_NetSample |
|---|---|---|---|---|---|---|
| 29.49852507 | 109.31 | 124.31 | 15 | 6.48 | 16.5 | 10.02 |
| 33.44466667 | 95.76 | 108.24 | 12.48 | 6.55 | 16.57 | 10.02 |
| 29.58698225 | 93.51 | 105.66 | 12.15 | 6.48 | 16.54 | 10.06 |
| 29.30832356 | 101.08 | 116.53 | 15.45 | 6.58 | 16.583 | 10.003 |
| 29.39506173 | 105.71 | 119.44 | 13.73 | 6.41 | 16.44 | 10.03 |
| 29.35995302 | 103.07 | 117.02 | 13.95 | 6.49 | 16.51 | 10.02 |
| 29.39858907 | 114.57 | 128.94 | 14.37 | 6.65 | 16.71 | 10.06 |
| 31.03662322 | 107.81 | 121.75 | 13.94 | 6.51 | 16.51 | 10 |
| 29.6912114 | 101.19 | 114.54 | 13.35 | 6.47 | 16.48 | 10.01 |
| 30.47166362 | 111.43 | 125.37 | 13.94 | 6.64 | 16.67 | 10.03 |

| S10_1_WtVislSmplDrWatFill | C_NetDeadWaterAdded | C_TareWtBFCocktail | S10_2_GrossWtVSC | C_NetWtCocktailAdded |
|---|---|---|---|---|
| 0 | 0 | 16.5 | 26.62 | 10.12 |
| 0 | 0 | 16.57 | 26.7 | 10.13 |
| 0 | 0 | 16.54 | 26.57 | 10.03 |
| 0 | 0 | 16.583 | 27.13 | 10.547 |
| 0 | 0 | 16.44 | 26.73 | 10.29 |
| 0 | 0 | 16.51 | 26.76 | 10.25 |
| 0 | 0 | 16.71 | 26.96 | 10.25 |
| 0 | 0 | 16.51 | 26.75 | 10.24 |
| 0 | 0 | 16.48 | 26.77 | 10.29 |
| 0 | 0 | 16.67 | 26.95 | 10.28 |

| UserID | ModDate |
|---|---|
| AMRAD\PSIMS | 06/06/2013 13:35:08 |
| AMRAD\PSIMS | 06/06/2013 13:37:28 |
| AMRAD\PSIMS | 06/06/2013 13:39:21 |
| AMRAD\PSIMS | 06/06/2013 13:41:28 |
| AMRAD\PSIMS | 06/06/2013 13:45:29 |
| AMRAD\PSIMS | 06/06/2013 13:47:38 |
| AMRAD\PSIMS | 06/06/2013 14:22:41 |
| AMRAD\PSIMS | 06/06/2013 14:24:11 |
| AMRAD\PSIMS | 06/07/2013 11:13:23 |
| AMRAD\PSIMS | 06/07/2013 11:16:29 |

AMRAD
AMERICAN RADIATION SERVICES, LLC

# LSC Instrument Data Transfer Report

\\Packard3170\Results\H3 Low Level\Low Level H3\2

| | | | |
|---|---|---|---|
| ARS1-B13-01030 | 8 | 8 | LSC 1 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BKG | 2 | | 1 | BACKGROUND | 06/07/13 21:12 | 1.20 | 362.50 | 23.9900 | 240.00 | ARS1-B13-01030 | | |
| ARS1-B13-01030-01 | 2 | | 2 | B13-01030-01 | 06/08/13 01:23 | 3.04 | 376.38 | 24.5200 | 240.00 | ARS1-B13-01030 | | |
| ARS1-B13-01030-02 | 2 | | 3 | B13-01030-02 | 06/08/13 05:34 | 4.08 | 375.33 | 24.4800 | 240.00 | ARS1-B13-01030 | | |
| ARS1-B13-01030-03 | 2 | | 4 | B13-01030-03 | 06/08/13 09:45 | 1.11 | 363.19 | 24.0100 | 240.00 | ARS1-B13-01030 | | |
| ARS1-B13-01030-04 | 2 | | 5 | B13-01030-04 | 06/08/13 13:56 | 3.19 | 384.37 | 24.8300 | 240.00 | ARS1-B13-01030 | | |
| ARS1-B13-01030-05 | 2 | | 6 | B13-01030-05 | 06/08/13 18:07 | 3.11 | 367.46 | 24.1800 | 240.00 | ARS1-B13-01030 | | |
| ARS1-B13-01030-06 | 2 | | 7 | B13-01030-06 | 06/08/13 22:18 | 4.09 | 372.24 | 24.3600 | 240.00 | ARS1-B13-01030 | ARS1-13-00980 | 1 |
| ARS1-B13-01030-09 | 2 | | 8 | B13-01030-09 | 06/09/13 02:29 | 1.31 | 373.53 | 24.4100 | 240.00 | ARS1-B13-01030 | ARS1-13-01019 | 1 |
| ARS1-B13-01030-10 | 2 | | 9 | B13-01030-10 | 06/09/13 06:40 | 1.31 | 369.45 | 24.2500 | 240.00 | ARS1-B13-01030 | ARS1-13-01019 | 1 |

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20130607_2103
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20130607_2103\20130607_2103.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20130607_2103\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20130607_2103\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 240.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

| Regions | LL | UL | 2Sigma % Terminator |
|---|---|---|---|
| A | 2.0 | 18.6 | 0.50 |
| B | 0.0 | 2000.0 | 0.00 |
| C | 0.0 | 2000.0 | 0.00 |

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

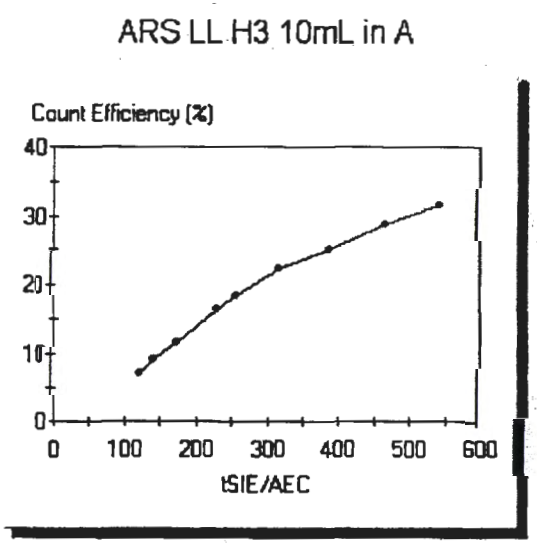
Half Life-

Half Life Correction: Off

| Regions | Half Life | Units | Reference Date | Reference Time |
|---|---|---|---|---|

A
B
C

Cycle 1 Results
Quench Curve Block Data




Date Acquired: 11/20/2012
Date Modified:
ARS LL H3 10mL in A

| tSIE/AEC | Count Efficiency (%) |
|---|---|
| 543.57 | 31.51 |
| 466.44 | 28.74 |
| 387.42 | 24.95 |
| 316.48 | 22.21 |
| 257.14 | 18.18 |
| 229.94 | 16.37 |
| 172.56 | 11.68 |
| 142.07 | 9.08 |
| 121.26 | 7.13 |

| P# | S# | SMPL_ID | CPMA | DPM1 | tSIE | Eff Nucl In A | Count Time | DATE | TIME | MESSAGES |
|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 1 | BACKGROUND | 1.199 | 5.00 | 362.50 | 23.99 | 240.00 | 6/7/2013 | 9:12:51 PM | |
| 2 | 2 | B13-01030-01 | 3.042 | 12.41 | 376.38 | 24.52 | 240.00 | 6/8/2013 | 1:23:51 AM | |
| 2 | 3 | B13-01030-02 | 4.078 | 16.66 | 375.33 | 24.48 | 240.00 | 6/8/2013 | 5:34:50 AM | |
| 2 | 4 | B13-01030-03 | 1.108 | 4.62 | 363.19 | 24.01 | 240.00 | 6/8/2013 | 9:45:46 AM | |
| 2 | 5 | B13-01030-04 | 3.187 | 12.84 | 384.37 | 24.83 | 240.00 | 6/8/2013 | 1:56:41 PM | |
| 2 | 6 | B13-01030-05 | 3.107 | 12.85 | 367.46 | 24.18 | 240.00 | 6/8/2013 | 6:07:38 PM | |
| 2 | 7 | B13-01030-06 | 4.094 | 16.81 | 372.24 | 24.36 | 240.00 | 6/8/2013 | 10:18:35 PM | |
| 2 | 8 | B13-01030-09 | 1.308 | 5.36 | 373.53 | 24.41 | 240.00 | 6/9/2013 | 2:29:32 AM | |
| 2 | 9 | B13-01030-10 | 1.310 | 5.40 | 369.45 | 24.25 | 240.00 | 6/9/2013 | 6:40:31 AM | |

Calibration Information
Software Version IC: 2.12
Software Version EC: 2.03
Instrument Model: Tri-Carb 3170TR/SL
Instrument Serial Number: 423814
3H Chi Square: 26.00 Date Processed: 6/9/2013 12:18:14 PM
14C Chi Square: 13.78 Date Processed: 6/9/2013 12:18:14 PM
3H E^2/B (1-18.6 keV): 2049.17 Date Processed: 6/9/2013 12:18:14 PM
14C E^2/B (4-156 keV): 8427.03 Date Processed: 6/9/2013 12:18:14 PM
3H Efficiency (0-18.6 keV): 62.40 Date Processed: 6/9/2013 12:18:14 PM
14C Efficiency (0-156 keV): 96.08 Date Processed: 6/9/2013 12:18:14 PM
IPA Background Date Processed: 6/9/2013 12:18:14 PM
3H Background CPM (0-18.6 keV): 1.97 Date Processed: 6/9/2013 12:18:14 PM
14C Background CPM (0-156 keV): 2.15 Date Processed: 6/9/2013 12:18:14 PM
3H Calibration DPM: 268700
3H Reference Date: 9/2/2011
14C Calibration DPM: 127700
===== IPA Errors and Warnings for Last Aquired Data Per Parameter ====
2/15/2009 2:09:35 AM: IPA Error - Insufficient 14C data to calculate Chi Square.
== End of IPA Errors and Warnings for Last Aquired Data Per Parameter ==

**ARS Batch Number:** ARS1-B13 - 01030 [redacted]

Enter these Values for LCS

| | | Report Name | Field Name on the Report |
|---|---|---|---|
| Current ACT | 5.4888 | Standards Report | ACT at Date Above (dpm/g) |
| NetWt | 5.0697 | LCS Report | NetWt |
| Aliquot | 0.5000 | Tritium Enrichment Data | Gross Sample Added/1000 |

Enter these Values for LCSD

| | | Report Name | Field Name on the Report |
|---|---|---|---|
| Current ACT | 5.4888 | Standards Report | ACT at Date Above (dpm/g) |
| NetWt | 5.0600 | LCS Report | NetWt |
| Aliquot | 0.5017 | Tritium Enrichment Data | Gross Sample Added/1000 |

## Expected Value Calculations

**ARS Batch Number:** ARS1-~~B11~~ - 01030
B13 SNL 6-10-13

**LCS** CALCULATED EXPECTED VALUE = 25.069

**Range** 20.055 - 30.083

**LCSD** CALCULATED EXPECTED VALUE = 24.938

**Range** 19.950 - 29.925

Exit

AMRAD AMERICAN RADIATION SERVICES, LLC

# Standards Activity as of: 06/08/13 01:23

| Active | Std ID | Isotope | FSCLT | Verification Date | Exp Date | Status | Ref Date | Ref ACT (dpm) | ACT at Date Above (dpm/g) | Halflife (days) | Parent ID | Expended Date | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | S-0279 | H-3 | SL | 09/10/12 | 09/10/13 | OK | 09/07/12 | 5.7255E+00 | 5.4888 | 4.500E+03 | S-0237 | | H3 LCS standard. Dilution performed as stated above by 8 Steffens. -6 |

# Beta Liquid Scintillation Counter Log Book

| Date | Time | ARS Sample I.D. Number | Batch Number | Liquid Scintillation File Number | Technician Initials |
|---|---|---|---|---|---|
| 5-24-13 | 13:02 | B13-00960-11 | B13-00960 | 1435 | PDJ |
| ↓ | ↓ | B13-00960-12 | ↓ | ↓ | PDJ |
| ↓ | ↓ | B13-00960-13 | ↓ | ↓ | PDJ |
| ↓ | ↓ | B13-00960-14 | ↓ | ↓ | PDJ |
| 5-24-13 | 13:16 | SNC 16 | QA | QA | PDJ |
| ↓ | ↓ | Background | B13-00960 | 1449 | PDJ |
| ↓ | ↓ | B13-00960-11 | ↓ | ↓ | PDJ |
| ↓ | ↓ | B13-00960-13 | ↓ | ↓ | PDJ |
| ↓ | ↓ | B13-00960-14 | ↓ | ↓ | PDJ |
| ✱ 6-7-13 ~~6/6/13~~ | 9:35 ~~13:11~~ | SNC 16 | QA | QA | PDJ |
| ↓ | ↓ | Background | B13-01131 | 1013 | PDJ |
| ↓ | ↓ | B13-01131-04 | ↓ | ↓ | PDJ |
| ↓ | ↓ | B13-01131-05 | ↓ | ↓ | PDJ |
| ↓ | ↓ | B13-01131-06 | ↓ | ↓ | PDJ |
| ↓ | ↓ | B13-01131-07 ~~B13-01131~~ | ↓ | ↓ | PDJ |
| 6-7-13 | 11:18 | Background | B13-01030 | 2103 | PDJ |
| ↓ | ↓ | B13-01030-01 | ↓ | ↓ | PDJ |
| ↓ | ↓ | B13-01030-02 | ↓ | ↓ | PDJ |
| ↓ | ↓ | B13-01030-03 | ↓ | ↓ | PDJ |
| ↓ | ↓ | B13-01030-04 | ↓ | ↓ | PDJ |

✱ instrument malfunctioned, re-test



Reviewed By: SLR Initials Date: 6-12-13

# Beta Liquid Scintillation Counter Log Book

| Date | Time | ARS Sample I.D. Number | Batch Number | Liquid Scintillation File Number | Technici Initial: |
|---|---|---|---|---|---|
| 6-7-17 | 11:19 | P13-01000-05 | 313-0130 | 2103 | PB |
| ↓ | ↓ | 313-01030-06 | ↓ | ↓ | PB |
| ↓ | ↓ | 313-01030-09 | ↓ | ↓ | PB |
| ↓ | ↓ | 013-01030-10 | ↓ | ↓ | PB |
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No data SDR 6-12-13



Reviewed By: SDR Initials Date: 6-12-13

# Technical Notes



| | | | |
|---|---|---|---|
| AMRAD AMERICAN RADIATION SERVICES, LLC | Batch | ARS1-B13-01030 | |
| | Analysis Code | LSC-A-022 | |
| | Procedure No | ARS-040 | |
| | Matrix | AQ | |

| # | Date | Dept | Batch Technical Notes | User ID |
|---|---|---|---|---|
| 1 | 06/10/13 08:21 | CHEMISTRY | Samples B13-01030-06, SDG ARS1-13-00980-002, and sample B13-01030-07, SDG ARS1-13-00981-01, were removed from batch because initial ph caused issues with procedure. Causing the samples to not be counted. | AMRAD\PSIMS |

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

# American Radiation Services Analytical Reports

for

# Los Alamos National Laboratory

# Low Level Tritium by Low Level Liquid Scintillation Counting

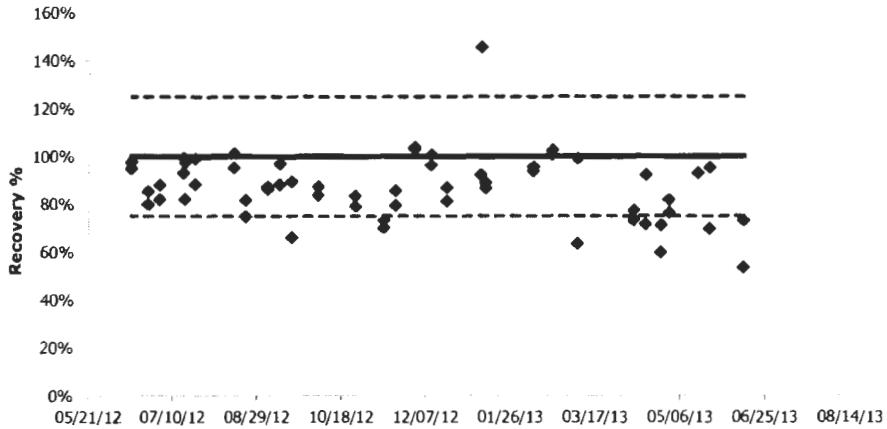
# Control Charts

American Radiation Services
Baton Rouge Laboratory

# QC Chart

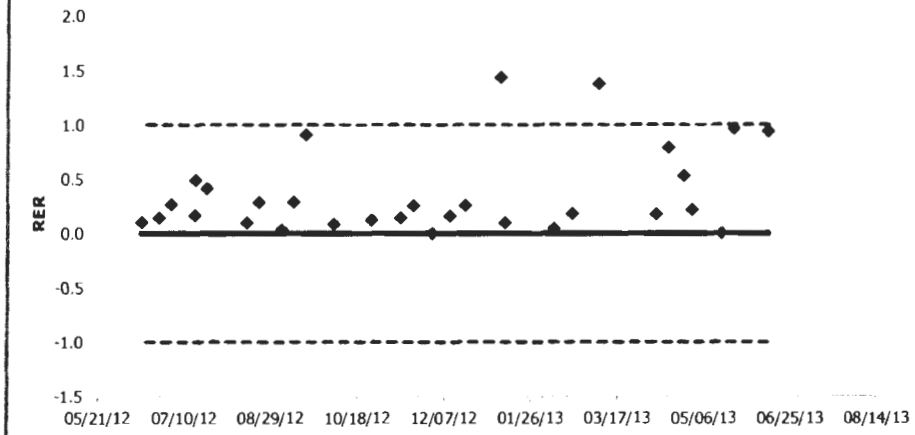


## LLH-3 LCS



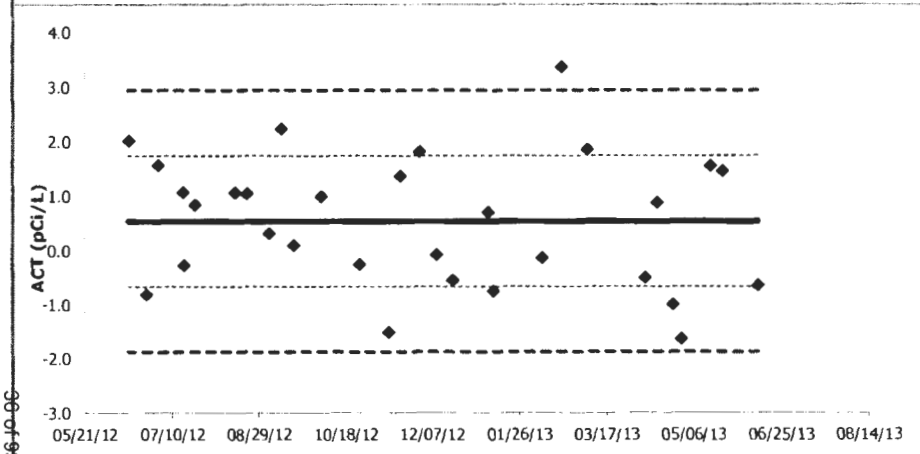

| Average | STDEV | n | UCL | LCL |
|---|---|---|---|---|
| 0.8702 | 0.1387 | 30 | 1.2500 | 0.7500 |

## LLH-3 RER



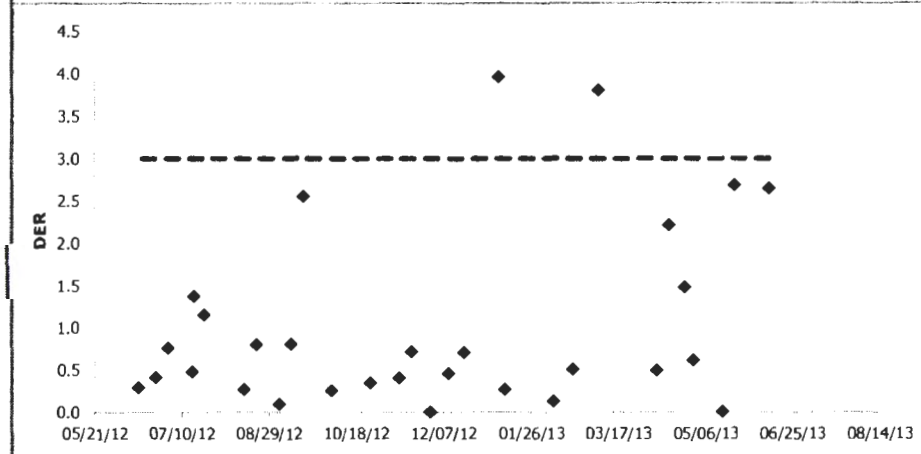

| | | n | UCL | LCL |
|---|---|---|---|---|
| | | 30 | 1.0000 | -1.0000 |

## LLH-3 Blank




| Average | STDEV | n | UCL | LCL |
|---|---|---|---|---|
| 0.5341 | 1.2036 | 30 | 2.9412 | -1.8730 |

## LLH-3 DER




| | | n | UCL | |
|---|---|---|---|---|
| | | 30 | 3.0000 | |

3H Efficiency
Total # pts : 5637
Valid # pts : 156
Mean : 62.74
SD : 0.27

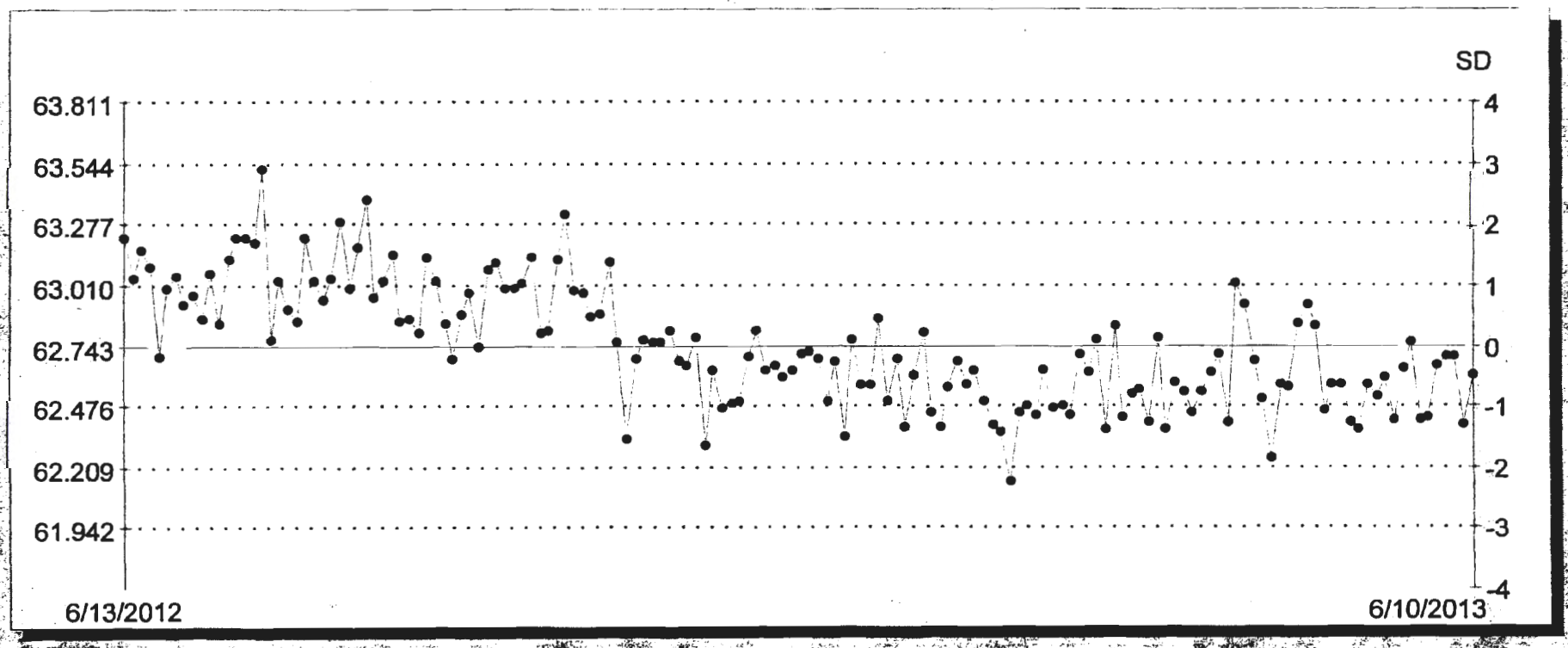
| Date | Value | Valid Pt |
|---|---|---|
| Jun 13, 2012 | 63.22 | X |
| Jun 21, 2012 | 63.04 | X |
| Jun 22, 2012 | 63.16 | X |
| Jun 25, 2012 | 63.09 | X |
| Jun 27, 2012 | 62.70 | X |
| Jun 27, 2012 | 62.99 | X |
| Jun 28, 2012 | 63.05 | X |
| Jun 29, 2012 | 62.93 | X |
| Jun 30, 2012 | 62.97 | X |
| Jul 05, 2012 | 62.86 | X |
| Jul 11, 2012 | 63.07 | X |
| Jul 12, 2012 | 62.85 | X |
| Jul 16, 2012 | 63.12 | X |
| Jul 20, 2012 | 63.22 | X |
| Jul 22, 2012 | 63.22 | X |
| Jul 26, 2012 | 63.19 | X |
| Jul 27, 2012 | 63.52 | X |
| Aug 09, 2012 | 62.77 | X |
| Aug 13, 2012 | 63.03 | X |
| Aug 14, 2012 | 62.90 | X |
| Aug 16, 2012 | 62.85 | X |
| Aug 17, 2012 | 63.22 | X |
| Aug 18, 2012 | 63.03 | X |
| Aug 21, 2012 | 62.94 | X |
| Aug 22, 2012 | 63.04 | X |
| Aug 26, 2012 | 63.29 | X |
| Aug 27, 2012 | 62.99 | X |
| Aug 27, 2012 | 63.17 | X |
| Sep 05, 2012 | 63.39 | X |
| Sep 09, 2012 | 62.96 | X |
| Sep 11, 2012 | 63.03 | X |
| Sep 17, 2012 | 63.15 | X |
| Sep 18, 2012 | 62.86 | X |
| Sep 20, 2012 | 62.86 | X |
| Sep 20, 2012 | 62.80 | X |
| Sep 24, 2012 | 63.14 | X |
| Sep 28, 2012 | 63.03 | X |
| Oct 01, 2012 | 62.85 | X |
| Oct 04, 2012 | 62.68 | X |
| Oct 05, 2012 | 62.88 | X |
| Oct 06, 2012 | 62.98 | X |
| Oct 11, 2012 | 62.74 | X |

| | | |
|---|---|---|
| Oct 12, 2012 | 63.08 | X |
| Oct 13, 2012 | 63.12 | X |
| Oct 17, 2012 | 63.00 | X |
| Oct 19, 2012 | 63.00 | X |
| Oct 22, 2012 | 63.02 | X |
| Oct 23, 2012 | 63.13 | X |
| Oct 23, 2012 | 62.80 | X |
| Oct 23, 2012 | 62.81 | X |
| Oct 23, 2012 | 63.13 | X |
| Oct 25, 2012 | 63.32 | X |
| Oct 27, 2012 | 62.99 | X |
| Oct 31, 2012 | 62.98 | X |
| Nov 02, 2012 | 62.87 | X |
| Nov 02, 2012 | 62.89 | X |
| Nov 04, 2012 | 63.11 | X |
| Nov 05, 2012 | 62.76 | X |
| Nov 10, 2012 | 62.33 | X |
| Nov 12, 2012 | 62.69 | X |
| Nov 12, 2012 | 62.77 | X |
| Nov 13, 2012 | 62.76 | X |
| Nov 14, 2012 | 62.75 | X |
| Nov 15, 2012 | 62.81 | X |
| Nov 18, 2012 | 62.68 | X |
| Nov 19, 2012 | 62.65 | X |
| Nov 19, 2012 | 62.78 | X |
| Nov 20, 2012 | 62.30 | X |
| Nov 21, 2012 | 62.63 | X |
| Nov 23, 2012 | 62.47 | X |
| Dec 04, 2012 | 62.48 | X |
| Dec 08, 2012 | 62.49 | X |
| Dec 12, 2012 | 62.70 | X |
| Dec 14, 2012 | 62.81 | X |
| Dec 15, 2012 | 62.63 | X |
| Dec 21, 2012 | 62.66 | X |
| Dec 21, 2012 | 62.60 | X |
| Dec 31, 2012 | 62.63 | X |
| Jan 02, 2013 | 62.70 | X |
| Jan 09, 2013 | 62.72 | X |
| Jan 10, 2013 | 62.69 | X |
| Feb 01, 2013 | 62.50 | X |
| Feb 02, 2013 | 62.68 | X |
| Feb 06, 2013 | 62.34 | X |
| Feb 08, 2013 | 62.77 | X |
| Feb 08, 2013 | 62.57 | X |
| Feb 15, 2013 | 62.57 | X |
| Feb 17, 2013 | 62.87 | X |
| Feb 18, 2013 | 62.50 | X |
| Feb 20, 2013 | 62.68 | X |
| Feb 21, 2013 | 62.38 | X |
| Feb 22, 2013 | 62.61 | X |
| Feb 28, 2013 | 62.80 | X |
| Mar 01, 2013 | 62.45 | X |

| | | |
|---|---|---|
| Mar 01, 2013 | 62.56 | X |
| Mar 04, 2013 | 62.67 | X |
| Mar 04, 2013 | 62.57 | X |
| Mar 06, 2013 | 62.64 | X |
| Mar 08, 2013 | 62.50 | X |
| Mar 08, 2013 | 62.39 | X |
| Mar 14, 2013 | 62.36 | X |
| Mar 15, 2013 | 62.14 | X |
| Mar 18, 2013 | 62.45 | X |
| Mar 22, 2013 | 62.47 | X |
| Mar 22, 2013 | 62.43 | X |
| Mar 23, 2013 | 62.64 | X |
| Mar 28, 2013 | 62.47 | X |
| Mar 29, 2013 | 62.47 | X |
| Apr 04, 2013 | 62.44 | X |
| Apr 05, 2013 | 62.70 | X |
| Apr 07, 2013 | 62.62 | X |
| Apr 11, 2013 | 62.77 | X |
| Apr 12, 2013 | 62.38 | X |
| Apr 15, 2013 | 62.83 | X |
| Apr 16, 2013 | 62.42 | X |
| Apr 16, 2013 | 62.53 | X |
| Apr 16, 2013 | 62.55 | X |
| Apr 16, 2013 | 62.41 | X |
| Apr 16, 2013 | 62.78 | X |
| Apr 16, 2013 | 62.37 | X |
| Apr 18, 2013 | 62.59 | X |
| Apr 19, 2013 | 62.54 | X |
| Apr 22, 2013 | 62.44 | X |
| Apr 24, 2013 | 62.54 | X |
| Apr 24, 2013 | 62.62 | X |
| Apr 25, 2013 | 62.71 | X |
| Apr 25, 2013 | 62.40 | X |
| Apr 27, 2013 | 63.02 | X |
| Apr 29, 2013 | 62.92 | X |
| May 01, 2013 | 62.68 | X |
| May 03, 2013 | 62.51 | X |
| May 06, 2013 | 62.24 | X |
| May 07, 2013 | 62.57 | X |
| May 09, 2013 | 62.56 | X |
| May 09, 2013 | 62.84 | X |
| May 09, 2013 | 62.92 | X |
| May 09, 2013 | 62.83 | X |
| May 09, 2013 | 62.46 | X |
| May 10, 2013 | 62.57 | X |
| May 14, 2013 | 62.57 | X |
| May 15, 2013 | 62.40 | X |
| May 16, 2013 | 62.37 | X |
| May 17, 2013 | 62.57 | X |
| May 17, 2013 | 62.52 | X |
| May 17, 2013 | 62.60 | X |
| May 17, 2013 | 62.41 | X |

| | | |
|---|---|---|
| May 22, 2013 | 62.75 | X |
| May 24, 2013 | 62.41 | X |
| May 24, 2013 | 62.42 | X |
| May 29, 2013 | 62.66 | X |
| Jun 07, 2013 | 62.70 | X |
| Jun 07, 2013 | 62.70 | X |
| Jun 09, 2013 | 62.40 | X |
| Jun 10, 2013 | 62.61 | X |

3H Efficiency
Total # pts : 5637
Valid # pts : 156
Mean : 62.74
SD : 0.27



3H Background
Total # pts : 5563
Valid # pts : 156
Mean : 2.12
SD : 0.17

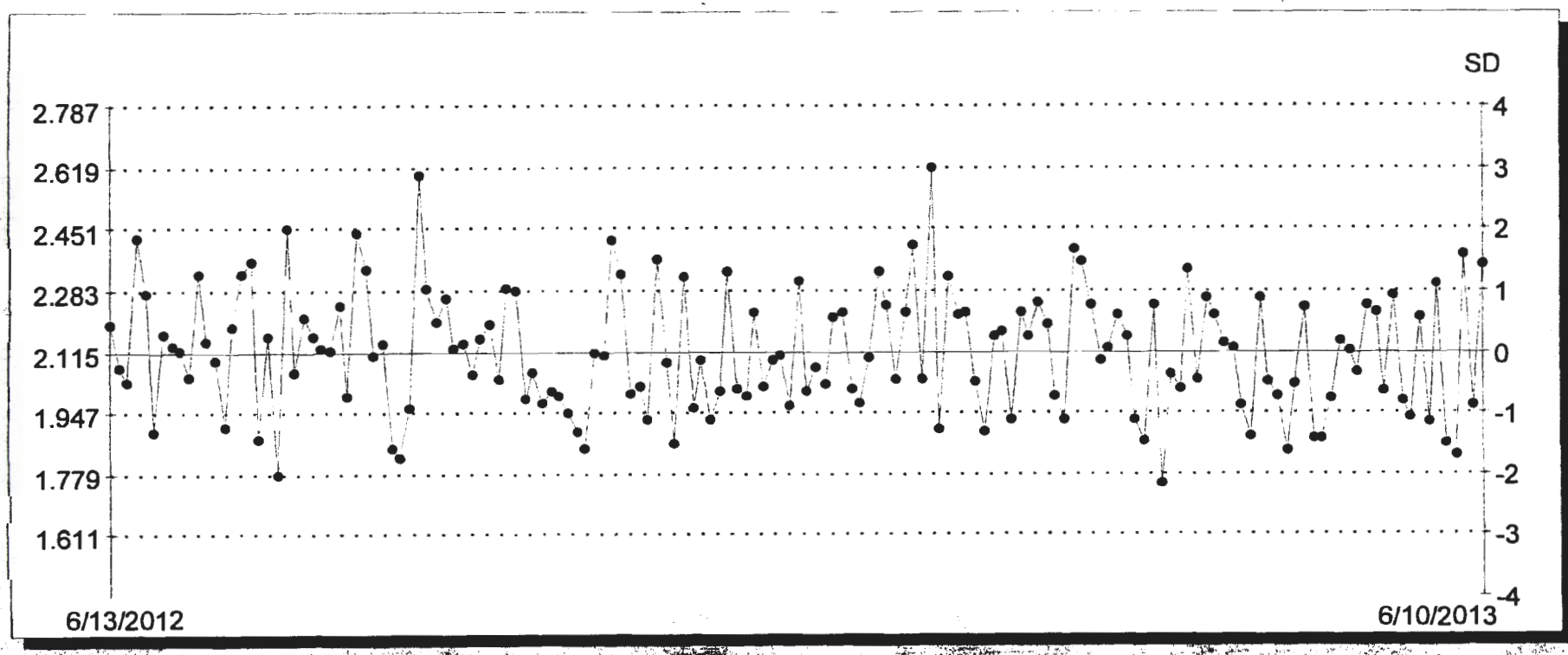
| Date | Value | Valid Pt |
|---|---|---|
| Jun 13, 2012 | 2.19 | X |
| Jun 21, 2012 | 2.08 | X |
| Jun 22, 2012 | 2.04 | X |
| Jun 25, 2012 | 2.43 | X |
| Jun 27, 2012 | 2.28 | X |
| Jun 27, 2012 | 1.90 | X |
| Jun 28, 2012 | 2.16 | X |
| Jun 29, 2012 | 2.13 | X |
| Jun 30, 2012 | 2.12 | X |
| Jul 05, 2012 | 2.05 | X |
| Jul 11, 2012 | 2.33 | X |
| Jul 12, 2012 | 2.15 | X |
| Jul 16, 2012 | 2.09 | X |
| Jul 20, 2012 | 1.91 | X |
| Jul 22, 2012 | 2.19 | X |
| Jul 26, 2012 | 2.33 | X |
| Jul 27, 2012 | 2.36 | X |
| Aug 09, 2012 | 1.88 | X |
| Aug 13, 2012 | 2.16 | X |
| Aug 14, 2012 | 1.78 | X |
| Aug 16, 2012 | 2.46 | X |
| Aug 17, 2012 | 2.06 | X |
| Aug 18, 2012 | 2.21 | X |
| Aug 21, 2012 | 2.16 | X |
| Aug 22, 2012 | 2.13 | X |
| Aug 26, 2012 | 2.12 | X |
| Aug 27, 2012 | 2.25 | X |
| Aug 27, 2012 | 1.99 | X |
| Sep 05, 2012 | 2.44 | X |
| Sep 09, 2012 | 2.34 | X |
| Sep 11, 2012 | 2.11 | X |
| Sep 17, 2012 | 2.14 | X |
| Sep 18, 2012 | 1.85 | X |
| Sep 20, 2012 | 1.83 | X |
| Sep 20, 2012 | 1.96 | X |
| Sep 24, 2012 | 2.60 | X |
| Sep 28, 2012 | 2.29 | X |
| Oct 01, 2012 | 2.20 | X |
| Oct 04, 2012 | 2.26 | X |
| Oct 05, 2012 | 2.13 | X |
| Oct 06, 2012 | 2.14 | X |
| Oct 11, 2012 | 2.05 | X |

| | | |
|---|---|---|
| Oct 12, 2012 | 2.15 | X |
| Oct 13, 2012 | 2.19 | X |
| Oct 17, 2012 | 2.04 | X |
| Oct 19, 2012 | 2.29 | X |
| Oct 22, 2012 | 2.29 | X |
| Oct 23, 2012 | 1.99 | X |
| Oct 23, 2012 | 2.06 | X |
| Oct 23, 2012 | 1.98 | X |
| Oct 23, 2012 | 2.01 | X |
| Oct 25, 2012 | 2.00 | X |
| Oct 27, 2012 | 1.95 | X |
| Oct 31, 2012 | 1.89 | X |
| Nov 02, 2012 | 1.85 | X |
| Nov 02, 2012 | 2.11 | X |
| Nov 04, 2012 | 2.11 | X |
| Nov 05, 2012 | 2.42 | X |
| Nov 10, 2012 | 2.33 | X |
| Nov 12, 2012 | 2.00 | X |
| Nov 12, 2012 | 2.02 | X |
| Nov 13, 2012 | 1.93 | X |
| Nov 14, 2012 | 2.37 | X |
| Nov 15, 2012 | 2.09 | X |
| Nov 18, 2012 | 1.86 | X |
| Nov 19, 2012 | 2.32 | X |
| Nov 19, 2012 | 1.96 | X |
| Nov 20, 2012 | 2.09 | X |
| Nov 21, 2012 | 1.93 | X |
| Nov 23, 2012 | 2.01 | X |
| Dec 04, 2012 | 2.34 | X |
| Dec 08, 2012 | 2.02 | X |
| Dec 12, 2012 | 2.00 | X |
| Dec 14, 2012 | 2.22 | X |
| Dec 15, 2012 | 2.02 | X |
| Dec 21, 2012 | 2.09 | X |
| Dec 21, 2012 | 2.10 | X |
| Dec 31, 2012 | 1.97 | X |
| Jan 02, 2013 | 2.31 | X |
| Jan 09, 2013 | 2.01 | X |
| Jan 10, 2013 | 2.08 | X |
| Feb 01, 2013 | 2.03 | X |
| Feb 02, 2013 | 2.21 | X |
| Feb 06, 2013 | 2.22 | X |
| Feb 08, 2013 | 2.01 | X |
| Feb 08, 2013 | 1.98 | X |
| Feb 15, 2013 | 2.10 | X |
| Feb 17, 2013 | 2.34 | X |
| Feb 18, 2013 | 2.25 | X |
| Feb 20, 2013 | 2.04 | X |
| Feb 21, 2013 | 2.23 | X |
| Feb 22, 2013 | 2.41 | X |
| Feb 28, 2013 | 2.04 | X |
| Mar 01, 2013 | 2.62 | X |

| | | |
|---|---|---|
| Mar 01, 2013 | 2.32 | X |
| Mar 04, 2013 | 2.22 | X |
| Mar 04, 2013 | 2.22 | X |
| Mar 06, 2013 | 2.04 | X |
| Mar 08, 2013 | 1.90 | X |
| Mar 08, 2013 | 2.16 | X |
| Mar 14, 2013 | 2.17 | X |
| Mar 15, 2013 | 1.93 | X |
| Mar 18, 2013 | 2.22 | X |
| Mar 22, 2013 | 2.16 | X |
| Mar 22, 2013 | 2.25 | X |
| Mar 23, 2013 | 2.19 | X |
| Mar 28, 2013 | 1.99 | X |
| Mar 29, 2013 | 1.93 | X |
| Apr 04, 2013 | 2.40 | X |
| Apr 05, 2013 | 2.36 | X |
| Apr 07, 2013 | 2.25 | X |
| Apr 11, 2013 | 2.09 | X |
| Apr 12, 2013 | 2.13 | X |
| Apr 15, 2013 | 2.22 | X |
| Apr 16, 2013 | 2.16 | X |
| Apr 16, 2013 | 1.93 | X |
| Apr 16, 2013 | 1.87 | X |
| Apr 16, 2013 | 2.24 | X |
| Apr 16, 2013 | 1.75 | X |
| Apr 16, 2013 | 2.05 | X |
| Apr 18, 2013 | 2.02 | X |
| Apr 19, 2013 | 2.34 | X |
| Apr 22, 2013 | 2.04 | X |
| Apr 24, 2013 | 2.26 | X |
| Apr 24, 2013 | 2.22 | X |
| Apr 25, 2013 | 2.14 | X |
| Apr 25, 2013 | 2.13 | X |
| Apr 27, 2013 | 1.97 | X |
| Apr 29, 2013 | 1.89 | X |
| May 01, 2013 | 2.26 | X |
| May 03, 2013 | 2.04 | X |
| May 06, 2013 | 1.99 | X |
| May 07, 2013 | 1.84 | X |
| May 09, 2013 | 2.03 | X |
| May 09, 2013 | 2.24 | X |
| May 09, 2013 | 1.88 | X |
| May 09, 2013 | 1.88 | X |
| May 09, 2013 | 1.99 | X |
| May 10, 2013 | 2.15 | X |
| May 14, 2013 | 2.12 | X |
| May 15, 2013 | 2.06 | X |
| May 16, 2013 | 2.25 | X |
| May 17, 2013 | 2.23 | X |
| May 17, 2013 | 2.01 | X |
| May 17, 2013 | 2.27 | X |
| May 17, 2013 | 1.99 | X |

| | | |
|---|---|---|
| May 22, 2013 | 2.21 | X |
| May 24, 2013 | 1.92 | X |
| May 24, 2013 | 2.31 | X |
| May 29, 2013 | 1.86 | X |
| Jun 07, 2013 | 1.83 | X |
| Jun 07, 2013 | 2.38 | X |
| Jun 09, 2013 | 1.97 | X |
| Jun 10, 2013 | 2.35 | X |

3H Background
Total # pts : 5563
Valid # pts : 156
Mean : 2.12
SD : 0.17



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# American Radiation Services Analytical Reports

for

## Los Alamos National Laboratory

# Tritium- Screening by Low Level Liquid Scintillation Counting

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# American Radiation Services Analytical Reports

for

# Los Alamos National Laboratory

# Tritium-Screening by Low Level Liquid Scintillation Counting

# Samples

***Procedures:*** **ARS-060** **ARS-040** *Section 14.1 Tritium Screen in Clean Water without Distillation*

***ARS File ID Numbers:*** ARS1-13-00980; 981
***ARS Batch ID:*** ARS1-B13-01007

| | Sample ID: | COUNT TIME | CPMA | Background CPMA | Eff Nucl In A | Aliquot (grams) | ACTIVITY | units | MDA | Sample Must be analyzed as LSC-A-001 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | B13-01007-04 | 120 | 1.323 | 0.965 | 25.34 | 10.05 | 63.322 | pCi/L | 94.52167 | NO |
| 2 | B13-01007-05 | 120 | 1.272 | 0.965 | 25.59 | 10.04 | 53.825 | pCi/L | 93.69147 | NO |
| 3 | B13-01007-06 | 120 | 1.406 | 0.965 | 26.06 | 10.04 | 75.924 | pCi/L | 92.00171 | NO |
| 4 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 5 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 6 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 7 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 8 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 9 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 10 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 11 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 12 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 13 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 14 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 15 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 16 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 17 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 18 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 19 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 20 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 21 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 22 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 23 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |

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# American Radiation Services Analytical Reports

for

# Los Alamos National Laboratory

# Tritium-Screening by Low Level Liquid Scintillation Counting

# Laboratory Records

American Radiation Services, Inc.
Baton Rouge Laboratory

# Analysis Batch Report



AMRAD
AMERICAN RADIATION SERVICES, LLC

**Analysis Batch ID** **ARS1-B13-01007**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | **Method** | **ARS-054** | **Analysis** | | **LSC-A-021** | **Matrix** | **AQ** |
| | | | | **Description** | **Low Level Tritium Screening** | | | | | |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | SDG | [illegible] | Run | Client ID | [illegible] | [illegible] |
| ARS1-B13-01007-01 | LCS | | | | | | | | | |
| ARS1-B13-01007-02 | LCSD | | | | | | | | | |
| ARS1-B13-01007-03 | MBL | | | | | | | | | |
| ARS1-B13-01007-04 | TRG | | | | **ARS1-13-00980** | 001 | 1 | CAMO-13-30582 | STD | 06/11/13 |
| ARS1-B13-01007-05 | TRG | | | | **ARS1-13-00980** | 002 | 1 | CAMO-13-30583 | STD | 06/11/13 |
| ARS1-B13-01007-06 | TRG | | | | **ARS1-13-00981** | 001 | 1 | CAMO-13-30613 | STD | 06/11/13 |

136613
13-00980-001-1
WRAD

136614
13-00980-002-1
WRAD

136615
13-00981-001-1
WRAD

# ARS-054



| ID_31001_054 | ABatch | ABatchSampleID | ClientID | Aliquot1 | AliquotUnits1 | IC_ID1 | Aliquot2 | AliquotUnits2 | IC_ID2 | UserID | ModDate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 12565 | ARS1-B13-01007 | ARS1-B13-01007-01 | | 1 | g | | | | | AMRAD\PSIMS | 05/16/2013 14:32:44 |
| 12566 | ARS1-B13-01007 | ARS1-B13-01007-02 | | 1 | g | | | | | AMRAD\PSIMS | 05/16/2013 14:32:44 |
| 12567 | ARS1-B13-01007 | ARS1-B13-01007-03 | | 1 | g | | | | | AMRAD\PSIMS | 05/16/2013 14:32:44 |
| 12568 | ARS1-B13-01007 | ARS1-B13-01007-04 | CAMO-13-30582 | 10.05 | g | 136613 | | | | AMRAD\PSIMS | 05/16/2013 14:32:44 |
| 12569 | ARS1-B13-01007 | ARS1-B13-01007-05 | CAMO-13-30583 | 10.04 | g | 136614 | | | | AMRAD\PSIMS | 05/16/2013 14:32:45 |
| 12570 | ARS1-B13-01007 | ARS1-B13-01007-06 | CAMO-13-30613 | 10.04 | g | 136615 | | | | AMRAD\PSIMS | 05/16/2013 14:32:45 |

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_2\20130516_1611
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_2\20130516_1611\20130516_1611.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_2\20130516_1611\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_2\20130516_1611\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3_2.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 120.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

| Regions | LL | UL | 2Sigma % Terminator |
|---|---|---|---|
| A | 2.0 | 18.6 | 0.50 |
| B | 0.0 | 2000.0 | 0.00 |
| C | 0.0 | 2000.0 | 0.00 |

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

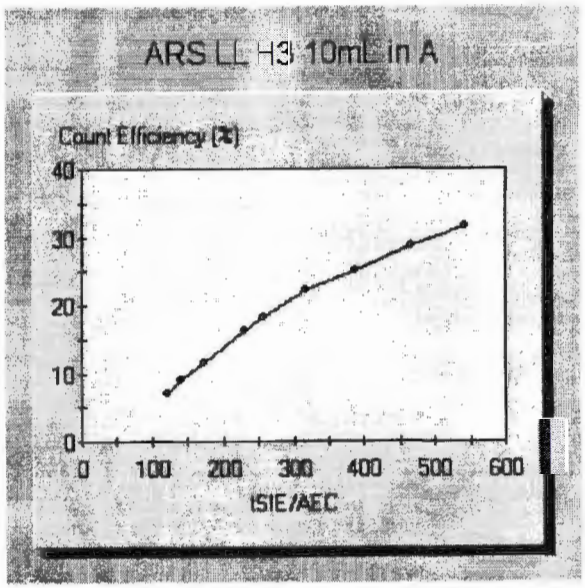
Half Life-

Half Life Correction: Off

| Regions | Half Life | Units | Reference Date | Reference Time |
|---|---|---|---|---|

A
B
C

Cycle 1 Results
Quench Curve Block Data




Date Acquired: 11/20/2012
Date Modified:
ARS LL H3 10mL in A

| tSIE/AEC | Count Efficiency (%) |
|---|---|
| 543.57 | 31.51 |
| 466.44 | 28.74 |
| 387.42 | 24.95 |
| 316.48 | 22.21 |
| 257.14 | 18.18 |
| 229.94 | 16.37 |
| 172.56 | 11.68 |
| 142.07 | 9.08 |
| 121.26 | 7.13 |

| P# | S# | SMPL_ID | CPMA | DPM1 | tSIE | Eff Nucl In A | Count Time | DATE | TIME | MESSAGES |
|---|---|---|---|---|---|---|---|---|---|---|
| 11 | 1 | BACKGROUND | 0.965 | 3.90 | 381.74 | 24.73 | 120.00 | 5/16/2013 | 4:20:35 PM | |
| 11 | 2 | B13-01007-04 | 1.323 | 5.22 | 395.49 | 25.34 | 120.00 | 5/16/2013 | 6:30:31 PM | |
| 11 | 3 | B13-01007-05 | 1.272 | 4.97 | 400.76 | 25.59 | 120.00 | 5/16/2013 | 8:40:28 PM | |
| 11 | 4 | B13-01007-06 | 1.406 | 5.40 | 410.62 | 26.06 | 120.00 | 5/16/2013 | 10:50:21 PM | |

# Beta Liquid Scintillation Counter Log Book

| Date | Time | ARS Sample I.D. Number | Batch Number | Liquid Scintillation File Number | Technician Initials |
|---|---|---|---|---|---|
| 5-16-13 | 14:36 | SNG 14 | QU | QU | PD |
| ↓ | ↓ | Background | D13-01007 | | PD |
| ↓ | ↓ | D13-01007-04 | ↓ | ↓ | PD |
| ↓ | ↓ | D13-01007-05 | ↓ | ↓ | PD |
| ↓ | ↓ | D13-01007-06 | ↓ | ↓ | PD |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
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| | | | | | |

no data SDR 6-12-13



Reviewed By: SDR Date: 6-12-13

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# American Radiation Services Analytical Reports

for

# Los Alamos National Laboratory

# Tritium-Screening by Low Level Liquid Scintillation Counting

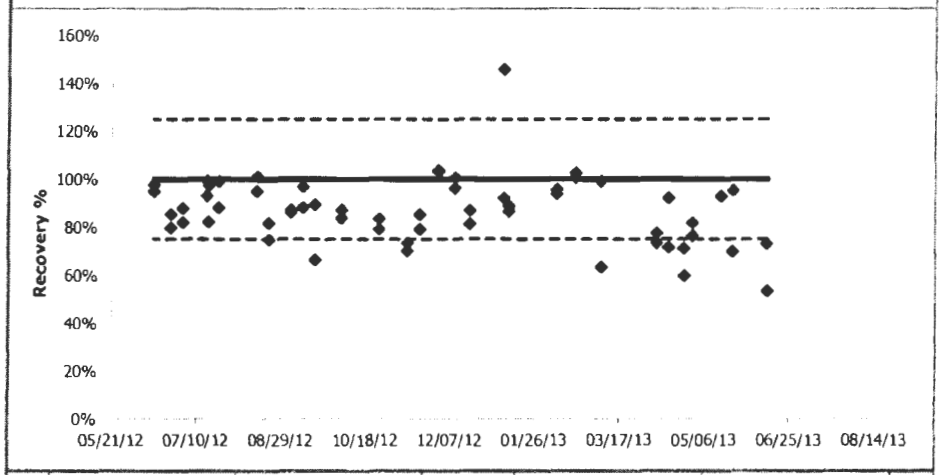
# Control Charts

American Radiation Services
Baton Rouge Laboratory

# QC Chart

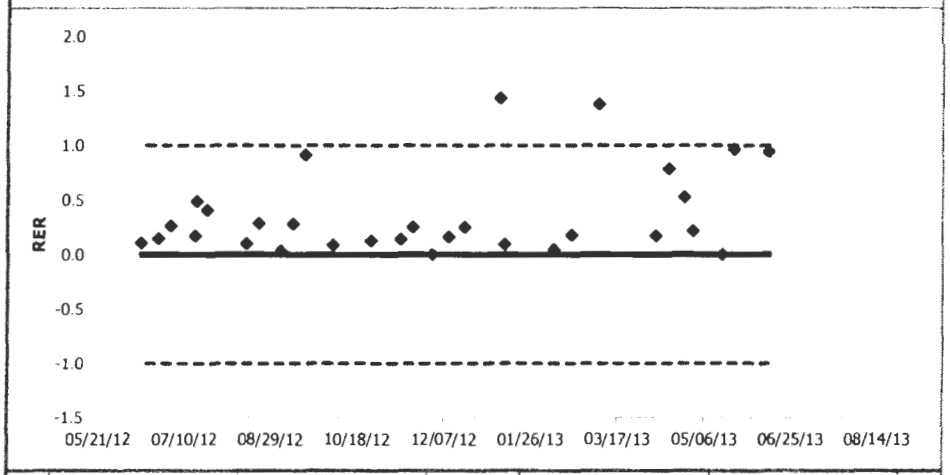


## LLH-3 LCS



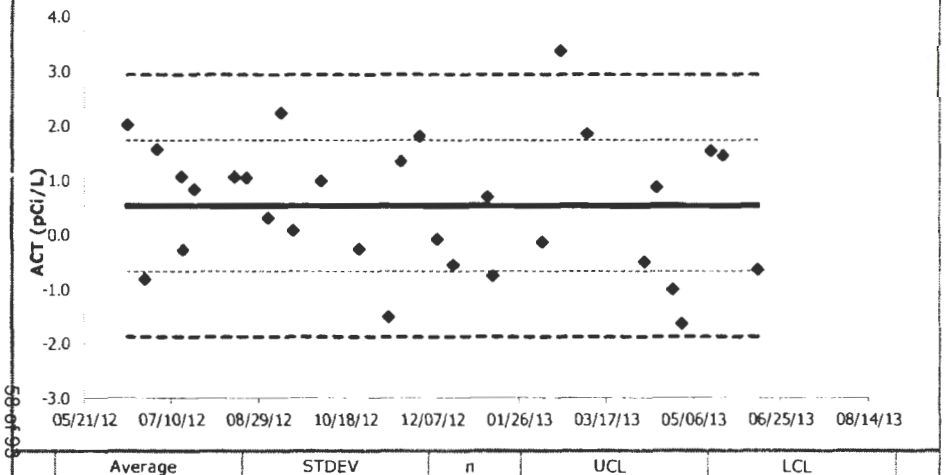

| Average | STDEV | n | UCL | LCL |
|---|---|---|---|---|
| 0.8702 | 0.1387 | 30 | 1.2500 | 0.7500 |

## LLH-3 RER



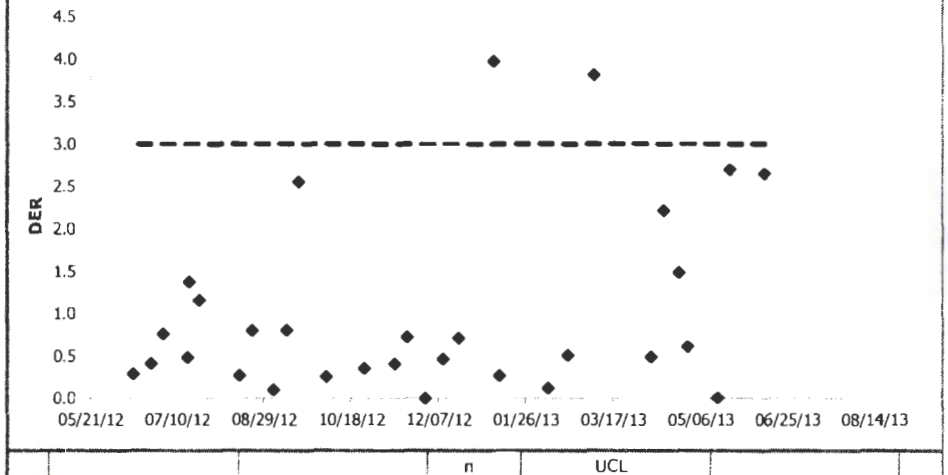

| | | n | UCL | LCL |
|---|---|---|---|---|
| | | 30 | 1.0000 | -1.0000 |

## LLH-3 Blank




| Average | STDEV | n | UCL | LCL |
|---|---|---|---|---|
| 0.5341 | 1.2036 | 30 | 2.9412 | -1.8730 |

## LLH-3 DER




| | | n | UCL | |
|---|---|---|---|---|
| | | 30 | 3.0000 | |

3H Efficiency
Total # pts : 5628
Valid # pts : 153
Mean : 62.77
SD : 0.28

| Date | Value | Valid Pt |
|---|---|---|
| May 17, 2012 | 63.10 | X |
| May 17, 2012 | 63.07 | X |
| May 23, 2012 | 62.99 | X |
| May 30, 2012 | 63.26 | X |
| May 31, 2012 | 63.37 | X |
| Jun 06, 2012 | 62.83 | X |
| Jun 13, 2012 | 63.22 | X |
| Jun 21, 2012 | 63.04 | X |
| Jun 22, 2012 | 63.16 | X |
| Jun 25, 2012 | 63.09 | X |
| Jun 27, 2012 | 62.70 | X |
| Jun 27, 2012 | 62.99 | X |
| Jun 28, 2012 | 63.05 | X |
| Jun 29, 2012 | 62.93 | X |
| Jun 30, 2012 | 62.97 | X |
| Jul 05, 2012 | 62.86 | X |
| Jul 11, 2012 | 63.07 | X |
| Jul 12, 2012 | 62.85 | X |
| Jul 16, 2012 | 63.12 | X |
| Jul 20, 2012 | 63.22 | X |
| Jul 22, 2012 | 63.22 | X |
| Jul 26, 2012 | 63.19 | X |
| Jul 27, 2012 | 63.52 | X |
| Aug 09, 2012 | 62.77 | X |
| Aug 13, 2012 | 63.03 | X |
| Aug 14, 2012 | 62.90 | X |
| Aug 16, 2012 | 62.85 | X |
| Aug 17, 2012 | 63.22 | X |
| Aug 18, 2012 | 63.03 | X |
| Aug 21, 2012 | 62.94 | X |
| Aug 22, 2012 | 63.04 | X |
| Aug 26, 2012 | 63.29 | X |
| Aug 27, 2012 | 62.99 | X |
| Aug 27, 2012 | 63.17 | X |
| Sep 05, 2012 | 63.39 | X |
| Sep 09, 2012 | 62.96 | X |
| Sep 11, 2012 | 63.03 | X |
| Sep 17, 2012 | 63.15 | X |
| Sep 18, 2012 | 62.86 | X |
| Sep 20, 2012 | 62.86 | X |
| Sep 20, 2012 | 62.80 | X |
| Sep 24, 2012 | 63.14 | X |

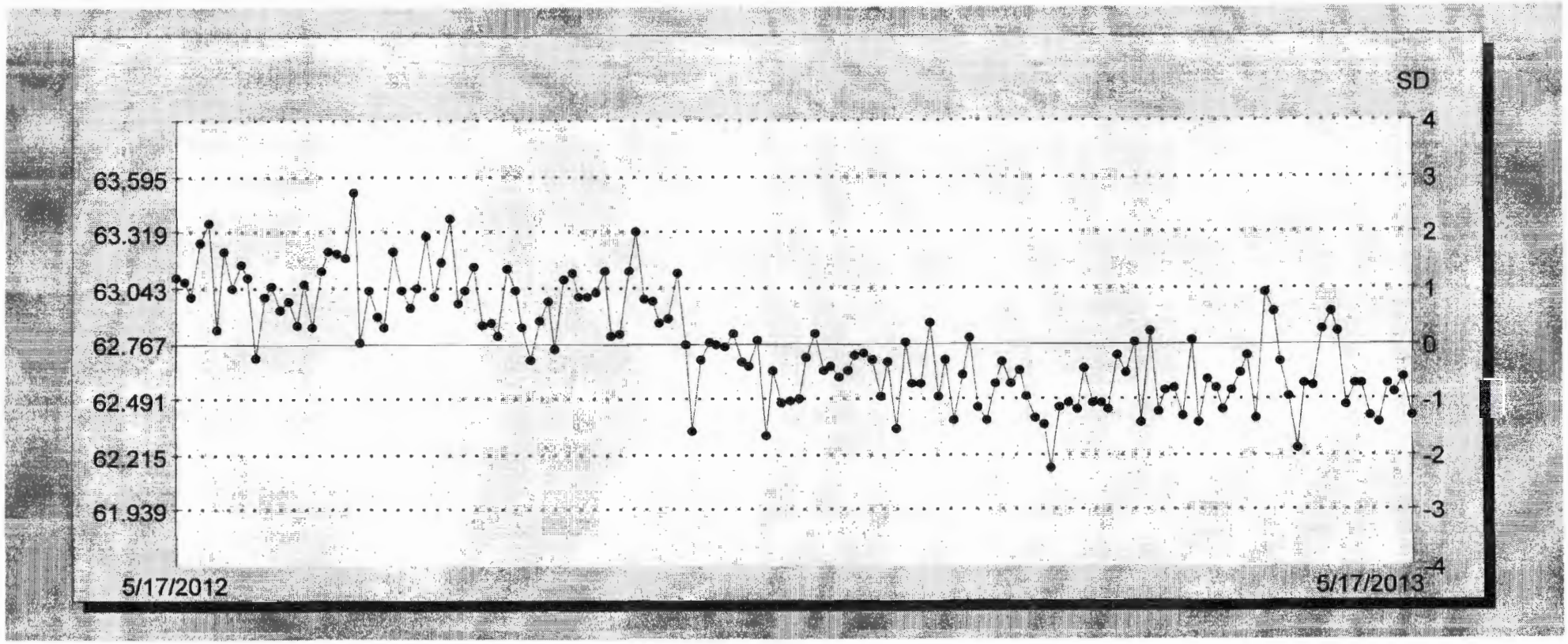
| | | |
|---|---|---|
| Sep 28, 2012 | 63.03 | X |
| Oct 01, 2012 | 62.85 | X |
| Oct 04, 2012 | 62.68 | X |
| Oct 05, 2012 | 62.88 | X |
| Oct 06, 2012 | 62.98 | X |
| Oct 11, 2012 | 62.74 | X |
| Oct 12, 2012 | 63.08 | X |
| Oct 13, 2012 | 63.12 | X |
| Oct 17, 2012 | 63.00 | X |
| Oct 19, 2012 | 63.00 | X |
| Oct 22, 2012 | 63.02 | X |
| Oct 23, 2012 | 63.13 | X |
| Oct 23, 2012 | 62.80 | X |
| Oct 23, 2012 | 62.81 | X |
| Oct 23, 2012 | 63.13 | X |
| Oct 25, 2012 | 63.32 | X |
| Oct 27, 2012 | 62.99 | X |
| Oct 31, 2012 | 62.98 | X |
| Nov 02, 2012 | 62.87 | X |
| Nov 02, 2012 | 62.89 | X |
| Nov 04, 2012 | 63.11 | X |
| Nov 05, 2012 | 62.76 | X |
| Nov 10, 2012 | 62.33 | X |
| Nov 12, 2012 | 62.69 | X |
| Nov 12, 2012 | 62.77 | X |
| Nov 13, 2012 | 62.76 | X |
| Nov 14, 2012 | 62.75 | X |
| Nov 15, 2012 | 62.81 | X |
| Nov 18, 2012 | 62.68 | X |
| Nov 19, 2012 | 62.65 | X |
| Nov 19, 2012 | 62.78 | X |
| Nov 20, 2012 | 62.30 | X |
| Nov 21, 2012 | 62.63 | X |
| Nov 23, 2012 | 62.47 | X |
| Dec 04, 2012 | 62.48 | X |
| Dec 08, 2012 | 62.49 | X |
| Dec 12, 2012 | 62.70 | X |
| Dec 14, 2012 | 62.81 | X |
| Dec 15, 2012 | 62.63 | X |
| Dec 21, 2012 | 62.66 | X |
| Dec 21, 2012 | 62.60 | X |
| Dec 31, 2012 | 62.63 | X |
| Jan 02, 2013 | 62.70 | X |
| Jan 09, 2013 | 62.72 | X |
| Jan 10, 2013 | 62.69 | X |
| Feb 01, 2013 | 62.50 | X |
| Feb 02, 2013 | 62.68 | X |
| Feb 06, 2013 | 62.34 | X |
| Feb 08, 2013 | 62.77 | X |
| Feb 08, 2013 | 62.57 | X |
| Feb 15, 2013 | 62.57 | X |
| Feb 17, 2013 | 62.87 | X |

| | | |
|---|---|---|
| Feb 20, 2013 | 62.68 | X |
| Feb 21, 2013 | 62.38 | X |
| Feb 22, 2013 | 62.61 | X |
| Feb 28, 2013 | 62.80 | X |
| Mar 01, 2013 | 62.45 | X |
| Mar 01, 2013 | 62.39 | X |
| Mar 01, 2013 | 62.56 | X |
| Mar 04, 2013 | 62.67 | X |
| Mar 04, 2013 | 62.57 | X |
| Mar 06, 2013 | 62.64 | X |
| Mar 08, 2013 | 62.50 | X |
| Mar 08, 2013 | 62.39 | X |
| Mar 14, 2013 | 62.36 | X |
| Mar 15, 2013 | 62.14 | X |
| Mar 18, 2013 | 62.45 | X |
| Mar 22, 2013 | 62.47 | X |
| Mar 22, 2013 | 62.43 | X |
| Mar 23, 2013 | 62.64 | X |
| Mar 28, 2013 | 62.47 | X |
| Mar 29, 2013 | 62.47 | X |
| Apr 04, 2013 | 62.44 | X |
| Apr 05, 2013 | 62.70 | X |
| Apr 07, 2013 | 62.62 | X |
| Apr 11, 2013 | 62.77 | X |
| Apr 12, 2013 | 62.38 | X |
| Apr 15, 2013 | 62.83 | X |
| Apr 16, 2013 | 62.42 | X |
| Apr 16, 2013 | 62.53 | X |
| Apr 16, 2013 | 62.55 | X |
| Apr 16, 2013 | 62.41 | X |
| Apr 16, 2013 | 62.78 | X |
| Apr 16, 2013 | 62.37 | X |
| Apr 18, 2013 | 62.59 | X |
| Apr 19, 2013 | 62.54 | X |
| Apr 22, 2013 | 62.44 | X |
| Apr 24, 2013 | 62.54 | X |
| Apr 24, 2013 | 62.62 | X |
| Apr 25, 2013 | 62.71 | X |
| Apr 25, 2013 | 62.40 | X |
| Apr 27, 2013 | 63.02 | X |
| Apr 29, 2013 | 62.92 | X |
| May 01, 2013 | 62.68 | X |
| May 03, 2013 | 62.51 | X |
| May 06, 2013 | 62.24 | X |
| May 07, 2013 | 62.57 | X |
| May 09, 2013 | 62.56 | X |
| May 09, 2013 | 62.84 | X |
| May 09, 2013 | 62.92 | X |
| May 09, 2013 | 62.83 | X |
| May 09, 2013 | 62.46 | X |
| May 10, 2013 | 62.57 | X |
| May 14, 2013 | 62.57 | X |

| | | |
|---|---|---|
| May 16, 2013 | 62.37 | X |
| May 17, 2013 | 62.57 | X |
| May 17, 2013 | 62.52 | X |
| May 17, 2013 | 62.60 | X |
| May 17, 2013 | 62.41 | X |

3H Efficiency

| | |
|---|---|
| Total # pts | : 5628 |
| Valid # pts | : 153 |
| Mean | : 62.77 |
| SD | : 0.28 |



3H Background
Total # pts : 5554
Valid # pts : 153
Mean : 2.12
SD : 0.16

| Date | Value | Valid Pt |
|---|---|---|
| May 17, 2012 | 2.14 | X |
| May 17, 2012 | 1.98 | X |
| May 23, 2012 | 2.11 | X |
| May 30, 2012 | 2.31 | X |
| May 31, 2012 | 2.04 | X |
| Jun 06, 2012 | 2.07 | X |
| Jun 13, 2012 | 2.19 | X |
| Jun 21, 2012 | 2.08 | X |
| Jun 22, 2012 | 2.04 | X |
| Jun 25, 2012 | 2.43 | X |
| Jun 27, 2012 | 2.28 | X |
| Jun 27, 2012 | 1.90 | X |
| Jun 28, 2012 | 2.16 | X |
| Jun 29, 2012 | 2.13 | X |
| Jun 30, 2012 | 2.12 | X |
| Jul 05, 2012 | 2.05 | X |
| Jul 11, 2012 | 2.33 | X |
| Jul 12, 2012 | 2.15 | X |
| Jul 16, 2012 | 2.09 | X |
| Jul 20, 2012 | 1.91 | X |
| Jul 22, 2012 | 2.19 | X |
| Jul 26, 2012 | 2.33 | X |
| Jul 27, 2012 | 2.36 | X |
| Aug 09, 2012 | 1.88 | X |
| Aug 13, 2012 | 2.16 | X |
| Aug 14, 2012 | 1.78 | X |
| Aug 16, 2012 | 2.46 | X |
| Aug 17, 2012 | 2.06 | X |
| Aug 18, 2012 | 2.21 | X |
| Aug 21, 2012 | 2.16 | X |
| Aug 22, 2012 | 2.13 | X |
| Aug 26, 2012 | 2.12 | X |
| Aug 27, 2012 | 2.25 | X |
| Aug 27, 2012 | 1.99 | X |
| Sep 05, 2012 | 2.44 | X |
| Sep 09, 2012 | 2.34 | X |
| Sep 11, 2012 | 2.11 | X |
| Sep 17, 2012 | 2.14 | X |
| Sep 18, 2012 | 1.85 | X |
| Sep 20, 2012 | 1.83 | X |
| Sep 20, 2012 | 1.96 | X |
| Sep 24, 2012 | 2.60 | X |

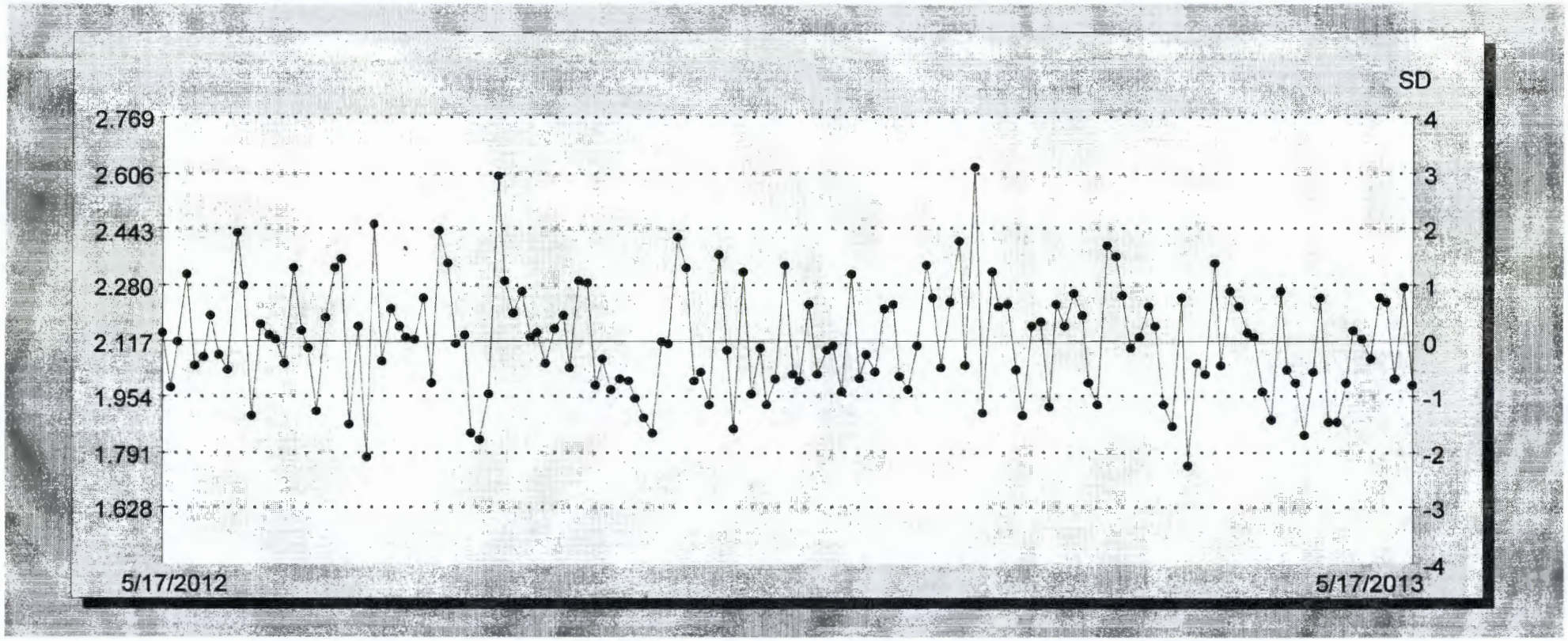
| | | |
|---|---|---|
| Sep 28, 2012 | 2.29 | X |
| Oct 01, 2012 | 2.20 | X |
| Oct 04, 2012 | 2.26 | X |
| Oct 05, 2012 | 2.13 | X |
| Oct 06, 2012 | 2.14 | X |
| Oct 11, 2012 | 2.05 | X |
| Oct 12, 2012 | 2.15 | X |
| Oct 13, 2012 | 2.19 | X |
| Oct 17, 2012 | 2.04 | X |
| Oct 19, 2012 | 2.29 | X |
| Oct 22, 2012 | 2.29 | X |
| Oct 23, 2012 | 1.99 | X |
| Oct 23, 2012 | 2.06 | X |
| Oct 23, 2012 | 1.98 | X |
| Oct 23, 2012 | 2.01 | X |
| Oct 25, 2012 | 2.00 | X |
| Oct 27, 2012 | 1.95 | X |
| Oct 31, 2012 | 1.89 | X |
| Nov 02, 2012 | 1.85 | X |
| Nov 02, 2012 | 2.11 | X |
| Nov 04, 2012 | 2.11 | X |
| Nov 05, 2012 | 2.42 | X |
| Nov 10, 2012 | 2.33 | X |
| Nov 12, 2012 | 2.00 | X |
| Nov 12, 2012 | 2.02 | X |
| Nov 13, 2012 | 1.93 | X |
| Nov 14, 2012 | 2.37 | X |
| Nov 15, 2012 | 2.09 | X |
| Nov 18, 2012 | 1.86 | X |
| Nov 19, 2012 | 2.32 | X |
| Nov 19, 2012 | 1.96 | X |
| Nov 20, 2012 | 2.09 | X |
| Nov 21, 2012 | 1.93 | X |
| Nov 23, 2012 | 2.01 | X |
| Dec 04, 2012 | 2.34 | X |
| Dec 08, 2012 | 2.02 | X |
| Dec 12, 2012 | 2.00 | X |
| Dec 14, 2012 | 2.22 | X |
| Dec 15, 2012 | 2.02 | X |
| Dec 21, 2012 | 2.09 | X |
| Dec 21, 2012 | 2.10 | X |
| Dec 31, 2012 | 1.97 | X |
| Jan 02, 2013 | 2.31 | X |
| Jan 09, 2013 | 2.01 | X |
| Jan 10, 2013 | 2.08 | X |
| Feb 01, 2013 | 2.03 | X |
| Feb 02, 2013 | 2.21 | X |
| Feb 06, 2013 | 2.22 | X |
| Feb 08, 2013 | 2.01 | X |
| Feb 08, 2013 | 1.98 | X |
| Feb 15, 2013 | 2.10 | X |
| Feb 17, 2013 | 2.34 | X |

| | | |
|---|---|---|
| Feb 20, 2013 | 2.04 | X |
| Feb 21, 2013 | 2.23 | X |
| Feb 22, 2013 | 2.41 | X |
| Feb 28, 2013 | 2.04 | X |
| Mar 01, 2013 | 2.62 | X |
| Mar 01, 2013 | 1.90 | X |
| Mar 01, 2013 | 2.32 | X |
| Mar 04, 2013 | 2.22 | X |
| Mar 04, 2013 | 2.22 | X |
| Mar 06, 2013 | 2.04 | X |
| Mar 08, 2013 | 1.90 | X |
| Mar 08, 2013 | 2.16 | X |
| Mar 14, 2013 | 2.17 | X |
| Mar 15, 2013 | 1.93 | X |
| Mar 18, 2013 | 2.22 | X |
| Mar 22, 2013 | 2.16 | X |
| Mar 22, 2013 | 2.25 | X |
| Mar 23, 2013 | 2.19 | X |
| Mar 28, 2013 | 1.99 | X |
| Mar 29, 2013 | 1.93 | X |
| Apr 04, 2013 | 2.40 | X |
| Apr 05, 2013 | 2.36 | X |
| Apr 07, 2013 | 2.25 | X |
| Apr 11, 2013 | 2.09 | X |
| Apr 12, 2013 | 2.13 | X |
| Apr 15, 2013 | 2.22 | X |
| Apr 16, 2013 | 2.16 | X |
| Apr 16, 2013 | 1.93 | X |
| Apr 16, 2013 | 1.87 | X |
| Apr 16, 2013 | 2.24 | X |
| Apr 16, 2013 | 1.75 | X |
| Apr 16, 2013 | 2.05 | X |
| Apr 18, 2013 | 2.02 | X |
| Apr 19, 2013 | 2.34 | X |
| Apr 22, 2013 | 2.04 | X |
| Apr 24, 2013 | 2.26 | X |
| Apr 24, 2013 | 2.22 | X |
| Apr 25, 2013 | 2.14 | X |
| Apr 25, 2013 | 2.13 | X |
| Apr 27, 2013 | 1.97 | X |
| Apr 29, 2013 | 1.89 | X |
| May 01, 2013 | 2.26 | X |
| May 03, 2013 | 2.04 | X |
| May 06, 2013 | 1.99 | X |
| May 07, 2013 | 1.84 | X |
| May 09, 2013 | 2.03 | X |
| May 09, 2013 | 2.24 | X |
| May 09, 2013 | 1.88 | X |
| May 09, 2013 | 1.88 | X |
| May 09, 2013 | 1.99 | X |
| May 10, 2013 | 2.15 | X |
| May 14, 2013 | 2.12 | X |

| | | |
|---|---|---|
| May 16, 2013 | 2.25 | X |
| May 17, 2013 | 2.23 | X |
| May 17, 2013 | 2.01 | X |
| May 17, 2013 | 2.27 | X |
| May 17, 2013 | 1.99 | X |

3H Background

| | |
|---|---|
| Total # pts | : 5554 |
| Valid # pts | : 153 |
| Mean | : 2.12 |
| SD | : 0.16 |



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# American Radiation Services Analytical Reports

for

# Los Alamos National Laboratory

# Low Level Liquid Scintillation Counting

# Calibration Information

ARS INTERNATIONAL

## QUALITY CONTROL PROGRAM

AMERICAN RADIATION SERVICES
RADIOACTIVE REFERENCE SOLUTIONS

# ANNUAL ACTIVITY VERIFICATION

VERIFICATION DATE: 9/10/2012 20:16 *date counted*
STANDARD REFERENCE #: S-0279

| Principal Radionuclide | | Half Life, Years | | Half Life, Days |
|---|---|---|---|---|
| H-3 | ENTER --> | | OR --> | 4.4998E+03 |
| | | 1.232E+01 | | 4.4998E+03 |

Radionuclide: H-3 Dilution Reference Date: 9/7/2012 10:40

| | | | |
|---|---|---|---|
| Dilution Activity | 2.58 | pCi per gram ===> dpm/g | 5.73 |
| Verif. Date Decay Corrected | 2.58 | pCi per gram ===> dpm/g | 5.72 |

*Minimum of 3 Required*

| Trial ID | Sample Counts | Count Time (min) | Detector | Efficiency | Bkg. (cpm) | Net Weight | Decay Corrected Activity Result (dpm/g) | Decay Corrected Activity Result (pCi/g) |
|---|---|---|---|---|---|---|---|---|
| S-0279-V1 | 15.91 | 1 | LSC | 0.3302 | 6.49 | 5.019 | 5.68 | 2.56 |
| S-0279-V2 | 16.21 | 1 | LSC | 0.3291 | 6.49 | 5.018 | 5.89 | 2.65 |
| S-0279-V3 | 15.76 | 1 | LSC | 0.3290 | 6.49 | 5.018 | 5.62 | 2.53 |
| S-0279-V4 | 15.62 | 1 | LSC | 0.3293 | 6.49 | 5.008 | 5.54 | 2.49 |
| S-0279-V5 | 15.76 | 1 | LSC | 0.3280 | 6.49 | 5.018 | 5.63 | 2.54 |

| | | | |
|---|---|---|---|
| | Average | 5.67 | 2.55 |
| | Two Sigma Uncertainty | 0.26 | 0.12 |
| *10% Max* *PASS* | Standard Deviation percent of known concentration | 2.30% | 2.30% |
| | Target Activity | 5.72 | 2.58 |
| *5% Max* *PASS* | % Diff | -0.91% | -0.91% |

Verification Expiration Date: ##############

Prepared & Counted By: [signature] Date: 9/10/2012 20:16

Verified & Approved By: [signature] Date: 9-11-12 0817

QC Approval: [signature] Date: 9-11-12 0817

| | | |
|---|---|---|
| **S-0279** | | |
| **H-3** | Verified | *9/10/12* |
| SL | **Expires** | **9/10/13** |
| **Manufactuer** | **NIST SRM 4927F** | |
| **Sol Matrix** | H2O | |
| **Ref No** | NIST SRM 4927F | |
| **Tech** | Unknown | |
| **Parent ID** | S-0237 | |

ARS INTERNATIONAL

RADIOACTIVE STANDARDS -- BATON ROUGE LABORATORY

**H-3 Standard Verification**

**Verifier's Name:** Brian Steffens **Date:** 9/7/2012

**Pipettor ID:** FJ40469

**Pipettor ID:** Auto-pipettor

**Pipettor ID:** na

**Standard ID:** S-0279

**Standard ID:** N/A

Standards brought up to ~5g with distilled dead water.
Standards made in glass vials.

15mL of Ultima Gold added to standard

| | Weight of Standard |
|---|---|
| S-0279-V1 | 5.019 g |
| S-0279-V2 | 5.018 g |
| S-0279-V3 | 5.018 g |
| S-0279-V4 | 5.008 g |
| S-0279-V5 | 5.018 g |
| | |
| | |
| | |
| | |
| | |

**Balance ID:** H1331122173560P

Assay Definition-

Assay Description:
H3 Normal Lvl

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931
Raw Results Path: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\20120910_0931.results
RTF File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\H3 Results.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\H3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\H-3 Normal 3.lsa

Count Conditions-

Nuclide: H-3 Normal
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: UG STD H-3
Count Time (min): 120.00
Count Mode: Normal
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

| Regions | LL | UL | 2Sigma % Terminator |
|---|---|---|---|
| A | 2.0 | 18.6 | 0.50 |
| B | 0.0 | 2000.0 | 0.00 |
| C | 0.0 | 2000.0 | 0.00 |

Count Corrections-

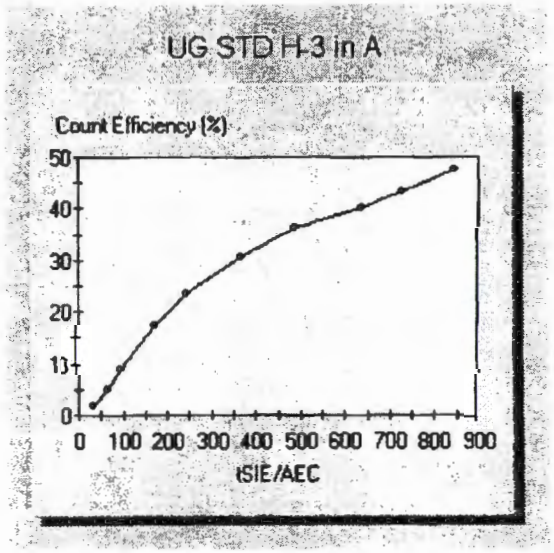
Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

Half Life

Half Life Correction: Off
Regions Half Life Units Reference Date Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data




Date Acquired: 06/27/2012
Date Modified:
UG STD H-3 in A

| tSIE/AEC | Count Efficiency (%) |
|---|---|
| 846.90 | 47.58 |
| 730.85 | 43.21 |
| 639.47 | 40.08 |
| 487.78 | 36.36 |
| 365.41 | 30.73 |
| 244.81 | 23.69 |
| 169.28 | 17.31 |
| 95.01 | 8.79 |
| 64.60 | 4.97 |
| 34.32 | 1.64 |

| P# | S# | SMPL_ID | CPMA | DPM1 | tSIE | Eff Nucl In A | Count Time | DATE | TIME | MESSAGES |
|---|---|---|---|---|---|---|---|---|---|---|
| 54 | 1 | BACKGROUND | 6.49 | 19.81 | 409.74 | 32.77 | 120.00 | 9/10/2012 | 9:36:46 AM | |
| 54 | 2 | S-0279-V1 | 15.91 | 48.18 | 415.20 | 33.02 | 120.00 | 9/10/2012 | 11:44:40 AM | |
| 54 | 3 | S-0279-V2 | 16.21 | 49.25 | 412.72 | 32.91 | 120.00 | 9/10/2012 | 1:52:36 PM | |
| 54 | 4 | S-0279-V3 | 15.76 | 47.89 | 412.56 | 32.90 | 120.00 | 9/10/2012 | 4:00:32 PM | |
| 54 | 5 | S-0279-V4 | 15.62 | 47.44 | 413.22 | 32.93 | 120.00 | 9/10/2012 | 6:08:27 PM | |
| 54 | 6 | S-0279-V5 | 15.76 | 48.04 | 410.40 | 32.80 | 120.00 | 9/10/2012 | 8:16:20 PM | |

# STD ID: S-0279

ARS INTERNATIONAL

## Add/Edit *Secondary Stds*

| Planning | |
|---|---|
| Planning Comments | Create a H3 LCS standard. |
| Target dpm/g (on dil. date) | 5.5 |
| Target Final volume mL | 2000 |
| Appx mass g of Parent Sol'n | 3.606433954 |
| Appx vol ml of Parent Sol'n | 3.612937241 |
| Expected Addition for Analysis g | 5 |

| Standards Preparation / Dilution | |
|---|---|
| Secondary Solution # | S-0279 |
| Dilution Date (New Ref Date) | 09/07/2012 10:40 |
| Ampoule, Empty (g) | |
| Ampoule /Solution Gross (g) | |
| Net Wt Removed (g) | |
| Transfer Container, empty (g) | 13.144 |
| Container Plus Solution (g) | 16.89 |
| Net Wt Transferred (g) | 3.746 |
| DPM Xferred on 09/07/2012 10:40 | 11425.69101 |
| Diluent/matrix | DI H2O |
| Diluent Density Cont. empty (g) | |
| Test Mass of 5 ml of Diluent (g) | |
| Diluent Density Test - (g/mL) | |
| Dilution Empty Container Mass (g) | 473.93 |
| Dilution Full Cont g (If measured) | 2469.52 |
| Dilution Final Volume ml (If measured) | 2000 |
| Final Dilution Density (g/mL) | 0.997758 |
| Final Dilution Measured Mass g | 1995.59 |
| Comments | H3 LCS standard. Dilution performed as stated above by B Steffens. -BJS 9/7/12 |
| Final Dilution dpm/g | 5.725470166 |
| Final Dil New Ref Date/Time | 09/07/2012 10:40 |

## Parent Standard Data

| | | | | |
|---|---|---|---|---|
| Parent Solution Reference # | NIST SRM 4927F | | | |
| Parent Solution # | S-0237 | | | |
| Parent Principal Radionuclide | H-3 | Half Life (Days) | 4499.8000000 | |
| Parent Reference Date | 03/22/2010 10:10 | | | |
| Parent Certified Act | 3503.682716 | Certi Act/Vol Units | dpm | g |
| Parent Cert Act Uncert 1 Sigma | 0.0036 | | | |
| Parent Sp Gravity G/Ml | 0.9982 | | | |
| Parent Supplier | NIST SRM 4927F | | | |
| Parent Date Recvd | 01/02/00 | | | |
| Parent Received By | Unknown | | | |
| Parent Cert Exp Date | | | | |
| Parent Matrix | H2O | | | |
| Certified dpm/g At Ref Date | 3503.682716 | | | |
| Certified dpm/g on 09/07/2012 10:40 | 3030.10438 | | | |
| Parent Comments | Intermediate level H-3 standard for creating LCS solutions and matrix spikes. Dilution performed as stated above by B Steffens. -BJS 3/22/10 | | | |
| Parent Tech | Unknown | | | |
| Is_Primary | FALSE | | | |
| Is_LCS | TRUE | | | |
| Is_Tracer | FALSE | | | |
| Is_Calib | FALSE | | | |

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# American Radiation Services Analytical Reports

for

# Los Alamos National Laboratory

# Folder Duplicate

ARS INTERNATIONAL

# Report Compilation Checklist

**ARS SDG:** 13-00980 **Client Name:** LANL **Sample Matrix:** AQ

| LEVEL 1 COMPONENTS | 1st Reviewer | |
|---|---|---|
| 1) Cover Page Complete and Accurate (see ARS-059)? | ~~Yes~~ No N/A | |
| 2) Technical Review Checklist(s) Complete and Accurate? | ~~Yes~~ No N/A | |
| 3) Case Narrative Complete and Accurate (see ARS-059)? | ~~Yes~~ No N/A | |
| 4) Form 1s Present for all Samples and Tests? | ~~Yes~~ No N/A | |
| 5) Client Specific Components are Present and Complete? | Yes No ~~N/A~~ | |

| LEVEL 2 COMPONENTS | 1st Reviewer | |
|---|---|---|
| 6) Batch Quality Control Report is Present and Accurate? | ~~Yes~~ No N/A | |
| 7) DQO Report is Present and Accurate? | ~~Yes~~ No N/A | |
| 8) Client Specific Batch QC Components are Present and Complete? | Yes No ~~N/A~~ | |

| LEVEL 3 COMPONENTS | 1st Reviewer | |
|---|---|---|
| 9) Efficiencies are Present? | ~~Yes~~ No N/A | |
| 10) Calibrations are Present? | ~~Yes~~ No N/A | |
| 11) Backgrounds are Present? | ~~Yes~~ No N/A | |
| 12) Spectrum Analysis is Present? | ~~Yes~~ No N/A | |
| 13) Spectral Plots are Present? | ~~Yes~~ No N/A | |
| 14) Plateaus are Present? | ~~Yes~~ No N/A | |
| 15) Control Charts are Present? | ~~Yes~~ No N/A | |
| 16) Other: | Yes No ~~N/A~~ | |

| LEVEL 4 COMPONENTS | 1st Reviewer | |
|---|---|---|
| 17) Preparation Raw Data Present, Signed and Complete? | ~~Yes~~ No N/A | |
| 18) Instrument Raw Data Present and Complete? | ~~Yes~~ No N/A | |
| 19) Calibration Certificates Present? | ~~Yes~~ No N/A | |
| 20) Copies of Log Book Pages Present? | ~~Yes~~ No N/A | |
| 21) Sample Receiving Documentation Present? | ~~Yes~~ No N/A | |
| 22) LIMS Reports Present? | ~~Yes~~ No N/A | |
| 23) Applicable Correspondence Present? | ~~Yes~~ No N/A | |
| 24) Other: | Yes No ~~N/A~~ | |

SRh 6-12-13
Report Generator Signature Date

VJM 6-12-13
Management Review Signature Date

ARS-059
07/03/2009

# LSC
# Technical Review Checklist

**ARS SDG** ARS1-13-00980

**Sample Matrix:** AQ **Aliquot** (Circle One) : Dry As Received Filtered Other: _____

**Required QC Samples** (Mark all that apply): Blank LCS LCSD Sample Dup MS MSD

| | | | |
|---|---|---|---|
| **ARS A. Batch ID(s):** | **Batch A:** B13-01007 | **Batch B:** N/A | **Batch C:** N/A |
| **Test Method(s):** | LSC-A-022 | N/A | N/A |

## A. RADIOCHEMICAL PREPARATION REVIEW

| | Chemist Review | Verifier Review |
|---|---|---|
| 1) 100% of Manual Transcriptions Verified? | Yes No N/A | Yes No N/A |
| 2) 100% of Manual Calculations Verified? | Yes No N/A | Yes No N/A |
| 3) Blank Composition/Configuration Matches Calibration? | Yes No N/A | Yes No N/A |
| 4) Deviations from procedure are documented and verified? | Yes No N/A | Yes No N/A |
| 5) Appropriate Cocktail Selected? | Yes No N/A | Yes No N/A |

6) Sample Prep Anomaly? ☑ No ☐ Yes (See Tech Notes) **NCR #** (If initiated): _____

| | | | |
|---|---|---|---|
| [signature] | 5-17-13 | [signature] | 5-17-13 |
| Chemist Signature | Date | Verifier Review Signature | Date |

## B. ANALYSIS REVIEW

| | Analyst Review | QA Officer Review |
|---|---|---|
| 1) Calibrations Valid and Current? | Yes No N/A | Yes No N/A |
| 2) Backgrounds Valid and Current? | Yes No N/A | Yes No N/A |
| 3) Source Checks Completed and Acceptable? | Yes No N/A | Yes No N/A |

| | |
|---|---|
| [signature] | 6-12-13 |
| QA Officer Signature | Date |

| | Analyst Review | Technicial Review |
|---|---|---|
| 4) Background Checks Complete and Acceptable? | Yes No N/A | Yes No N/A |
| 5) 100% of Manually Entered Parameters Verified Accurate? | Yes No N/A | Yes No N/A |
| 6) Appropriate QC samples initiated at required frequency? | Yes No N/A | Yes No N/A |
| **6) Test/Sample Specific Parameters** (See ARS-059 for details) | | |
| a) Analysis Parameters Checked and Correct and Peak Shapes are Acceptable? | Yes No N/A | Yes No N/A |
| b) Spectra show no Evidence of Interferences? | Yes No N/A | Yes No N/A |
| c) Sample Quench for All Samples within Range of Quench Curve? | Yes No N/A | Yes No N/A |

7) Analysis Anomaly? ☑ No ☐ Yes (See Comments) **NCR #** (If initiated): _____

| | | | |
|---|---|---|---|
| [signature] | 5-17-13 | [signature] | 6-12-13 |
| Analyst Signature | Date | Technicial Reviewer Signature | Date |

ARS INTERNATIONAL

Batch A: B13-01007

# LSC
# Technical Review Checklist

## C. BATCH QC VALIDATION

| | Proj. Mgr. Review | QA Officer Review |
|---|---|---|
| 1) Activity + 3xCSU a Negative Number? | Yes ~~No~~ N/A | Yes ~~No~~ N/A |
| 2) RDL Criteria are Met? | ~~Yes~~ No N/A | ~~Yes~~ No N/A |
| 3) Method Blank Criterion Met? | ~~Yes~~ No N/A | ~~Yes~~ No N/A |
| 4) LCS/LCD Criteria Met? | Yes ~~No~~ N/A | Yes ~~No~~ N/A |
| 5) Duplicate (Sample Duplicate, LCSD, MSD) Criteria Met? | Yes ~~No~~ N/A | Yes ~~No~~ N/A |
| 6) MS/MSD Criteria Met? | Yes No ~~N/A~~ | Yes No ~~N/A~~ |
| 7) Batch QC Anomaly? | ☐ No ☑ Yes (See Tech Notes) NCR # (If initiated): | |

SDL 6-12-13

| Project Manager Signature | Date | QA Officer Signature | Date |
|---|---|---|---|
| SDL | 6-12-13 | VJM | 6-13-13 |

## GENERAL COMMENTS

SDG 980-002 and 981-001 reacted with scint cocktail and were determined to be extremely basic. Client assumes these were preserved and understands these 2 cannot be counted or reported, but will be billed. SDL 6-12-13

# LSC
# Technical Review Checklist

**ARS SDG** ARS1-13-00981

**Sample Matrix:** AQ **Aliquot** (Circle One) : Dry As Received Filtered Other: _____

**Required QC Samples** (Mark all that apply): Blank LCS LCSD Sample Dup MS MSD

| | | | |
|---|---|---|---|
| **ARS A. Batch ID(s):** | **Batch A:** B13-01007 | **Batch B:** N/A | **Batch C:** N/A |
| **Test Method(s):** | LSC-A-022 | N/A | N/A |

## A. RADIOCHEMICAL PREPARATION REVIEW

| | Chemist Review | Verifier Review |
|---|---|---|
| 1) 100% of Manual Transcriptions Verified? | Yes No N/A | Yes No N/A |
| 2) 100% of Manual Calculations Verified? | Yes No N/A | Yes No N/A |
| 3) Blank Composition/Configuration Matches Calibration? | Yes No N/A | Yes No N/A |
| 4) Deviations from procedure are documented and verified? | Yes No N/A | Yes No N/A |
| 5) Appropriate Cocktail Selected? | Yes No N/A | Yes No N/A |

6) Sample Prep Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

| | | | |
|---|---|---|---|
| [signature] | 5-17-13 | [signature] | 5-17-13 |
| Chemist Signature | Date | Verifier Review Signature | Date |

## B. ANALYSIS REVIEW

| | Analyst Review | QA Officer Review |
|---|---|---|
| 1) Calibrations Valid and Current? | Yes No N/A | Yes No N/A |
| 2) Backgrounds Valid and Current? | Yes No N/A | Yes No N/A |
| 3) Source Checks Completed and Acceptable? | Yes No N/A | Yes No N/A |

| | |
|---|---|
| [signature] | 6-12-13 |
| QA Officer Signature | Date |

| | Analyst Review | Technicial Review |
|---|---|---|
| 4) Background Checks Complete and Acceptable? | Yes No N/A | Yes No N/A |
| 5) 100% of Manually Entered Parameters Verified Accurate? | Yes No N/A | Yes No N/A |
| 6) Appropriate QC samples initiated at required frequency? | Yes No N/A | Yes No N/A |
| 6) Test/Sample Specific Parameters (See ARS-059 for details) | | |
| a) Analysis Parameters Checked and Correct and Peak Shapes are Acceptable? | Yes No N/A | Yes No N/A |
| b) Spectra show no Evidence of Interferences? | Yes No N/A | Yes No N/A |
| c) Sample Quench for All Samples within Range of Quench Curve? | Yes No N/A | Yes No N/A |

7) Analysis Anomaly? ☑ No ☐ Yes (See Comments) NCR # (If initiated): _____

| | | | |
|---|---|---|---|
| [signature] | 5-17-13 | [signature] | 6-12-13 |
| Analyst Signature | Date | Technical Reviewer Signature | Date |

Batch A: B13-01007

# LSC
# Technical Review Checklist

## C. BATCH QC VALIDATION

| | Proj. Mgr. Review | QA Officer Review |
|---|---|---|
| 1) Activity + 3xCSU a Negative Number? | Yes ~~No~~ N/A | Yes ~~No~~ N/A |
| 2) RDL Criteria are Met? | ~~Yes~~ No N/A | ~~Yes~~ No N/A |
| 3) Method Blank Criterion Met? | ~~Yes~~ No N/A | ~~Yes~~ No N/A |
| 4) LCS/LCD Criteria Met? | Yes ~~No~~ N/A | Yes ~~No~~ N/A |
| 5) Duplicate (Sample Duplicate, LCSD, MSD) Criteria Met? | Yes ~~No~~ N/A | Yes ~~No~~ N/A |
| 6) MS/MSD Criteria Met? | Yes No ~~N/A~~ | Yes No ~~N/A~~ |

7) Batch QC Anomaly? ☐ No ☑ Yes (See Tech Notes) NCR # (If initiated): _____

| Project Manager Signature | Date | QA Officer Signature | Date |
|---|---|---|---|
| SDL | 6-12-13 | VHM | 6-12-13 |

## GENERAL COMMENTS

This sample cancelled
SDG 980-002 and 981-001 reacted
with scint cocktail and were
determined to be extremely basic.
client assumes were preserved
and understands cannot be
counted or reported, but will
be billed. SDL 6-12-13

# LSC
# Technical Review Checklist

**ARS SDG** ARS1-13-00980

**Sample Matrix:** AQ **Aliquot** (Circle One) : Dry As Received Filtered Other: _____

**Required QC Samples** (Mark all that apply): Blank LCS LCSD Sample Dup MS MSD

**ARS A. Batch ID(s):** **Batch A:** B13-01007 **Batch B:** N/A **Batch C:** N/A

**Test Method(s):** LSC-A-021 N/A N/A

## A. RADIOCHEMICAL PREPARATION REVIEW

| | Chemist Review | Verifier Review |
|---|---|---|
| 1) 100% of Manual Transcriptions Verified? | Yes No N/A | Yes No N/A |
| 2) 100% of Manual Calculations Verified? | Yes No N/A | Yes No N/A |
| 3) Blank Composition/Configuration Matches Calibration? | Yes No N/A | Yes No N/A |
| 4) Deviations from procedure are documented and verified? | Yes No N/A | Yes No N/A |
| 5) Appropriate Cocktail Selected? | Yes No N/A | Yes No N/A |

6) Sample Prep Anomaly? ☐ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

Chemist Signature: [signature] Date: 6-12-13

Verifier Review Signature: [signature] Date: 6-12-13

## B. ANALYSIS REVIEW

| | Analyst Review | QA Officer Review |
|---|---|---|
| 1) Calibrations Valid and Current? | Yes No N/A | Yes No N/A |
| 2) Backgrounds Valid and Current? | Yes No N/A | Yes No N/A |
| 3) Source Checks Completed and Acceptable? | Yes No N/A | Yes No N/A |

QA Officer Signature: [signature] Date: 6-12-13

| | Analyst Review | Technicial Review |
|---|---|---|
| 4) Background Checks Complete and Acceptable? | Yes No N/A | Yes No N/A |
| 5) 100% of Manually Entered Parameters Verified Accurate? | Yes No N/A | Yes No N/A |
| 6) Appropriate QC samples initiated at required frequency? | Yes No N/A | Yes No N/A |
| 6) Test/Sample Specific Parameters (See ARS-059 for details) | | |
| a) Analysis Parameters Checked and Correct and Peak Shapes are Acceptable? | Yes No N/A | Yes No N/A |
| b) Spectra show no Evidence of Interferences? | Yes No N/A | Yes No N/A |
| c) Sample Quench for All Samples within Range of Quench Curve? | Yes No N/A | Yes No N/A |

N/A

7) Analysis Anomaly? ☑ No ☐ Yes (See Comments) NCR # (If initiated): _____

Analyst Signature: [signature] Date: 6-12-13

Technicial Reviewer Signature: N/A Date: N/A

Batch A: B13-01007

# LSC
# Technical Review Checklist

## C. BATCH QC VALIDATION

| | Proj. Mgr. Review | QA Officer Review |
|---|---|---|
| 1) Activity + 3xCSU a Negative Number? | Yes No ~~N/A~~ | Yes No ~~N/A~~ |
| 2) RDL Criteria are Met? | Yes No ~~N/A~~ | Yes No ~~N/A~~ |
| 3) Method Blank Criterion Met? | Yes No ~~N/A~~ | Yes No ~~N/A~~ |
| 4) LCS/LCD Criteria Met? | Yes No ~~N/A~~ | Yes No ~~N/A~~ |
| 5) Duplicate (Sample Duplicate, LCSD, MSD) Criteria Met? | Yes No ~~N/A~~ | Yes No ~~N/A~~ |
| 6) MS/MSD Criteria Met? | Yes No ~~N/A~~ | Yes No ~~N/A~~ |

7) Batch QC Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

| Project Manager Signature | Date | QA Officer Signature | Date |
|---|---|---|---|
| SOL | 6-12-13 | VHM | 6-12-13 |

## GENERAL COMMENTS

# LSC
# Technical Review Checklist

**ARS SDG** ARS1-13-00981

**Sample Matrix:** AQ **Aliquot** (Circle One) : Dry As Received Filtered Other: _____

**Required QC Samples** (Mark all that apply): Blank LCS LCSD Sample Dup MS MSD

| | | | |
|---|---|---|---|
| **ARS A. Batch ID(s):** | **Batch A:** B13-01007 | **Batch B:** N/A | **Batch C:** N/A |
| **Test Method(s):** | LSC-A-021 | N/A | N/A |

## A. RADIOCHEMICAL PREPARATION REVIEW

| | Chemist Review | Verifier Review |
|---|---|---|
| 1) 100% of Manual Transcriptions Verified? | Yes No N/A | Yes No N/A |
| 2) 100% of Manual Calculations Verified? | Yes No N/A | Yes No N/A |
| 3) Blank Composition/Configuration Matches Calibration? | Yes No N/A | Yes No N/A |
| 4) Deviations from procedure are documented and verified? | Yes No N/A | Yes No N/A |
| 5) Appropriate Cocktail Selected? | Yes No N/A | Yes No N/A |

6) Sample Prep Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

| | | | |
|---|---|---|---|
| [signature] | 6-12-13 | Christie Bailey | 6-12-13 |
| Chemist Signature | Date | Verifier Review Signature | Date |

## B. ANALYSIS REVIEW

| | Analyst Review | QA Officer Review |
|---|---|---|
| 1) Calibrations Valid and Current? | Yes No N/A | Yes No N/A |
| 2) Backgrounds Valid and Current? | Yes No N/A | Yes No N/A |
| 3) Source Checks Completed and Acceptable? | Yes No N/A | Yes No N/A |

| | |
|---|---|
| [signature] | 6-12-13 |
| QA Officer Signature | Date |

| | Analyst Review | Technicial Review |
|---|---|---|
| 4) Background Checks Complete and Acceptable? | Yes No N/A | Yes No N/A |
| 5) 100% of Manually Entered Parameters Verified Accurate? | Yes No N/A | Yes No N/A |
| 6) Appropriate QC samples initiated at required frequency? | Yes No N/A | Yes No N/A |
| 6) Test/Sample Specific Parameters (See ARS-059 for details) | | |
| a) Analysis Parameters Checked and Correct and Peak Shapes are Acceptable? | Yes No N/A | Yes No N/A |
| b) Spectra show no Evidence of Interferences? | Yes No N/A | Yes No N/A |
| c) Sample Quench for All Samples within Range of Quench Curve? | Yes No N/A | Yes No N/A |

7) Analysis Anomaly? ☑ No ☐ Yes (See Comments) NCR # (If initiated): _____

| | | | |
|---|---|---|---|
| [signature] | 6-12-13 | N/A | |
| Analyst Signature | Date | Technicial Reviewer Signature | Date |

Batch A: B13-01007

# LSC
# Technical Review Checklist

## C. BATCH QC VALIDATION

| | Proj. Mgr. Review | QA Officer Review |
|---|---|---|
| 1) Activity + 3xCSU a Negative Number? | Yes No ~~N/A~~ | Yes No ~~N/A~~ |
| 2) RDL Criteria are Met? | Yes No ~~N/A~~ | Yes No ~~N/A~~ |
| 3) Method Blank Criterion Met? | Yes No ~~N/A~~ | Yes No ~~N/A~~ |
| 4) LCS/LCD Criteria Met? | Yes No ~~N/A~~ | Yes No ~~N/A~~ |
| 5) Duplicate (Sample Duplicate, LCSD, MSD) Criteria Met? | Yes No ~~N/A~~ | Yes No ~~N/A~~ |
| 6) MS/MSD Criteria Met? | Yes No ~~N/A~~ | Yes No ~~N/A~~ |

7) Batch QC Anomaly? ☒ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

| Project Manager Signature | Date | QA Officer Signature | Date |
|---|---|---|---|
| SDL | 6-12-13 | VHM | 6-12-13 |

## GENERAL COMMENTS

# DQO Report for SDG
ARS1-13-00980



| Analysis Code | Group | Isotope | Activity Units | Aliquot Units | ProcedureNo | RDL | LCS_LL | LCS_UL | MS_LL | MS_UL | RadY_LL | RadY_UL | GravY_LL | GravY_LL | RER | RPD | DiltionReq | RoughPrepReq | BlankCorrectionMDA | BlankCorrectionAll | CountTimeReq | AliquotRequirej |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LSC-A-021 | STD | H-3 | pCi | L | ARS-054 | 0.00E+00 | 75 | 125 | 60 | 140 | 30 | 110 | 40 | 110 | 1.00 | 25 | FALSE | FALSE | FALSE | FALSE | | |
| LSC-A-022 | STD | Enriched H-3 | pCi | L | ARS-040 | 0.00E+00 | 75 | 125 | 60 | 140 | 30 | 110 | 40 | 110 | 1.00 | 25 | FALSE | FALSE | FALSE | FALSE | | |

# SDG Report - Samples and Containers

**SDG Specific Data**

| | | | | | |
|---|---|---|---|---|---|
| SDG | ARS1-13-00980 | TAT Days | 30 | Project Type | Environmental |
| Sample Count | Rpt Level 4 | Date Received | 5/16/2013 | COC Number | 2013-849 |
| Client | Los Alamos National Laboratory | Client Deadline | 6/14/2013 | PO Number | 63641-001-10 |
| Client Code | 114 | Internal Deadline | 6/13/2013 | Job Number | |
| Profile Number | PN-00094 | Lab Deadline | 6/11/2013 | Job Location | |
| Comments | | | | | |

**Samples and Containers (→) Checked In Thus Far**

| FR | ClientID | Matrix | SampleStartDate | SampleEndDate | Disp | Hold | Arch | Storage | X | Units | Y | Units | Z | Units | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 001 | CAMO-13-30582 | AQ | 05/10/13 12:05 PM | 05/10/13 12:05 PM | H | 90 | 5 | O5 | | | | | | | |
| → | | | | | | | | | | | | | | | |
| | 136589 | 1 | 1000.00 | | | | 80 | 30 | | N | N/A | | | | |
| 002 | CAMO-13-30583 | AQ | 05/13/13 02:10 PM | 05/13/13 02:10 PM | H | 90 | 5 | O5 | | | | | | | |
| → | | | | | | | | | | | | | | | |
| | 136590 | 1 | 1000.00 | | | | 80 | 30 | | N | N/A | | | | |

# SDG Report - Analysis Assignments

| | | | |
|---|---|---|---|
| Temp SDG | ARS1-13-00980 | Sample Count | |
| Client | Los Alamos National Laboratory | Analysis Count | 2-4 |

**Samples Count Totals per Analysis**

| Analysis Code | Analysis Description | Samples Count |
|---|---|---|
| LSC-A-021 | Low Level Tritium Screen in (Aqueous) | 2 |
| LSC-A-022 | Low Level Tritium by Enrichment Process in (Aqueous [AQ]) | 2 |

**Analyses Assigned Per Fraction**

| Fraction | Analysis Code | X = Assigned |
|---|---|---|
| 001 | LSC-A-021 | X |
| 001 | LSC-A-022 | X |
| 002 | LSC-A-021 | X |
| 002 | LSC-A-022 | X |

# ARS FILE TRACKING SHEET

**SDG:** ARS1-13-00980

| Task | Date / Time | Initials |
|---|---|---|
| Date & Time Samples Received | 05-16-13/11:00 | cad |
| ICOC Initiated/Storage Location: O5 | 05-16-13/12:13 | cad |
| Technical Checks Performed | See Batch | |
| Report Written / EDD Generated _____/_____ \| _____ Date/Time Initials | 6-12-13/1056 | SMR |
| Quality Assurance Checks Performed on Report | 6-12-13 1156 | ZYM |
| Management Checks Performed on Report | | |
| *Preliminary Report Scan* | | |
| Report E-mailed | | |
| Report Faxed | | |
| Report Reviewed | | |
| Report Mailed | | |
| Invoice Completed Invoice #:_____ | | |
| Report Imaged | | |

**SPECIAL REQUIREMENTS**

| Requirement | Yes | No |
|---|---|---|
| 3 Hour Rush | | ✓ |
| 24 Hour Rush | | ✓ |
| 48 Hour Rush | | ✓ |
| 3 Day Rush | | ✓ |
| 5 Day Rush | | ✓ |
| Standard Oil/Gas Client (5 Day) | | ✓ |
| Standard Turnaround | ✓ | |

**NOTES**

ARS-062-005 r5

**COMPANY NAME:** LANL **SDG:** ARS1-13-00980

**SHIPPING CONTAINER**

| | | |
|---|---|---|
| Good Condition | ☑ Yes | ☐ No |
| Radioactive | ☐ Yes | ☑ No |
| UN2910 | ☐ Yes | ☑ No |
| Sec. Seals | ☑ Yes | ☐ No |
| Seals Intact | ☑ Yes ☐ No ☐ N/A | |
| Air Bill | ☐ Yes | ☐ No |

**COC PRESENT WITH SAMPLES**

| | | |
|---|---|---|
| COC | ☑ Yes | ☐ No |

**SAMPLE CONTAINER(S)**

| | | |
|---|---|---|
| Good Condition | ☑ Yes | ☐ No |
| Sec. Seals | ☑ Yes | ☐ No |
| Seal Intact | ☑ Yes ☐ No ☐ N/A | |
| Marked Radioactive | ☐ Yes | ☑ No |

# Samples Rcv 2

Matrix [ AF , AQ , BI , FE , LT , SI , SO , UR , VG ]

**External and Internal Surveys**

Exposure Rate Meter: M3 242861 Serial No.: PR 264266 Calibration Due Date: 4-16-14

Count Rate Meter: M2 154859 Serial No.: PR 184559 Calibration Due Date: 4-16-14

Background Exposure Rate (µR/hr): 30 Max. Exposure Rate on Shipping Containers Externals (Plus Bkgd): 38 µR/hr

Background Count Rate (cpm): 80 Max. Removable Count Rate on Shipping Containers Externals (Plus Bkgd): 90 cpm

Max. Removable Count Rate on Shipping Containers Internals (Plus Bkgd): 80 cpm

| Sample Label/Comments/Notes | pH Orig (pH ≤ 2 is Acceptable) | pH Final | Mark if Preserve | Acid Lot # | Weight(g) / Volume(mL) | µR/hr (Acceptance Limits <500 µR/hr) | cpm (Acceptance Limits <100 cpm/cm²) |
|---|---|---|---|---|---|---|---|
| CAM0-13-30582 | | 5-16-13 | ☐ | | 1000mL | 30 | 80 |
| -30583 | | | ☐ | | 1000mL | 30 | 80 |
| | | | ☐ | | | | |
| | | | ☐ | | | | |
| | | | ☐ | | | | |
| | | | ☐ | | | | |
| | | | ☐ | | | | |
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| | | | ☐ | | | | |
| | | | ☐ | | | | |
| | | | ☐ | | | | |
| | | | ☐ | | | | |

Surveyors' Name: [signature] Date/Time Surveyed: 5-16-13 / 1100

American Radiation Services
Baton Rouge Laboratory

# DQO Report for SDG
ARS1-13-00981



| Analysis Code | Group | Isotope | Activity Units | Aliquot Units | ProcedureNo | RDL | LCS_LL | LCS_UL | MS_LL | MS_UL | RadY_LL | RadY_UL | GravY_LL | GravY_LL | RER | RPD | DiltionReq | RoughPrepReq | BlankCorrectionMDA | BlankCorrectionAll | CountTimeReq | AliquotRequired |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LSC-A-021 | STD | H-3 | pCi | L | ARS-054 | 0.00E+00 | 75 | 125 | 60 | 140 | 30 | 110 | 40 | 110 | 1.00 | 25 | FALSE | FALSE | FALSE | FALSE | | |
| LSC-A-022 | STD | Enriched H-3 | pCi | L | ARS-040 | 0.00E+00 | 75 | 125 | 60 | 140 | 30 | 110 | 40 | 110 | 1.00 | 25 | FALSE | FALSE | FALSE | FALSE | | |

# SDG Report - Samples and Containers

**SDG Specific Data**

| | | | | | |
|---|---|---|---|---|---|
| SDG | ARS1-13-00981 | TAT Days | 30 | Project Type | Environmental |
| Sample Count | Rpt Level 4 | Date Received | 5/16/2013 | COC Number | 2013-850 |
| Client | Los Alamos National Laboratory | Client Deadline | 6/14/2013 | PO Number | 63641-001-10 |
| Client Code | 114 | Internal Deadline | 6/13/2013 | Job Number | |
| Profile Number | PN-00094 | Lab Deadline | 6/11/2013 | Job Location | |
| Comments | | | | | |

**Samples and Containers (→) Checked In Thus Far**

| FR | ClientID | Matrix | SampleStartDate | SampleEndDate | Disp | Hold | Arch | Storage | X | Units | Y | Units | Z | Units | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 001 | CAMO-13-30613 | AQ | 05/14/13 11:39 AM | 05/14/13 11:39 AM | H | 90 | 5 | O5 | | | | | | | |
| → | | | | | | | | | | | | | | | |
| | 136594 | 1 | 1000.00 | | | | 80 | 30 | | N | N/A | | | | |

# SDG Report - Analysis Assignments

| | | | |
|---|---|---|---|
| Temp SDG | ARS1-13-00981 | Sample Count | |
| Client | Los Alamos National Laboratory | Analysis Count | 2-2 |

**Samples Count Totals per Analysis**

| Analysis Code | Analysis Description | Samples Count |
|---|---|---|
| LSC-A-021 | Low Level Tritium Screen in (Aqueous) | 1 |
| LSC-A-022 | Low Level Tritium by Enrichment Process in (Aqueous [AQ]) | 1 |

**Analyses Assigned Per Fraction**

| Fraction | Analysis Code | X | Assigned |
|---|---|---|---|
| 001 | LSC-A-021 | X | |
| 001 | LSC-A-022 | X | |

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

# Chain of Custody/Analysis Request

COC/Lab Request #: 2013-847



**Client Contact:**

**Lab Agreement # :** 126310011

**Project Number :**

**Analysis Turnaround Time:**

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

**Site Name:** Los Alamos National Laboratory

**Rad Screening Info:** Yes, Below Background

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | WSP-CL04 | WSP-GENINORG | WSP-Met+B+SN+SR+U | WSP-NH3+NO3/NO2+PO4 | WSP-TKN+TOC | Special Instructions: |
|---|---|---|---|---|---|---|---|---|---|
| CASA-13-30547 | May 14 2013 | 11:16 | W | | | | | 1 | |
| CASA-13-30555 | May 14 2013 | 11:16 | W | 1 | 1 | 1 | 1 | | |

Special Instructions:

| | | | |
|---|---|---|---|
| Relinquished by: Melissa Montoya | | Date/Time: 5/15/13 3:00 | Received by: |
| Relinquished by: | | Date/Time: | Received by: |
| Relinquished by: | | Date/Time: | Received by: |

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4194

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_SANDIA

**SAMPLE ID:** CASA-13-30547

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| **DATE COLLECTED (MM/DD/YYYY):** | | 05/14/2013 | **FIELD MATRIX:** | WG | ok |
| **TIME COLLECTED (HH:MM):** | | 1116 | **MEDIA:** | UA | ✓ |
| **PRS ID:** | | ok | **SAMPLE TECH CODE:** | UA | GSP |
| **LOCATION ID:** | R-43 S2 | ✓ | **FIELD PREP:** | UF | ok |
| **LOCATION TYPE:** | MON | ✓ | **FIELD QC TYPE:** | REG | ✓ |
| **PORT:** | P2A | ✓ | **SAMPLE USAGE:** | INV | ✓ |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-TKN+TOC | 500 ML AMBER GLASS | 1 | H2SO4 | Y | NA |

**SAMPLE COMMENTS:**

NA

**LOCATION COMMENTS:** diesel generator 40' away

**FIELD PARAMETERS:**

Dissolved Oxygen 3.11 mg/L Oxidation-Reduction Potential 168.7 MV pH 8.70 SU

Specific Conductance 192 uS/cm Temperature 19.51 deg C Turbidity 0.77 NTU

**COLLECTED BY (PRINT)** M. Stenda

| | | | |
|---|---|---|---|
| **RELINQUISHED BY (Printed Name) (Signature)** Andrew Foka | **Date/Time** 5/14/13 1515 | **RECEIVED BY (Printed Name) (Signature)** M. Montoya | **Date/Time** 5/14/13 1515 |
| **RELINQUISHED BY (Printed Name) (Signature)** | **Date/Time** | **RECEIVED BY (Printed Name) (Signature)** | **Date/Time** |

Report Date 04/30/2013

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4194

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_SANDIA

**SAMPLE ID:** CASA-13-30555

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| **DATE COLLECTED (MM/DD/YYYY):** | | 05/14/2013 | **FIELD MATRIX:** | WG | ok |
| **TIME COLLECTED (HH:MM):** | | 1116 | **MEDIA:** | UA | ↓ |
| **PRS ID:** | | ok | **SAMPLE TECH CODE:** | UA | GSP |
| **LOCATION ID:** | R-43 S2 | ↓ | **FIELD PREP:** | F | ok |
| **LOCATION TYPE:** | MON | ↓ | **FIELD QC TYPE:** | REG | ↓ |
| **PORT:** | P2A | ↓ | **SAMPLE USAGE:** | INV | ↓ |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-CL04 | 250 ML POLY | 1 | ICE | Y | NA |
| ↓ | WSP-GENINORG | 1 LITER POLY | 1 | ICE | ↓ | ↓ |
| ↓ | WSP-Met+B+SN+SR+U | 1 LITER POLY | 1 | HNO3 | ↓ | ↓ |
| ↓ | WSP-NH3+NO3/NO2+PO4 | 500 ML AMBER GLASS | 1 | H2SO4 | ↓ | ↓ |

**SAMPLE COMMENTS:**

NA

**LOCATION COMMENTS:**

NA

**FIELD PARAMETERS:**

Dissolved Oxygen NA mg/L  Oxidation-Reduction Potential NA MV  pH NA SU

Specific Conductance NA uS/cm  Temperature NA deg C  Turbidity NA NTU

**COLLECTED BY (PRINT)** M. Stenzel

| RELINQUISHED BY (Printed Name) (Signature) | Date/Time | RECEIVED BY (Printed Name) (Signature) | Date/Time |
|---|---|---|---|
| Andrew Stoke | 5/14/13 1515 | M. Montoya | 5/14/13 1515 |
| **RELINQUISHED BY (Printed Name) (Signature)** | **Date/Time** | **RECEIVED BY (Printed Name) (Signature)** | **Date/Time** |
| | | | |

Report Date 04/30/2013

Data Validation Report for: Chain Of Custody No. 2013-847

Data Validation Report

Chain Of Custody No. 2013-847

**1. Distribution Of Samples In EDD.**

| SDG | Analytical Method | Regular Samples | Field Duplicates | Trip Blanks | Field Blanks | Equipment Blanks |
|---|---|---|---|---|---|---|
| 325847 | EPA:120.1 | 1 | | | | |
| 325847 | EPA:150.1 | 1 | | | | |
| 325847 | EPA:160.1 | 1 | | | | |
| 325847 | EPA:245.2 | 1 | | | | |
| 325847 | EPA:300.0 | 1 | | | | |
| 325847 | EPA:310.1 | 1 | | | | |
| 325847 | EPA:350.1 | 1 | | | | |
| 325847 | EPA:351.2 | 1 | | | | |
| 325847 | EPA:353.2 | 1 | | | | |
| 325847 | EPA:365.4 | 1 | | | | |
| 325847 | SM:A2340B | 1 | | | | |
| 325847 | SW-846:6010B | 1 | | | | |
| 325847 | SW-846:6020 | 1 | | | | |
| 325847 | SW-846:6850 | 1 | | | | |
| 325847 | SW-846:9060 | 1 | | | | |

| SDG | Analytical Method | Analysis Lot ID | Prep Lot ID | Regular Samples | Field Duplicates | Trip Blanks | Field Blanks | Equipment Blanks | Method Blanks | Matrix Spikes | Matrix Spike Dups |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 325847 | EPA:120.1 | 1305450 | 1305450 | 1 | | | | | | | |
| 325847 | EPA:150.1 | 1302797 | 1302797 | 1 | | | | | | | |
| 325847 | EPA:160.1 | 1302524 | 1302524 | 1 | | | | | 1 | | |
| 325847 | EPA:245.2 | 1302867 | 1302865 | 1 | | | | | 1 | 2 | |
| 325847 | EPA:300.0 | 1303846 | 1303846 | 1 | | | | | 1 | | |
| 325847 | EPA:310.1 | 1303727 | 1303727 | 1 | | | | | 2 | 1 | |
| 325847 | EPA:350.1 | 1302881 | 1302880 | 1 | | | | | 1 | 1 | |
| 325847 | EPA:351.2 | 1302893 | 1302892 | 1 | | | | | 1 | 2 | |
| 325847 | EPA:353.2 | 1302891 | 1302891 | 1 | | | | | 1 | | |
| 325847 | EPA:365.4 | 1302885 | 1302884 | 1 | | | | | 1 | 1 | |
| 325847 | SM:A2340B | 1306982 | 1306982 | 1 | | | | | | | |
| 325847 | SW-846:6010B | 1304837 | 1304836 | 1 | | | | | 1 | 1 | |
| 325847 | SW-846:6020 | 1304840 | 1304838 | 1 | | | | | 1 | 1 | |
| 325847 | SW-846:6850 | 1302799 | 1302798 | 1 | | | | | 1 | 2 | 2 |
| 325847 | SW-846:9060 | 1302796 | 1302796 | 1 | | | | | 1 | | |

**2. Distribution Of Analytes In EDD.**

| Analytical Method | Method Category | Field Sample ID | Lab Sample ID | Sample Purpose | Target Analytes | Surrogates | Spikes | TICS |
|---|---|---|---|---|---|---|---|---|
| EPA:120.1 | GENERAL CHEMISTRY | CASA-13-30555 | 1202885569 | DUP | 1 | 0 | 0 | 0 |
| EPA:120.1 | GENERAL CHEMISTRY | CASA-13-30555 | 325847002 | REG | 1 | 0 | 0 | 0 |
| EPA:120.1 | GENERAL CHEMISTRY | LCS | 1202885571 | LCS | 0 | 0 | 1 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | CASA-13-30550 | 1202878491 | DUP | 1 | 0 | 0 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | CASA-13-30555 | 325847002 | REG | 1 | 0 | 0 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | LCS | 1202878493 | LCS | 0 | 0 | 1 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | CASA-13-30555 | 1202877818 | DUP | 1 | 0 | 0 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | CASA-13-30555 | 325847002 | REG | 1 | 0 | 0 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | LCS | 1202877819 | LCS | 0 | 0 | 1 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | MB | 1202877816 | MB | 1 | 0 | 0 | 0 |

Data Validation Report for:

Chain Of Custody No. 2013-847

| Analytical Spikes | Post-Digestion Spikes | Lab Control Samples | Lab Control Sample Dups | Blank Spikes | Blank Spike Dups | Lab Duplicates | Storage Blanks | Preparation Blanks | Reagent Blanks |
|---|---|---|---|---|---|---|---|---|---|
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 2 | | | |
| | | 1 | | | | 1 | | | |
| | | 2 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 2 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | | | | | | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | | | | |
| | | 1 | | | | 1 | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| EPA:245.2 | INORGANIC | CAMO-13-30620 | 1202878704 | DUP | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30620 | 1202878708 | MS | 0 | 0 | 1 | 0 |
| EPA:245.2 | INORGANIC | CASA-13-30555 | 1202878705 | DUP | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CASA-13-30555 | 1202878709 | MS | 0 | 0 | 1 | 0 |
| EPA:245.2 | INORGANIC | CASA-13-30555 | 325847002 | REG | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | LCS | 1202878710 | LCS | 0 | 0 | 1 | 0 |
| EPA:245.2 | INORGANIC | MB | 1202878703 | MB | 1 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | CASA-13-30555 | 1202881257 | DUP | 4 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | CASA-13-30555 | 325847002 | REG | 4 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | LCS | 1202881259 | LCS | 0 | 0 | 4 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | MB | 1202881256 | MB | 4 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CASA-13-30555 | 1202880980 | DUP | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CASA-13-30555 | 1202880981 | MS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CASA-13-30555 | 325847002 | REG | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | LCS | 1202880973 | LCS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | LCS | 1202881631 | LCS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | MB | 1202880972 | MB | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | MB | 1202881630 | MB | 2 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CASA-13-30555 | 1202878737 | DUP | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CASA-13-30555 | 1202878739 | MS | 0 | 0 | 1 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CASA-13-30555 | 325847002 | REG | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | LCS | 1202878741 | LCS | 0 | 0 | 1 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | MB | 1202878736 | MB | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-31070 | 1202878783 | DUP | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-31070 | 1202878785 | MS | 0 | 0 | 1 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CASA-13-30547 | 325847001 | REG | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | LCS | 1202878787 | LCS | 0 | 0 | 1 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | MB | 1202878782 | MB | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | SWWS46-13-33497 | 1202878784 | DUP | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | SWWS46-13-33497 | 1202878786 | MS | 0 | 0 | 1 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CASA-13-30555 | 1202878778 | DUP | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CASA-13-30555 | 325847002 | REG | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | LCS | 1202878781 | LCS | 0 | 0 | 1 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | MB | 1202878776 | MB | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CASA-13-30550 | 1202878750 | DUP | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CASA-13-30550 | 1202878752 | MS | 0 | 0 | 1 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CASA-13-30555 | 325847002 | REG | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | LCS | 1202878753 | LCS | 0 | 0 | 1 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | MB | 1202878748 | MB | 1 | 0 | 0 | 0 |
| SM:A2340B | INORGANIC | CASA-13-30555 | 325847002 | REG | 1 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30594 | 1202883951 | DUP | 17 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30594 | 1202883952 | MS | 0 | 0 | 17 | 0 |
| SW-846:6010B | INORGANIC | CASA-13-30555 | 325847002 | REG | 17 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | LCS | 1202883950 | LCS | 0 | 0 | 17 | 0 |
| SW-846:6010B | INORGANIC | MB | 1202883949 | MB | 17 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30594 | 1202883956 | DUP | 11 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30594 | 1202883957 | MS | 0 | 0 | 11 | 0 |
| SW-846:6020 | INORGANIC | CASA-13-30555 | 325847002 | REG | 11 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | LCS | 1202883955 | LCS | 0 | 0 | 11 | 0 |
| SW-846:6020 | INORGANIC | MB | 1202883954 | MB | 11 | 0 | 0 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | CAMO-13-30600 | 1202878496 | MS | 0 | 0 | 1 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | CAMO-13-30600 | 1202878497 | MSD | 0 | 0 | 1 | 0 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| SW-846:6850 | LCMS/MS PERCHLORATE | CASA-13-30555 | 325847002 | REG | 1 | 0 | 0 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | LCS | 1202878495 | LCS | 0 | 0 | 1 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | MB | 1202878494 | MB | 1 | 0 | 0 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | SWWS46-13-33504 | 1202882336 | MS | 0 | 0 | 1 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | SWWS46-13-33504 | 1202882337 | MSD | 0 | 0 | 1 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | CASA-13-30547 | 1202878486 | DUP | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | CASA-13-30547 | 325847001 | REG | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | LCS | 1202878490 | LCS | 0 | 0 | 1 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | MB | 1202878485 | MB | 1 | 0 | 0 | 0 |

**3. Are any analytes missing?**

No.

**4. Were any holding times exceeded?**

No.

**5. Any contaminants in blanks?**

| Field Sample ID | Lab Sample ID | Type Of Blank | Analytical Method | Sample Matrix | Parameter Name | Lab Result | Lab Qualifier | Units | Lab Detection Limit |
|---|---|---|---|---|---|---|---|---|---|
| MB | 1202878736 | METHOD BLANK | EPA:350.1 | W | Ammonia as Nitrogen | 0.0344 | J | mg/L | 0.05 |

**Any samples affected by the presence of contaminants in blanks?**

| Field Sample ID | Blank Field Sample ID | Blank Lab Sample ID | Blank Type | Analytical Method | Parameter Name | Units | Blank Result | Sample Result | Lab Qualifier | Detect Limit | Detected |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CASA-13-30555 | MB | 1202878736 | METHOD BLANK | EPA:350.1 | Ammonia as Nitrogen | mg/L | 0.0344 | 0.0526 | | 0.05 | Y |

**6. Any surrogate recoveries outside the control limits?**

No.

**7. Any MS/MSD recoveries or RPDs outside the control limits?**

| Field Sample ID | Matrix Spike ID | Matrix Spike Dup ID | Analytical Method | Parameter Name | Analysis Lot ID | Analysis Date | Sample Matrix | MS % Recvry | MSD % Recvry | Upper Limit | Lower Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SWWS46-13-33497 | 1202878786 | | EPA:351.2 | Total Kjeldahl Nitrogen | 1302892 | 5/30/2013 | W | 115 | | 110 | 90 |
| CAMO-13-30594 | 1202883952 | | SW-846:6010B | Silicon Dioxide | 1304836 | 6/6/2013 | W | 62.8 | | 125 | 75 |

**8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?**

No.

**9. Any Field Duplicate RPDs outside the desired limits?**

No.

Data Validation Report for:

Chain Of Custody No. 2013-847

| Correction Factor (ND) | Correction Factor (J) | Use Factors |
|---|---|---|
| 5 | | Y |

| Rejection Limit | RPD | RPD Limit |
|---|---|---|
| 10 | | |
| 10 | | |

**10. Any Lab Duplicate RPDs outside the desired limits?**

| Field Sample ID | Lab SampleID | Lab Duplicate Sample ID | Analytical Method | Parameter Name | Sample Matrix | Sample Result | Dup Sample Result | Units | Detected In Sample | Detected In Dup | RPD |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CASA-13-30555 | 325847002 | 1202878737 | EPA:350.1 | Ammonia as Nitrogen | W | 0.0526 | 0.0684 | mg/L | Y | Y | 26.1 |

**11. Any required reporting limits exceeded?**

No.

**12. Additional Validator's Coments.**

None.

**13. Display Flagged Data.**

| Location ID | Chain Of Custody No | Field Sample ID | Sample Purpose | Analysis Type Code | Analytical Suite | Analytical Method | Parameter Name | Lab Qualifier | Validation Qualifier | Validation Reason Codes | Detected |
|---|---|---|---|---|---|---|---|---|---|---|---|
| R-43 S2 | 2013-847 | CASA-13-30555 | REG | INIT | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | | U | I4 | N |

| Reason Code | Description |
|---|---|
| I4 | the sample result is =<5x the concentration of related analyte in the method blank. |
| J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL |
| NQ | The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample. |
| U_LAB | The analytical laboratory qualified the analyte as not detected. |

**14. Useable Result Count.**

| Field Sample ID | Location ID | Sample Purpose | Analytical Method | No. Unuseable Records | Total No. Of Records |
|---|---|---|---|---|---|
| CASA-13-30547 | R-43 S2 | REG | EPA:351.2 | 0 | 1 |
| CASA-13-30547 | R-43 S2 | REG | SW-846:9060 | 0 | 1 |
| CASA-13-30555 | R-43 S2 | REG | EPA:120.1 | 0 | 1 |
| CASA-13-30555 | R-43 S2 | REG | EPA:150.1 | 0 | 1 |
| CASA-13-30555 | R-43 S2 | REG | EPA:160.1 | 0 | 1 |
| CASA-13-30555 | R-43 S2 | REG | EPA:245.2 | 0 | 1 |
| CASA-13-30555 | R-43 S2 | REG | EPA:300.0 | 0 | 4 |
| CASA-13-30555 | R-43 S2 | REG | EPA:310.1 | 0 | 2 |
| CASA-13-30555 | R-43 S2 | REG | EPA:350.1 | 0 | 1 |
| CASA-13-30555 | R-43 S2 | REG | EPA:353.2 | 0 | 1 |
| CASA-13-30555 | R-43 S2 | REG | EPA:365.4 | 0 | 1 |
| CASA-13-30555 | R-43 S2 | REG | SM:A2340B | 0 | 1 |
| CASA-13-30555 | R-43 S2 | REG | SW-846:6010B | 0 | 17 |
| CASA-13-30555 | R-43 S2 | REG | SW-846:6020 | 0 | 11 |
| CASA-13-30555 | R-43 S2 | REG | SW-846:6850 | 0 | 1 |

Data Validation Report for:

Chain Of Custody No. 2013-847

RPD
Limit

20

| Lab Result | Lab Units | Report Result | Report Units | Report MDA | Report Uncertainty | Lab Matrix | Sample Date | Percent Moisture | Analysis Lot ID | Validation Status Code | Use Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0526 | mg/L | 0.0526 | mg/L | | | W | 5/14/2013 | | 1302881 | VAL | Y |

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178
www.gel.com

June 11, 2013

Keith Greene
Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Re: LANL-WQH Water Samples
Work Order: 325847
SDG: 2013-847

Dear Keith Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on May 16, 2013, and analyzed for General Chemistry, Metals and Perchlorates by LCMSMS. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,

for

Valerie Davis
Project Manager

Purchase Order: 63641-10
Chain of Custody: 2013-847
Enclosures

**ARS International (63641-10)**
**LANL-WQH Water Samples**
**Work Order #: 325847**
**SDG: 2013-847**

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# Case Narrative

**Case Narrative for**
**ARS International (63641-10)**
**LANL-WQH Water Samples**
**Workorder #: 325847**
**SDG # : 2013-847**

**June 11, 2013**

**Laboratory Identification:**

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

**Summary**

**Sample receipt** The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on May 16, 2013 for analysis. The samples were delivered with proper chain of custody documentation and signatures. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. Containers were checked for pH, where appropriate, and matched the preservative as documented on the accompanying chain of custody. Shipping container temperature was within specification (0 - 6C). Shipping container temperatures were checked, documented, and within specifications. There are no additional comments concerning sample receipt.

**Sample Identification** The laboratory received the following samples:

| Laboratory ID | Client ID |
|---|---|
| 325847001 | CASA-13-30547 |
| 325847002 | CASA-13-30555 |

**Case Narrative**

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

**Data Package**

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: General Chemistry, Metals and Perchlorates by LCMSMS.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.

for
Valerie Davis
Project Manager

**List of current GEL Certifications as of 11 June 2013**

| State | Certification |
|---|---|
| Alaska | UST−110 |
| Arkansas | 88−0651 |
| CLIA | 42D0904046 |
| California NELAP | 01151CA |
| Colorado | SC00012 |
| Connecticut | PH−0169 |
| Delaware | SC00012 |
| DoD ELAP A2LA ISO 17025 | 2567.01 |
| Florida NELAP | E87156 |
| Foreign Soils Permit | P330−12−00283, P330−12−00284 |
| Georgia | SC00012 |
| Georgia SDWA | 967 |
| Hawaii | SC00012 |
| Idaho | SC00012 |
| Illinois NELAP | 200029 |
| Indiana | C−SC−01 |
| Kansas NELAP | E−10332 |
| Kentucky | 90129 |
| Louisiana NELAP | 03046 (AI33904) |
| Louisiana SDWA | LA130005 |
| Maryland | 270 |
| Massachusetts | M−SC012 |
| Nevada | SC000122011−1 |
| New Hampshire NELAP | 2054 |
| New Jersey NELAP | SC002 |
| New Mexico | SC00012 |
| New York NELAP | 11501 |
| North Carolina | 233 |
| North Carolina SDWA | 45709 |
| Oklahoma | 9904 |
| Pennsylvania NELAP | 68−00485 |
| Plant Material Permit | PDEP−12−00260 |
| South Carolina Chemistry | 10120001 |
| South Carolina Radiochemi | 10120002 |
| Tennessee | TN 02934 |
| Texas NELAP | T104704235−13−8 |
| Utah NELAP | SC000122013−8 |
| Vermont | VT87156 |
| Virginia NELAP | 460202 |
| Washington | C780−12 |
| Wisconsin | 999887790 |

# Chain of Custody and Supporting Documentation

General Engineering Laboratories, Inc., Charleston, SC.
2040 Savage Rd
Charleston SC 29407

# Chain of Custody/Analysis Request

325847

COC/Lab Request #: 2013-847

Page 1 of 1

Client Contact:

Lab Agreement # : 126310011

Project Number :

Analysis Turnaround Time:
24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | WSP-CL04 | WSP-GENINORG | WSP-Met+B+SN+SR+U | WSP-NH3+NO3/NO2+PO4 | WSP-TKN+TOC |
|---|---|---|---|---|---|---|---|---|
| CASA-13-30547 | May 14 2013 | 11:16 | W | | | | | 1 |
| CASA-13-30555 | May 14 2013 | 11:16 | W | 1 | 1 | 1 | 1 | |

Special Instructions:

Special Instructions:

| Relinquished by: | | Date/Time: | Received by: | |
|---|---|---|---|---|
| Melissa Montoya | | 5/15/13 3:00 | P. Nent | 5-16-13 08:45 |
| Relinquished by: | | Date/Time: | Received by: | |
| Relinquished by: | | Date/Time: | Received by: | |

GEL Laboratories LLC

# SAMPLE RECEIPT & REVIEW FORM

| | | | |
|---|---|---|---|
| **Client: LANL** | | | **SDG/AR/COC/Work Order: 2013-847** |
| **Received By: Patricia Dent** | | | **Date Received: May 16, 2013** |
| **Suspected Hazard Information** | **Yes** | **No** | *If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation. |
| COC/Samples marked as radioactive? | | X | Maximum Net Counts Observed* (Observed Counts - Area Background Counts): **0 CPM** |
| Classified Radioactive II or III by RSO? | | X | If yes, Were swipes taken of sample contatiners < action levels? |
| COC/Samples marked containing PCBs? | | X | |
| Package, COC, and/or Samples marked as beryllium or asbestos containing? | | X | If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group. |
| Shipped as a DOT Hazardous? | | X | Hazard Class Shipped: UN#: |
| Samples identified as Foreign Soil? | | X | |

| | Sample Receipt Criteria | Yes | NA | No | Comments/Qualifiers (Required for Non-Conforming Items) |
|---|---|---|---|---|---|
| 1 | Shipping containers received intact and sealed? | X | | | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 2 | Samples requiring cold preservation within (0 ≤ 6 deg. C)?* | X | | | Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius 4C |
| 2a | Daily check performed and passed on IR temperature gun? | X | | | Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable): 61524649 |
| 3 | Chain of custody documents included with shipment? | X | | | |
| 4 | Sample containers intact and sealed? | X | | | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 5 | Samples requiring chemical preservation at proper pH? | X | | | Sample ID's, containers affected and observed Ph If Preservation added, Lot# |
| 6 | VOA vials free of headspace (defined as < 6mm bubble)? | | X | | Sample ID's and containers affected: |
| 7 | Are Encore containers present? | | | X | (If yes, immediately deliver to Volatiles laboratory) |
| 8 | Samples received within holding time? | X | | | ID's and tests affected: |
| 9 | Sample ID's on COC match ID's on bottles? | X | | | Sample ID's and containers affected: |
| 10 | Date & time on COC match date & time on bottles? | X | | | Sample ID's affected: |
| 11 | Number of containers received match number indicated on COC? | X | | | Sample ID's affected: |
| 12 | Are sample containers identifiable as GEL provided? | | | X | **Client** |
| 13 | COC form is properly signed in relinquished/received sections? | X | | | |
| 14 | Carrier and tracking number. | X | | | Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other **5462 9833 0148 4C 5462 9832 0159 4C** |

Hf 051713

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 15MAY13
ACTWGT: 49.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWKO

4c

FedEx Express

THU - 16 MAY 10:30A
PRIORITY OVERNIGHT

TRK# 0201 5462 9833 0148

XX CHSA

29407
SC-US CHS

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 15MAY13
ACTWGT: 42.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: XU4005010300

4c

50DC1/9983/10BC

FedEx Express

J111311060601 25

TRK# 0201 5462 9833 0159

THU - 16 MAY 10:30A
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

Form # 1561 49-434 RIT2 08/10 ©

# Data Review Qualifier Flag Definition Sheet

## Data Review Qualifier Definitions

| Qualifier | Explanation |
|---|---|
| * | A quality control analyte recovery is outside of specified acceptance criteria |
| ** | Analyte is a surrogate compound |
| < | Result is less than value reported |
| > | Result is greater than value reported |
| ^ | RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL |
| A | The TIC is a suspected aldol-condensation product |
| B | Target analyte was detected in the associated blank |
| B | Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL |
| BD | Results are either below the MDC or tracer recovery is low |
| C | Analyte has been confirmed by GC/MS analysis |
| D | Results are reported from a diluted aliquot of the sample |
| d | 5-day BOD-The 2:1 depletion requirement was not met for this sample |
| E | Organics-Concentration of the target analyte exceeds the instrument calibration range |
| E | Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria |
| H | Analytical holding time was exceeded |
| h | Preparation or preservation holding time was exceeded |
| J | Value is estimated |
| N | Metals-The Matrix spike sample recovery is not within specified control limits |
| N | Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N/A | Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more |
| ND | Analyte concentration is not detected above the reporting limit |
| UI | Gamma Spectroscopy-Uncertain identification |
| X | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| Y | QC Samples were not spiked with this compound |
| Z | Paint Filter Test-Particulates passed through the filter, however no free liquids were observed. |

# Perchlorates by LCMSMS Analysis

# Case Narrative

## Method/Analysis Information

| | |
|---|---|
| **Procedure:** | **Definitive Low Level Perchlorate Analysis Utilizing Liquid Chromatography/Mass Spectrometry/Mass Spectrometry (LC/MS/MS) by EPA Method 6850 Modified (6850M)** |
| Analytical Method: | SW846 6850 Modified |
| Prep Method: | SW846 6850 Modified |
| Analytical Batch Number: | 1302799 |
| Prep Batch Number: | 1302798 |

## Sample Analysis

| Sample ID | Client ID |
|---|---|
| 325847002 | CASA-13-30555 |
| 1202878498 | Interference Check Sample (ICS) |
| 1202878494 | Method Blank (MB) |
| 1202878495 | Laboratory Control Sample (LCS) |
| 1202878496 | 326020002(CAMO-13-30600) Matrix Spike (MS) |
| 1202878497 | 326020002(CAMO-13-30600) Matrix Spike Duplicate (MSD) |

The samples in this SDG were analyzed on an "as received" basis.

## Preparation/Analytical Method Verification

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-067 REV# 10.

## Calibration Information

**Initial Calibration**
All initial calibration requirements have been met for this SDG. Due to software constraints, all Initial Calibration Blanks must be designated as IPB001.

**ICV Requirements**
All associated initial calibration verification standard(s) (ICV) met the acceptance criteria.

**CCB Requirements**
All continuing calibration blanks (CCB) bracketing the analyses associated with this batch were within acceptance criteria.

**CCV Requirements**
All continuing calibration checks (CCV) requirements were met by all bracketing CCV standards.

**Low Level Standard (CRI) Requirements**
All low level calibration verification (CRI) requirements were met by all bracketing CRI standards.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Interference Check Sample (ICS)**
The ICS met all recovery acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recoveries met the acceptance limits.

**QC Sample Designation**
Client sample 326020002 (CAMO-13-30600) was chosen for matrix spike and matrix spike duplicate analysis.

**Matrix Spike (MS) Recovery Statement**
The Perchlorate recovery in the matrix spike 1202878496 (CAMO-13-30600) was below the acceptance limits. The recovery for Perchlorate was 35% and with an acceptance range of 75-125%. The low recovery was attributed to a significant background concentration of Perchlorate in the parent sample and sample dilutions needed to analyze the extracts. Data were reported with the appropriate Data Exception Report (DER).

**Matrix Spike Duplicate (MSD) Recovery Statement**
The Perchlorate and Perchlorate-101 recoveries in the matrix spike duplicate 1202878497 (CAMO-13-30600) were below the acceptance limits. The recovery for Perchlorate was 29% and with an acceptance range of 75-125%. The low recovery was attributed to a significant background concentration of Perchlorate in the parent sample and sample dilutions needed to analyze the extracts. Data were reported with the appropriate Data Exception Report (DER).

**MS/MSD Relative Percent Difference (RPD) Statement**
The RPD(s) between the MS and MSD met the acceptance limits.

**Retention Time Standard Area Acceptance**
The retention time standard areas were within the required acceptance criteria for all samples and QC.

**Retention Time**
During the analysis of Perchlorate by LC/MS/MS, retention time shifts are commonly observed. These retention time shifts, which are caused by fouling of the column by the sample matrices, are problematic when the retention time is used as one of the criterion for confirmation. To overcome this problem, a known amount of O(18) labeled Perchlorate was added to each sample as a retention time standard. The presence of Perchlorate was confirmed by the relative retention time (RRT) of the Perchlorate peak and the O(18) standard. A RRT window of 0.98 to 1.02, as required by Method 332.0, has been used. In addition to the isotopic ratio, the presence of Perchlorate in the samples associated with this data package have been confirmed using the relative retention criteria stated above, not the absolute retention time.

## Technical Information

### Holding Time Specifications
All samples in this SDG in this analytical batch met the specified holding time. GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

### Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

### Sample Dilutions
Samples 1202878496 (CAMO-13-30600) and 1202878497 (CAMO-13-30600) were diluted due to over range target analytes.

### Sample Re-extraction/Re-analysis
The samples in this batch were initially analyzed on 05/28/13, however the batch was re-analyzed due to unacceptable responses in the calibration verification standards bracketing the samples. The samples were re-analyzed the following day and data were reported.

## Miscellaneous Information

### Data Exception (DER) Documentation
The following DER was generated for this SDG: 1190616.

### Manual Integrations
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations.

### Method Comments
The samples in this SDG were not originally analyzed using EPA Method 314.0.

### Additional Comments
The Perchlorate Isotope Ratio on the Form I may differ slightly from the ratio on the corresponding raw data due to rounding rules and/or significant figures or due to software limitations when there are manual integrations, dilutions or other factors. The ratio value of the Form I is the correct value. The retention time marker, Perchlorate-O (18), is added to all samples, instrument blanks, and standards prior to injection. It is used to verify the retention time of Perchlorate and Perchlorate-101 and to insure an accurate injection occurred. Due to various anions affecting the recovery of Perchlorate-O (18) and not Perchlorate and Perchlorate-101, the calibration curves of Perchlorate and Perchlorate-101 are not internally corrected for using Perchlorate-O (18). They are external calibrations.

### Perchlorate Isotope Ratio
The Perchlorate isotope ratio met acceptance criteria for all samples and QC samples. Please see the isotope ratio criteria in the Miscellaneous Section.

## System Configuration

The laboratory utilizes a Waters LC 2795 liquid chromatography instrument for Perchlorate analysis. It is coupled with either a Micromass Quattro Micro Mass Spectrometer/ Mass Spectrometer, or a Micromass Quattro Ultima Mass Spectrometer/ Mass Spectrometer. Each being designated as LCMSMS #1 and LCMSMS #2, respectively. It is fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis. The laboratory may also utilize an Agilent 1100 liquid chromatography instrument for Perchlorate analysis. It is coupled with an Applied Biosystems 4000 Mass Spectrometer/ Mass Spectrometer, designated as LCMSMS #3 or LCMSMS #4. It is also fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Chromatographic Columns**

Chromatographic separation of Perchlorate is accomplished through analysis on the following anion column:

Dionex: IonPac AG-16 2 x 50 mm.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-847 GEL Work Order: 325847

**The Qualifiers in this report are defined as follows:**

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

**Review/Validation**

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

**Signature:** Pat Steele **Name: Patricia Steele**

**Date: 03 JUN 2013** **Title: Data Validator**

# Sample Data Summary

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1302798

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CASA-13-30555

**Date Received:** 16-MAY-13

**GEL Job No (SDG):** 2013-847

**GEL Sample ID:** 325847002

**Date Filtered:** 28-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.474 | ug/L | | 1 | 29-MAY-13 18:12 | per0529019a |
| | Perchlorate Isotope Ratio | | | 3.06 | | | 1 | 29-MAY-13 18:12 | per0529019a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.483 | ug/L | | 1 | 29-MAY-13 18:12 | per0529019a |
| | Perchlorate-O(18) | | | 0.462 | ug/L | | 1 | 29-MAY-13 18:12 | per0529019a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Quality Control Summary

## Perchlorate Laboratory Control Sample

**Lab Name:** General Engineering Laboratories

**Lab Code:** GEL

**GEL Job No. (SDG):** 2013-847

**Extract Batch Code:** 1302798

**Date Filtered:** 28-MAY-13

**Matrix:** WATER

**Sample ID:** 1202878495

| Analyte^ | True | Found | Units | %Rec | Q | Control Limits |
|---|---|---|---|---|---|---|
| Perchlorate | 0.200 | .196 | ug/L | 98.2 | | 85 - 115 |
| Perchlorate Isotope Ratio | | 2.91 | | | | - |
| Perchlorate-101 | 0.200 | .21 | ug/L | 105 | | 85 - 115 |
| Perchlorate-O(18) | | .479 | ug/L | | | - |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

## Perchlorate Spike/Spike Duplicate Summary

**Lab Name:** General Engineering Laboratories

**Lab Code:** GEL

**GEL Job No (SDG):** 2013-847

**Extract Batch Code:** 1302798

**Date Extracted:** 28-MAY-13

**GEL MS/PS ID:** 1202878496

**Client ID:** CAMO-13-30600

**GEL MSD/PSD ID:** 1202878497

**QC Type:** MS

| Compound^ | Spike Added | Sample Conc | Units | MS Conc | MS Rec | # | MSD Conc | MSD Rec | # | RPD | # | RPD Limit | Recovery Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Perchlorate | 0.200 | 5.82 | ug/L | 5.89 | 34.9 | * | 5.88 | 29.4 | * | .186 | | 30 | 75 - 125 |
| Perchlorate Isotope Ratio | 0 | 3.16 | | 3.1 | | | 3.15 | | | 1.64 | | | - |
| Perchlorate-101 | 0.200 | 5.73 | ug/L | 5.91 | 89.3 | | 5.8 | 35.8 | * | 1.83 | | 30 | 75 - 125 |
| Perchlorate-O(18) | 0 | 4.70 | ug/L | 4.77 | | | 4.72 | | | 1.05 | | | - |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

# Quality Control Data

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** EPA 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1302798

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
MB

**Date Received:** 28-MAY-13

**GEL Job No (SDG):** 2013-847

**GEL Sample ID:** 1202878494

**Date Filtered:** 28-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.200 | ug/L | U | 1 | 29-MAY-13 17:16 | per0529012a |
| | Perchlorate Isotope Ratio | | | | | | 1 | 29-MAY-13 17:16 | per0529012a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.200 | ug/L | U | 1 | 29-MAY-13 17:16 | per0529012a |
| | Perchlorate-O(18) | | | 0.504 | ug/L | | 1 | 29-MAY-13 17:16 | per0529012a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** EPA 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1302798

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
LCS

**Date Received:** 28-MAY-13

**GEL Job No (SDG):** 2013-847

**GEL Sample ID:** 1202878495

**Date Filtered:** 28-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.196 | ug/L | J | 1 | 29-MAY-13 17:24 | per0529013a |
| | Perchlorate Isotope Ratio | | | 2.91 | | | 1 | 29-MAY-13 17:24 | per0529013a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.210 | ug/L | | 1 | 29-MAY-13 17:24 | per0529013a |
| | Perchlorate-O(18) | | | 0.479 | ug/L | | 1 | 29-MAY-13 17:24 | per0529013a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1302798

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
ICS

**Date Received:**

**GEL Job No (SDG):** 2013-847

**GEL Sample ID:** 1202878498

**Date Filtered:** 28-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.205 | ug/L | | 1 | 29-MAY-13 17:32 | per0529014a |
| | Perchlorate Isotope Ratio | | | 3.23 | | | 1 | 29-MAY-13 17:32 | per0529014a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.198 | ug/L | J | 1 | 29-MAY-13 17:32 | per0529014a |
| | Perchlorate-O(18) | | | 0.503 | ug/L | | 1 | 29-MAY-13 17:32 | per0529014a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1302798

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CAMO-13-30600MS

**Date Received:** 18-MAY-13

**GEL Job No (SDG):** 2013-847

**GEL Sample ID:** 1202878496

**Date Filtered:** 28-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .5 | 2 | 5.89 | ug/L | | 10 | 29-MAY-13 19:00 | per0529025a |
| | Perchlorate Isotope Ratio | | | 3.1 | | | 10 | 29-MAY-13 19:00 | per0529025a |
| 14797-73-0 | Perchlorate-101 | .5 | 2 | 5.91 | ug/L | | 10 | 29-MAY-13 19:00 | per0529025a |
| | Perchlorate-O(18) | | | 4.77 | ug/L | | 10 | 29-MAY-13 19:00 | per0529025a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1302798

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CAMO-13-30600MSD

**Date Received:** 18-MAY-13

**GEL Job No (SDG):** 2013-847

**GEL Sample ID:** 1202878497

**Date Filtered:** 28-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .5 | 2 | 5.88 | ug/L | | 10 | 29-MAY-13 19:08 | per0529026a |
| | Perchlorate Isotope Ratio | | | 3.15 | | | 10 | 29-MAY-13 19:08 | per0529026a |
| 14797-73-0 | Perchlorate-101 | .5 | 2 | 5.80 | ug/L | | 10 | 29-MAY-13 19:08 | per0529026a |
| | Perchlorate-O(18) | | | 4.72 | ug/L | | 10 | 29-MAY-13 19:08 | per0529026a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Miscellaneous

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 30-MAY-13 | Federal | | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| LC-MS/MS | SW846 6850 Modified | Liquid | ARSL001 |
| **Batch ID:** | **Sample Numbers:** | | |
| 1302799 | See below | | |

**Potentially affected work order(s)(SDG):** **325733(2013-838),325736(2013-840),325739(2013-841),325847(2013-847),325923(2013-856),326020(2013-866),326056(2013-868),326427(2013-887)**

**Application Issues:**

Failed Recovery for MS/PS

Failed Recovery for MSD/PSD

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Low recovery for Perchlorate was observed in 1202878496 (MS). The recovery was 35% and the acceptance range is 75-125%.<br><br>2. Low recoveries for Perchlorate and Perchlorate-101 were observed in 1202878497 (MSD). The recoveries were 29% and 36%, respectively. The acceptance range is 75-125%. | 1. & 2. The low recoveries may be the result of the background concentration present in the parent sample, 326020002, and the need to dilute all at a 1:10 dilution prior to analysis. The data are reported with the appropriate DER. |

**Originator's Name:**

Charles Wilson 30-MAY-13

**Data Validator/Group Leader:**

Michael Penny 30-MAY-13

# Metals Analysis

# Case Narrative

**Metals Fractional Narrative**
**ARS International (ARSL)**
**SDG 2013-847**

## Sample Analysis

| Sample ID | Client ID |
|---|---|
| 325847002 | CASA-13-30555 |
| 1202883949 | Method Blank (MB) **ICP** |
| 1202883950 | Laboratory Control Sample (LCS) |
| 1202883953 | 325649002(CAMO-13-30594L) Serial Dilution (SD) |
| 1202883951 | 325649002(CAMO-13-30594D) Sample Duplicate (DUP) |
| 1202883952 | 325649002(CAMO-13-30594S) Matrix Spike (MS) |
| 1202883954 | Method Blank (MB) **ICP-MS** |
| 1202883955 | Laboratory Control Sample (LCS) |
| 1202883958 | 325649002(CAMO-13-30594L) Serial Dilution (SD) |
| 1202883956 | 325649002(CAMO-13-30594D) Sample Duplicate (DUP) |
| 1202883957 | 325649002(CAMO-13-30594S) Matrix Spike (MS) |
| 1202878703 | Method Blank (MB) **CVAA** |
| 1202878710 | Laboratory Control Sample (LCS) |
| 1202878707 | 325847002(CASA-13-30555L) Serial Dilution (SD) |
| 1202878705 | 325847002(CASA-13-30555D) Sample Duplicate (DUP) |
| 1202878709 | 325847002(CASA-13-30555S) Matrix Spike (MS) |

## Method/Analysis Information

| | |
|---|---|
| **Analytical Batch:** | 1304837, 1304840, 1302867 and 1306982 |
| **Prep Batch :** | 1304836, 1304838 and 1302865 |
| **Standard Operating Procedures:** | GL-MA-E-013 REV# 22, GL-MA-E-006 REV# 9, GL-MA-E-014 REV# 25, GL-MA-E-010 REV# 26 and GL-GC-E-107 REV# 8 |
| **Analytical Method:** | SW846 3005/6010B, SW846 3005/6020 DOE-AL, EPA 245.1/245.2 and SM 2340 B |
| **Prep Method :** | SW846 3005A and EPA 245.1/245.2 Prep |

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

**System Configuration**

The Hardness as CaCO3 is calculated from Calcium and Magnesium results.

The Metals analysis-ICP was performed on a P E 5300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis-ICP was performed on a PE 7300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN 9000 inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadruple mass spectrometer, and dual mode electron multiplier detector. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum. Operating conditions are set at 1400W power and combined argon pressures of 360+/-7 kPa for the plasma and auxiliary gases, and 0.85 L/min carrier gas flow, and an initial lens voltage of 5.2.

The Metals analysis-Mercury was performed on a Perkin-Elmer Flow Injection Mercury System (FIMS-100) automated mercury analyzer. The instrument consists of a cold vapor atomic absorption spectrometer set to detect mercury at a wavelength of 253.7 nm. Sample introduction through the flow injection system is performed via a peristaltic pump at 9 mL/min and nitrogen carrier gas rate of 80 mL/min.

**Calibration Information**

**Instrument Calibration**
All initial calibration requirements have been met for this sample delivery group (SDG).

**CRDL Requirements**
All CRDL standard(s) met the referenced advisory control limits.

**ICSA/ICSAB Statement**
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

**Continuing Calibration Blank (CCB) Requirements**
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

**Continuing Calibration Verification (CCV) Requirements**
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MBs analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recoveries met the acceptance limits.

**Quality Control (QC) Sample Statement**
The following samples were selected as the quality control (QC) samples for this SDG: 325649002 (CAMO-13-30594)-ICP and ICP-MS and 325847002 (CASA-13-30555)-CVAA.

**Matrix Spike (MS) Recovery Statement**
The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. All applicable elements met the acceptance criteria.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. All applicable analytes met these requirements.

**Serial Dilution % Difference Statement**
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations that are 25X the IDL/MDL for CVAA, 50X the IDL/MDL for ICP, and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the acceptance criteria of less than 10% difference (%D).

## Technical Information

### Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

### Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

### Sample Dilutions
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. The samples in this SDG did not require dilutions.

### Preparation Information
The samples in this SDG were prepared exactly according to the cited SOP.

## Miscellaneous Information

### Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

### Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

### Additional Comments
Additional comments were not required for this SDG.
Total Hardness by Calculation is determined using the results of Total Calcium (Ca) and Total Magnesium (Mg) determined by ICP or ICP-MS.

Hardness = 2.497 (Ca) + 4.118 (Mg)

Please refer to the Total Ca and Total Mg data to validate results appearing on the Hardness Summary sheet. Both results are in the Inorganic/metals section of the package. There is no Batch QC for calculated results, and thus no QC Summary for the Hardness by Calculation Batch. The MDLs and PQLs are calculated using the higher of the two calculated values of Ca or Mg.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

**Review Validation:**

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

**The following data validator verified the information presented in this case narrative:**

**Reviewer:**_____ **Date:** 06/11/13

# Sample Data Summary

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-847  GEL Work Order: 325847

**The Qualifiers in this report are defined as follows:**

* A quality control analyte recovery is outside of specified acceptance criteria

J Value is estimated

N Metals--The Matrix spike sample recovery is not within specified control limits

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____ 06/11/13

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−847 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

**SAMPLE ID:** 325847002 **BASIS:** As Received **DATE COLLECTED** 14−MAY−13

**CLIENT ID:** CASA−13−30555 **LEVEL:** Low **DATE RECEIVED** 16−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7439−97−6 | Mercury | 0.20 | ug/L | U | 0.067 | 0.2 | 0.2 | 1 | AV | NOR1 | 05/21/13 11:50 | 052113W1−6 | 1302867 |

# METALS
## −1−
## INORGANICS ANALYSIS DATA PACKAGE

**SDG No:** 2013−847 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

**SAMPLE ID:** 325847002 **BASIS:** As Received **DATE COLLECTED** 14−MAY−13

**CLIENT ID:** CASA−13−30555 **LEVEL:** Low **DATE RECEIVED** 16−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7429−90−5 | Aluminum | 200 | ug/L | U | 68 | 200 | 200 | 1 | P | HSC | 06/06/13 15:40 | 060613−1 | 1304837 |
| 7440−36−0 | Antimony | 3 | ug/L | U | 1 | 3 | 3 | 1 | MS | PRB | 06/08/13 03:20 | 130607−5 | 1304840 |
| 7440−38−2 | Arsenic | 5 | ug/L | U | 1.7 | 5 | 5 | 1 | MS | BAJ | 06/07/13 07:40 | 130606−3 | 1304840 |
| 7440−39−3 | Barium | 21.1 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:40 | 060613−1 | 1304837 |
| 7440−41−7 | Beryllium | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:40 | 060613−1 | 1304837 |
| 7440−42−8 | Boron | 26.3 | ug/L | J | 15 | 50 | 50 | 1 | P | HSC | 06/06/13 15:40 | 060613−1 | 1304837 |
| 7440−43−9 | Cadmium | 1 | ug/L | U | 0.11 | 1 | 1 | 1 | MS | BAJ | 06/07/13 07:40 | 130606−3 | 1304840 |
| 7440−70−2 | Calcium | 17400 | ug/L | | 50 | 200 | 200 | 1 | P | HSC | 06/06/13 15:40 | 060613−1 | 1304837 |
| 7440−47−3 | Chromium | 3 | ug/L | J | 2 | 10 | 10 | 1 | MS | BAJ | 06/07/13 07:40 | 130606−3 | 1304840 |
| 7440−48−4 | Cobalt | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:40 | 060613−1 | 1304837 |
| 7440−50−8 | Copper | 10 | ug/L | U | 3 | 10 | 10 | 1 | P | HSC | 06/06/13 15:40 | 060613−1 | 1304837 |
| 7439−89−6 | Iron | 100 | ug/L | U | 30 | 100 | 100 | 1 | P | HSC | 06/06/13 15:40 | 060613−1 | 1304837 |
| 7439−92−1 | Lead | 2 | ug/L | U | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/07/13 07:40 | 130606−3 | 1304840 |
| 7439−95−4 | Magnesium | 4790 | ug/L | | 110 | 300 | 300 | 1 | P | HSC | 06/07/13 10:41 | 060713B−2 | 1304837 |
| 7439−96−5 | Manganese | 10 | ug/L | U | 2 | 10 | 10 | 1 | P | HSC | 06/06/13 15:40 | 060613−1 | 1304837 |
| 7439−98−7 | Molybdenum | 1.22 | ug/L | | 0.165 | 0.5 | 0.5 | 1 | MS | BAJ | 06/07/13 16:22 | 130607−4 | 1304840 |
| 7440−02−0 | Nickel | 0.577 | ug/L | J | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/07/13 07:40 | 130606−3 | 1304840 |
| 7440−09−7 | Potassium | 1570 | ug/L | | 50 | 150 | 150 | 1 | P | HSC | 06/06/13 15:40 | 060613−1 | 1304837 |
| 7782−49−2 | Selenium | 5 | ug/L | U | 1.5 | 5 | 5 | 1 | MS | BAJ | 06/07/13 07:40 | 130606−3 | 1304840 |
| 7631−86−9 | Silica | 72200 | ug/L | | 53 | 213 | 213 | 1 | P | HSC | 06/06/13 15:40 | 060613−1 | 1304837 |
| 7440−22−4 | Silver | 1 | ug/L | U | 0.2 | 1 | 1 | 1 | MS | BAJ | 06/07/13 07:40 | 130606−3 | 1304840 |
| 7440−23−5 | Sodium | 16200 | ug/L | | 100 | 300 | 300 | 1 | P | HSC | 06/07/13 10:41 | 060713B−2 | 1304837 |
| 7440−24−6 | Strontium | 113 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:40 | 060613−1 | 1304837 |
| 7440−28−0 | Thallium | 2 | ug/L | U | 0.45 | 2 | 2 | 1 | MS | BAJ | 06/07/13 07:40 | 130606−3 | 1304840 |
| 7440−31−5 | Tin | 10 | ug/L | U | 2.5 | 10 | 10 | 1 | P | HSC | 06/07/13 10:41 | 060713B−2 | 1304837 |
| 7440−61−1 | Uranium | 0.883 | ug/L | | 0.067 | 0.2 | 0.2 | 1 | MS | BAJ | 06/07/13 16:22 | 130607−4 | 1304840 |
| 7440−62−2 | Vanadium | 7.94 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:40 | 060613−1 | 1304837 |
| 7440−66−6 | Zinc | 10 | ug/L | U | 3.3 | 10 | 10 | 1 | P | HSC | 06/06/13 15:40 | 060613−1 | 1304837 |

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−847 **CONTRACT:** ESHL00210 **METHOD TYPE:**

**SAMPLE ID:** 325847002 **BASIS:** As Received **DATE COLLECTED** 14−MAY−13

**CLIENT ID:** CASA−13−30555 **LEVEL:** Low **DATE RECEIVED** 16−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Hardness as CaCO3 | 63.1 | mg/L | | 0.453 | 1.24 | 1.24 | 1 | | JJ2 | 06/10/13 14:16 | | 1306982 |

**Prep Information:**

| Analytical Batch | Prep Batch | Prep Method | Initial wt./vol. | Units | Final wt./vol. | Units | Date | Analyst |
|---|---|---|---|---|---|---|---|---|
| 1302867 | 1302865 | EPA 245.1/245.2 Prep | 20 | mL | 20 | mL | 05/20/13 | AXS5 |
| 1304837 | 1304836 | SW846 3005A | 50 | mL | 50 | mL | 06/06/13 | AXG2 |
| 1304840 | 1304838 | SW846 3005A | 50 | mL | 50 | mL | 06/06/13 | AXG2 |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**
**P** **SW846 3005/6010B**
**AV** **EPA 245.1/245.2**

# Quality Control Summary

**METALS**
**−3b−**
**PREPARATION BLANK SUMMARY**

**SDG NO.** 2013−847

**Contract:** ESHL00210

**Matrix:** W

| Sample ID | Analyte | Result | Units | Acceptance Window | Conc Qual | M* | MDL | RDL |
|---|---|---|---|---|---|---|---|---|
| 1202878703 | | | | | | | | |
| | Mercury | 0.067 | ug/L | +/−0.2 | U | AV | 0.067 | 0.2 |
| 1202883949 | | | | | | | | |
| | Strontium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Tin | 2.5 | ug/L | +/−10 | U | P | 2.5 | 10 |
| | Vanadium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Zinc | 3.3 | ug/L | +/−10 | U | P | 3.3 | 10 |
| | Barium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Boron | 15 | ug/L | +/−50 | U | P | 15 | 50 |
| | Cobalt | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Iron | 30 | ug/L | +/−100 | U | P | 30 | 100 |
| | Sodium | 100 | ug/L | +/−300 | U | P | 100 | 300 |
| | Silica | 53 | ug/L | +/−213 | U | P | 53 | 213 |
| | Potassium | 50 | ug/L | +/−150 | U | P | 50 | 150 |
| | Manganese | 2 | ug/L | +/−10 | U | P | 2 | 10 |
| | Magnesium | 110 | ug/L | +/−300 | U | P | 110 | 300 |
| | Copper | 3 | ug/L | +/−10 | U | P | 3 | 10 |
| | Calcium | 50 | ug/L | +/−200 | U | P | 50 | 200 |
| | Beryllium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Aluminum | 68 | ug/L | +/−200 | U | P | 68 | 200 |
| 1202883954 | | | | | | | | |
| | Antimony | 1 | ug/L | +/−3 | U | MS | 1 | 3 |
| | Arsenic | 1.7 | ug/L | +/−5 | U | MS | 1.7 | 5 |
| | Cadmium | 0.11 | ug/L | +/−1 | U | MS | 0.11 | 1 |
| | Chromium | 2 | ug/L | +/−10 | U | MS | 2 | 10 |
| | Lead | 0.5 | ug/L | +/−2 | U | MS | 0.5 | 2 |
| | Molybdenum | 0.165 | ug/L | +/−0.5 | U | MS | 0.165 | 0.5 |
| | Nickel | 0.5 | ug/L | +/−2 | U | MS | 0.5 | 2 |
| | Selenium | 1.5 | ug/L | +/−5 | U | MS | 1.5 | 5 |
| | Silver | 0.2 | ug/L | +/−1 | U | MS | 0.2 | 1 |
| | Thallium | 0.45 | ug/L | +/−2 | U | MS | 0.45 | 2 |
| | Uranium | 0.067 | ug/L | +/−0.2 | U | MS | 0.067 | 0.2 |

***Analytical Methods:**

| | |
|---|---|
| **MS** | **SW846 3005/6020 DOE−AL** |
| **P** | **SW846 3005/6010B** |
| **AV** | **EPA 245.1/245.2** |

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−847 **Client ID** CASA−13−30555S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 325847002 **Spike ID:** 1202878709

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | ug/L | 75−125 | 1.98 | | 0.067 | U | 2 | 99.2 | | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−847 **Client ID** CAMO−13−30594S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 325649002 **Spike ID:** 1202883952

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Magnesium | ug/L | 75−125 | 8390 | | 3700 | | 5000 | 93.7 | | P |
| Manganese | ug/L | 75−125 | 492 | | 2 | U | 500 | 98.3 | | P |
| Potassium | ug/L | 75−125 | 5990 | | 1210 | | 5000 | 95.6 | | P |
| Silica | ug/L | | 81700 | | 74900 | | 10700 | 62.8 | N/A | P |
| Sodium | ug/L | 75−125 | 14200 | | 9930 | | 5000 | 85.2 | | P |
| Iron | ug/L | 75−125 | 5140 | | 30 | U | 5000 | 103 | | P |
| Strontium | ug/L | 75−125 | 560 | | 58.8 | | 500 | 100 | | P |
| Tin | ug/L | 75−125 | 470 | | 2.5 | U | 500 | 94 | | P |
| Vanadium | ug/L | 75−125 | 507 | | 5.58 | | 500 | 100 | | P |
| Zinc | ug/L | 75−125 | 490 | | 3.3 | U | 500 | 97.4 | | P |
| Aluminum | ug/L | 75−125 | 5060 | | 68 | U | 5000 | 101 | | P |
| Barium | ug/L | 75−125 | 513 | | 21.9 | | 500 | 98.3 | | P |
| Beryllium | ug/L | 75−125 | 498 | | 1 | U | 500 | 99.5 | | P |
| Boron | ug/L | 75−125 | 491 | | 15 | U | 500 | 97.5 | | P |
| Calcium | ug/L | 75−125 | 17600 | | 13300 | | 5000 | 86.2 | | P |
| Cobalt | ug/L | 75−125 | 496 | | 1 | U | 500 | 99.2 | | P |
| Copper | ug/L | 75−125 | 532 | | 3 | U | 500 | 106 | | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−847 **Client ID** CAMO−13−30594S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 325649002 **Spike ID:** 1202883957

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ug/L | 75−125 | 55 | | 1 | U | 50 | 110 | | MS |
| Arsenic | ug/L | 75−125 | 52.4 | | 1.7 | U | 50 | 102 | | MS |
| Cadmium | ug/L | 75−125 | 54.8 | | 0.11 | U | 50 | 110 | | MS |
| Chromium | ug/L | 75−125 | 68.1 | | 17.5 | | 50 | 101 | | MS |
| Lead | ug/L | 75−125 | 51.2 | | 0.5 | U | 50 | 102 | | MS |
| Molybdenum | ug/L | 75−125 | 51.8 | | 0.849 | | 50 | 102 | | MS |
| Nickel | ug/L | 75−125 | 53.4 | | 2.22 | | 50 | 102 | | MS |
| Selenium | ug/L | 75−125 | 59.2 | | 1.5 | U | 50 | 116 | | MS |
| Silver | ug/L | 75−125 | 54 | | 0.2 | U | 50 | 108 | | MS |
| Thallium | ug/L | 75−125 | 47.3 | | 0.45 | U | 50 | 94.6 | | MS |
| Uranium | ug/L | 75−125 | 51.9 | | 0.429 | | 50 | 103 | | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−847 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CASA−13−30555D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325847002 **Duplicate ID:** 1202878705 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | ug/L | | 0.067 | U | 0.067 | U | | | AV |

***Analytical Methods:**

**AV EPA 245.1/245.2**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−847 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CAMO−13−30594D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325649002 **Duplicate ID:** 1202883951 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | ug/L | | 68 | U | 68 | U | | | P |
| Barium | ug/L | +/−5 | 21.9 | | 20.8 | | 5.14 | | P |
| Beryllium | ug/L | | 1 | U | 1 | U | | | P |
| Boron | ug/L | | 15 | U | 15 | U | | | P |
| Calcium | ug/L | +/−20% | 13300 | | 12900 | | 3.27 | | P |
| Cobalt | ug/L | | 1 | U | 1 | U | | | P |
| Copper | ug/L | | 3 | U | 3 | U | | | P |
| Iron | ug/L | | 30 | U | 30 | U | | | P |
| Magnesium | ug/L | +/−20% | 3700 | | 3510 | | 5.41 | | P |
| Manganese | ug/L | | 2 | U | 2 | U | | | P |
| Potassium | ug/L | +/−20% | 1210 | | 1170 | | 3.01 | | P |
| Silica | ug/L | +/−20% | 74900 | | 72500 | | 3.29 | | P |
| Sodium | ug/L | +/−20% | 9930 | | 9590 | | 3.45 | | P |
| Strontium | ug/L | +/−20% | 58.8 | | 56.4 | | 4.05 | | P |
| Tin | ug/L | | 2.5 | U | 2.5 | U | | | P |
| Vanadium | ug/L | +/−5 | 5.58 | | 4.98 | J | 11.3 | | P |
| Zinc | ug/L | | 3.3 | U | 3.3 | U | | | P |

***Analytical Methods:**

**P SW846 3005/6010B**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−847 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CAMO−13−30594D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325649002 **Duplicate ID:** 1202883956 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Antimony | ug/L | | 1 | U | 1 | U | | | MS |
| Arsenic | ug/L | | 1.7 | U | 1.7 | U | | | MS |
| Cadmium | ug/L | | 0.11 | U | 0.11 | U | | | MS |
| Chromium | ug/L | +/−10 | 17.5 | | 16 | | 9.39 | | MS |
| Lead | ug/L | | 0.5 | U | 0.5 | U | | | MS |
| Molybdenum | ug/L | +/−.5 | 0.849 | | 0.877 | | 3.24 | | MS |
| Nickel | ug/L | +/−2 | 2.22 | | 1.9 | J | 15.5 | | MS |
| Selenium | ug/L | | 1.5 | U | 1.5 | U | | | MS |
| Silver | ug/L | | 0.2 | U | 0.2 | U | | | MS |
| Thallium | ug/L | | 0.45 | U | 0.45 | U | | | MS |
| Uranium | ug/L | +/−.2 | 0.429 | | 0.42 | | 2.12 | | MS |

***Analytical Methods:**

**MS SW846 3005/6020 DOE−AL**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−847

**Contract:** ESHL00210

**Aqueous LCS Source:** GEL **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202878710 | | | | | | | | |
| | Mercury | ug/L | 2 | 2.08 | | 104 | 85−115 | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−847

**Contract:** ESHL00210

**Aqueous LCS Source:** OS2I **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202883950 | | | | | | | | |
| | Aluminum | ug/L | 5000 | 5200 | | 104 | 80−120 | P |
| | Barium | ug/L | 500 | 510 | | 102 | 80−120 | P |
| | Beryllium | ug/L | 500 | 508 | | 102 | 80−120 | P |
| | Boron | ug/L | 500 | 488 | | 97.7 | 80−120 | P |
| | Calcium | ug/L | 5000 | 5150 | | 103 | 80−120 | P |
| | Cobalt | ug/L | 500 | 508 | | 102 | 80−120 | P |
| | Copper | ug/L | 500 | 533 | | 107 | 80−120 | P |
| | Iron | ug/L | 5000 | 5300 | | 106 | 80−120 | P |
| | Magnesium | ug/L | 5000 | 5140 | | 103 | 80−120 | P |
| | Manganese | ug/L | 500 | 517 | | 103 | 80−120 | P |
| | Potassium | ug/L | 5000 | 5100 | | 102 | 80−120 | P |
| | Silica | ug/L | 10700 | 10800 | | 101 | 80−120 | P |
| | Sodium | ug/L | 5000 | 5040 | | 101 | 80−120 | P |
| | Strontium | ug/L | 500 | 527 | | 105 | 80−120 | P |
| | Tin | ug/L | 500 | 496 | | 99.2 | 80−120 | P |
| | Vanadium | ug/L | 500 | 517 | | 103 | 80−120 | P |
| | Zinc | ug/L | 500 | 493 | | 98.5 | 80−120 | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−847

**Contract:** ESHL00210

**Aqueous LCS Source:** O2Si **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202883955 | | | | | | | | |
| | Antimony | ug/L | 50 | 55.6 | | 111 | 80−120 | MS |
| | Arsenic | ug/L | 50 | 51.7 | | 103 | 80−120 | MS |
| | Cadmium | ug/L | 50 | 54.4 | | 109 | 80−120 | MS |
| | Chromium | ug/L | 50 | 52.9 | | 106 | 80−120 | MS |
| | Lead | ug/L | 50 | 51.4 | | 103 | 80−120 | MS |
| | Molybdenum | ug/L | 50 | 50.2 | | 100 | 80−120 | MS |
| | Nickel | ug/L | 50 | 52.7 | | 105 | 80−120 | MS |
| | Selenium | ug/L | 50 | 59.7 | | 119 | 80−120 | MS |
| | Silver | ug/L | 50 | 53.8 | | 108 | 80−120 | MS |
| | Thallium | ug/L | 50 | 46.7 | | 93.5 | 80−120 | MS |
| | Uranium | ug/L | 50 | 49.6 | | 99.3 | 80−120 | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−847 **Client ID** CASA−13−30555L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325847002 **Serial Dilution ID:** 1202878707

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Mercury | .067 | U | .335 | U | | | | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−847 **Client ID** CAMO−13−30594L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325649002 **Serial Dilution ID:** 1202883953

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Aluminum | 68 | U | 340 | U | | | | P |
| Barium | 21.9 | | 25.2 | | 14.8 | | | P |
| Beryllium | 1 | U | 5 | U | | | | P |
| Boron | 15 | U | 75 | U | | | | P |
| Calcium | 13300 | | 13000 | | 2.28 | | 10 | P |
| Cobalt | 1 | U | 5 | U | | | | P |
| Copper | 3 | U | 15 | U | | | | P |
| Iron | 30 | U | 150 | U | | | | P |
| Magnesium | 3700 | | 3680 | | .612 | | | P |
| Manganese | 2 | U | 10 | U | | | | P |
| Potassium | 1210 | | 1320 | | 8.88 | | | P |
| Silica | 74900 | | 73100 | | 2.4 | | 10 | P |
| Sodium | 9930 | | 10500 | | 5.47 | | 10 | P |
| Strontium | 58.8 | | 56.9 | | 3.16 | | 10 | P |
| Tin | 2.5 | U | 12.5 | U | | | | P |
| Vanadium | 5.58 | | 6.2 | J | 11.1 | | | P |
| Zinc | 3.3 | U | 16.5 | U | | | | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−847 **Client ID** CAMO−13−30594L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325649002 **Serial Dilution ID:** 1202883958

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Antimony | 1 | U | 5 | U | | | | MS |
| Arsenic | 1.7 | U | 8.5 | U | | | | MS |
| Cadmium | .11 | U | .55 | U | | | | MS |
| Chromium | 17.5 | | 16.6 | J | 5.12 | | | MS |
| Lead | .5 | U | 2.5 | U | | | | MS |
| Molybdenum | .849 | | 1.15 | J | 35.5 | | | MS |
| Nickel | 2.22 | | 2.5 | U | 100 | | | MS |
| Selenium | 1.5 | U | 7.5 | U | | | | MS |
| Silver | .2 | U | 1 | U | | | | MS |
| Thallium | .45 | U | 2.25 | U | | | | MS |
| Uranium | .429 | | .53 | J | 23.5 | | | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

# General Chem Analysis

# Case Narrative

**General Chemistry Narrative**
**ARS International (ARSL)**
**SDG 2013-847**

## Method/Analysis Information

**Product:** **Carbon, Total Organic**

**Analytical Batch:** 1302796 **Method:** SW 9060 Total Organic Carbon

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9060:

| Sample ID | Client ID |
|---|---|
| 325847001 | CASA-13-30547 |
| 1202878485 | Method Blank (MB) |
| 1202878486 | 325847001(CASA-13-30547) Sample Duplicate (DUP) |
| 1202878488 | 325847001(CASA-13-30547) Post Spike (PS) |
| 1202878490 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-093 REV# 12.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Carbon analysis was performed on a O-I Analytical Model 1010 Total Organic Carbon Analyzer.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

## Quality Control (QC) Information

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325847001 (CASA-13-30547).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

## Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

## Miscellaneous Information

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Specific Conductivity** | | |
| **Analytical Batch:** | 1305450 | **Method:** | EPA120.1 Specific Conductivity |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 120.1:

| Sample ID | Client ID |
|---|---|
| 325847002 | CASA-13-30555 |
| 1202885569 | 325847002(CASA-13-30555) Sample Duplicate (DUP) |
| 1202885571 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-009 REV# 11.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Conductivity analysis was performed on a Orion 160 Conductivity Meter.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325847002 (CASA-13-30555).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

**Product:** **pH**

**Analytical Batch:** 1302797 **Method:** EPA 150.1 pH

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 150.1:

| Sample ID | Client ID |
|---|---|
| 325847002 | CASA-13-30555 |
| 1202878491 | 325736002(CASA-13-30550) Sample Duplicate (DUP) |
| 1202878493 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-008 REV# 21.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Electrode analysis was performed on a PerpHect pH Meter Orion 370.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**

The following sample was selected for QC analysis: 325736002 (CASA-13-30550).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
The following sample from this sample group was received by the lab outside of the method specified holding time: 325847002 (CASA-13-30555).

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1188061 325847002 (CASA-13-30555).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Ion Chromatography** | | |
| **Analytical Batch:** | 1303846 | **Method:** | EPA 300.0 Anions Liquid 28 day |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

| Sample ID | Client ID |
|---|---|
| 325847002 | CASA-13-30555 |
| 1202881256 | Method Blank (MB) |
| 1202881257 | 325847002(CASA-13-30555) Sample Duplicate (DUP) |
| 1202881258 | 325847002(CASA-13-30555) Post Spike (PS) |
| 1202881259 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 21.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-3000 Ion Chromatograph.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325847002 (CASA-13-30555).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The spike recovery falls outside of the established acceptance limits due to matrix interference: 1202881258 (CASA-13-30555).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1193509 1202881258 (CASA-13-30555).

**Manual Integrations**
The following samples from this sample group had to be manually integrated due to errors in the instrument software peak integration: 1202881257 (CASA-13-30555), 1202881258 (CASA-13-30555) and 325847002 (CASA-13-30555).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an

effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Ammonia Nitrogen** | | |
| **Analytical Batch:** | 1302881 | **Method:** | EPA 350.1 Nitrogen and Ammonia L |
| **Prep Batch :** | 1302880 | **Method:** | EEPA 350.2 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 350.1:

| Sample ID | Client ID |
|---|---|
| 325847002 | CASA-13-30555 |
| 1202878736 | Method Blank (MB) |
| 1202878737 | 325847002(CASA-13-30555) Sample Duplicate (DUP) |
| 1202878739 | 325847002(CASA-13-30555) Matrix Spike (MS) |
| 1202878741 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-106 REV# 9.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325847002 (CASA-13-30555).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
One or more of the values for the sample and/or duplicate are less than 5 times the Practical Quantitation Limit (PQL), and the difference is within one PQL value; therefore, the RPD is not applicable. 1202878737 (CASA-13-30555).

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Total Kjeldahl Nitrogen** | | |
| **Analytical Batch:** | 1302893 | **Method:** | Nitrogen and Total Kjeldahl (TKN) |
| **Prep Batch :** | 1302892 | **Method:** | EEPA 351.2 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 351.2:

| Sample ID | Client ID |
|---|---|
| 325847001 | CASA-13-30547 |
| 1202878782 | Method Blank (MB) |
| 1202878783 | 325733001(CAMO-13-31070) Sample Duplicate (DUP) |
| 1202878784 | 326427001(SWWS46-13-33497) Sample Duplicate (DUP) |
| 1202878785 | 325733001(CAMO-13-31070) Matrix Spike (MS) |
| 1202878786 | 326427001(SWWS46-13-33497) Matrix Spike (MS) |
| 1202878787 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-104 REV# 14.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following samples were selected for QC analysis: 325733001 (CAMO-13-31070) and 326427001 (SWWS46-13-33497).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The spike recovery falls outside of the GEL acceptance limits but within the client specified limits. 1202878786 (SWWS46-13-33497).

**Duplicate Relative Percent Difference (RPD) Statement**
The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample: 1202878783 (CAMO-13-31070).

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1190664 1202878783 (CAMO-13-31070) and 1202878786 (SWWS46-13-33497).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Nitrate Nitrite by Cadmium Reduction** | | |
| **Analytical Batch:** | 1302891 | **Method:** | EPA 353.2 Nitrogen and Nitrate/Nitrite |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 353.2:

| Sample ID | Client ID |
|---|---|
| 325847002 | CASA-13-30555 |
| 1202878776 | Method Blank (MB) |
| 1202878778 | 325847002(CASA-13-30555) Sample Duplicate (DUP) |
| 1202878780 | 325847002(CASA-13-30555) Post Spike (PS) |
| 1202878781 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-128 REV# 8.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8500 Series.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within

acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325847002 (CASA-13-30555).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recoveries for this sample set were within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an

effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Total Phosphorus** | | |
| **Analytical Batch:** | 1302885 | **Method:** | EPA 365.4 Phosphorus and Total in |
| **Prep Batch :** | 1302884 | **Method:** | EEPA 365.4 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 365.4:

| Sample ID | Client ID |
|---|---|
| 325847002 | CASA-13-30555 |
| 1202878748 | Method Blank (MB) |
| 1202878750 | 325736002(CASA-13-30550) Sample Duplicate (DUP) |
| 1202878752 | 325736002(CASA-13-30550) Matrix Spike (MS) |
| 1202878753 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-103 REV# 10.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

## Quality Control (QC) Information

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325736002 (CASA-13-30550).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202878750 (CASA-13-30550).

## Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

## Miscellaneous Information

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are

present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Solids, Total Dissolved** | | |
| **Analytical Batch:** | 1302524 | **Method:** | EPA 160.1 Solids and Dissolved-F |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 160.1:

| Sample ID | Client ID |
|---|---|
| 325847002 | CASA-13-30555 |
| 1202877816 | Method Blank (MB) |
| 1202877818 | 325847002(CASA-13-30555) Sample Duplicate (DUP) |
| 1202877819 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-001 REV# 13.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Solids analysis was performed on a Sartorius Balance BAL216. Solids lab

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

## Quality Control (QC) Information

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**

The following sample was selected for QC analysis: 325847002 (CASA-13-30555).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Sample Aliquot**
A sufficient amount of sample was provided by the client for analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Alkalinity** | | |
| **Analytical Batch:** | 1303727 | **Method:** | EPA 310.1 Total Alkalinity |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 310.1:

| Sample ID | Client ID |
|---|---|
| 325847002 | CASA-13-30555 |
| 1202880980 | 325847002(CASA-13-30555) Sample Duplicate (DUP) |
| 1202880981 | 325847002(CASA-13-30555) Matrix Spike (MS) |
| 1202881631 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-033 REV# 10.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Titration analysis was performed on a Manually operated buret.

**Initial Standardization**
The titrant was properly standardized

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325847002 (CASA-13-30555).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**

The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

**Review Validation:**

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

**The following data validator verified the information presented in this case narrative:**

**Reviewer:_____ Date:_____**

# Sample Data Summary

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-847  GEL Work Order: 325847

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

**  Analyte is a Tracer compound

**  Analyte is a surrogate compound

H  Analytical holding time was exceeded

J  Value is estimated

N  Metals--The Matrix spike sample recovery is not within specified control limits

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: June 11, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples

Client SDG: 2013-847

Client Sample ID: CASA-13-30547
Sample ID: 325847001
Matrix: W
Collect Date: 14-MAY-13 11:16
Receive Date: 16-MAY-13
Collector: Client

Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon Analysis | | | | | | | | | | | |
| SW 9060 Total Organic Carbon "As Received" | | | | | | | | | | | |
| Total Organic Carbon Average | J | 0.772 | 0.330 | 1.00 | mg/L | 1 | TSM | 05/20/13 | 1858 | 1302796 | 1 |
| Nutrient Analysis | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl (TKN) "As Received" | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | U | ND | 0.033 | 0.100 | mg/L | 1 | KLP1 | 05/30/13 | 1145 | 1302893 | 2 |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 351.2 Prep | EPA 351.2 Total Kjeldahl Nitrogen Prep | KLP1 | 05/29/13 | 1700 | 1302892 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | SW846 9060 | |
| 2 | EPA 351.2 | |

**Notes:**

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: June 11, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-847

Client Sample ID: CASA-13-30555
Sample ID: 325847002
Matrix: W
Collect Date: 14-MAY-13 11:16
Receive Date: 16-MAY-13
Collector: Client
Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Conductivity Analysis | | | | | | | | | | | |
| EPA120.1 Specific Conductivity "As Received" | | | | | | | | | | | |
| Conductivity | | 192 | 1.00 | 1.00 | umhos/cm | 1 | LXA1 | 06/03/13 | 1601 | 1305450 | 1 |
| Electrode Analysis | | | | | | | | | | | |
| EPA 150.1 pH "As Received" | | | | | | | | | | | |
| pH at Temp 10.4C | H | 8.72 | 0.010 | 0.100 | SU | 1 | LYG1 | 05/20/13 | 0905 | 1302797 | 2 |
| Ion Chromatography | | | | | | | | | | | |
| EPA 300.0 Anions Liquid 28 day "As Received" | | | | | | | | | | | |
| Bromide | J | 0.0687 | 0.067 | 0.200 | mg/L | 1 | MAR1 | 06/09/13 | 1433 | 1303846 | 3 |
| Chloride | | 4.23 | 0.067 | 0.200 | mg/L | 1 | | | | | |
| Fluoride | | 0.319 | 0.033 | 0.100 | mg/L | 1 | | | | | |
| Sulfate | | 4.82 | 0.133 | 0.400 | mg/L | 1 | | | | | |
| Nutrient Analysis | | | | | | | | | | | |
| EPA 350.1 Nitrogen, Ammonia L "As Received" | | | | | | | | | | | |
| Nitrogen, Ammonia | | 0.0526 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/22/13 | 1046 | 1302881 | 4 |
| EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received" | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | 1.34 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 06/07/13 | 1300 | 1302891 | 5 |
| EPA 365.4 Phosphorus, Total in "As Received" | | | | | | | | | | | |
| Phosphorus, Total as P | U | ND | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/30/13 | 1407 | 1302885 | 6 |
| Solids Analysis | | | | | | | | | | | |
| EPA 160.1 Solids, Dissolved-F "As Received" | | | | | | | | | | | |
| Total Dissolved Solids | | 146 | 3.40 | 14.3 | mg/L | | LYG1 | 05/17/13 | 1043 | 1302524 | 7 |
| Titration Analysis | | | | | | | | | | | |
| EPA 310.1 Total Alkalinity "As Received" | | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | 79.2 | 0.725 | 1.00 | mg/L | | LXA1 | 05/24/13 | 1146 | 1303727 | 8 |
| Carbonate alkalinity (CaCO3) | | 8.12 | 0.725 | 1.00 | mg/L | | | | | | |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 350.2 Prep | EPA 350.1 Ammonia Nitrogen Prep | KLP1 | 05/21/13 | 1550 | 1302880 |
| EPA 365.4 Prep | EPA 365.4 Phosphorus, Total in liquid PR | KLP1 | 05/29/13 | 1700 | 1302884 |

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: June 11, 2013

| | | | |
|---|---|---|---|
| Company : | Los Alamos National Laboratory | | |
| Address : | PO Box 1663<br>TA-03, SM271, Drop Pt. 02U, Rm111<br>Los Alamos, New Mexico 87545 | | |
| Contact: | Keith Greene | Client SDG: | 2013-847 |
| Project: | LANL-WQH Water Samples | | |

| | | | |
|---|---|---|---|
| Client Sample ID: | CASA-13-30555 | Project: | ESHL00210 |
| Sample ID: | 325847002 | Client ID: | ARSL001 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | EPA 120.1 | |
| 2 | EPA 150.1 | |
| 3 | EPA 300.0 | |
| 4 | EPA 350.1 | |
| 5 | EPA 353.2 | |
| 6 | EPA 365.4 | |
| 7 | EPA 160.1 | |
| 8 | EPA 310.1 | |

**Notes:**

# Quality Control Summary

# GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

## QC Summary

**Report Date: June 11, 2013**


**Los Alamos National Laboratory**
**PO Box 1663**
**TA-03, SM271, Drop Pt. 02U, Rm111**
**Los Alamos, New Mexico**

**Contact:** **Keith Greene**

**Workorder:** **325847**

| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Carbon Analysis** | | | | | | | | | | | | |
| Batch 1302796 | | | | | | | | | | | | |
| QC1202878486 325847001 DUP | | | | | | | | | | | | |
| Total Organic Carbon Average | | J | 0.772 | J | 0.796 | mg/L | 3.06 | ^ | | (+/-1.00) | TSM | 05/20/13 19:31 |
| QC1202878490 LCS | | | | | | | | | | | | |
| Total Organic Carbon Average | 10.0 | | | | 9.46 | mg/L | | | 94.6 | (85%-115%) | | 05/20/13 14:41 |
| QC1202878485 MB | | | | | | | | | | | | |
| Total Organic Carbon Average | | | | U | ND | mg/L | | | | | | 05/20/13 14:32 |
| QC1202878488 325847001 PS | | | | | | | | | | | | |
| Total Organic Carbon Average | 10.0 | J | 0.772 | | 10.5 | mg/L | | | 97.2 | (65%-120%) | | 05/20/13 19:51 |
| **Conductivity Analysis** | | | | | | | | | | | | |
| Batch 1305450 | | | | | | | | | | | | |
| QC1202885569 325847002 DUP | | | | | | | | | | | | |
| Conductivity | | | 192 | | 191 | umhos/cm | 0.575 | | | (0%-10%) | LXA1 | 06/03/13 16:03 |
| QC1202885571 LCS | | | | | | | | | | | | |
| Conductivity | 1410 | | | | 1450 | umhos/cm | | | 102 | (95%-105%) | | 06/03/13 15:57 |
| **Electrode Analysis** | | | | | | | | | | | | |
| Batch 1302797 | | | | | | | | | | | | |
| QC1202878491 325736002 DUP | | | | | | | | | | | | |
| pH | | H | 7.98 | H | 8.01 | SU | 0.375 | | | (0%-10%) | LYG1 | 05/20/13 08:50 |
| QC1202878493 LCS | | | | | | | | | | | | |
| pH | 7.00 | | | | 6.96 | SU | | | 99.4 | (99%-101%) | | 05/20/13 08:39 |
| **Ion Chromatography** | | | | | | | | | | | | |
| Batch 1303846 | | | | | | | | | | | | |
| QC1202881257 325847002 DUP | | | | | | | | | | | | |
| Bromide | | J | 0.0687 | U | ND | mg/L | N/A | ^ | | | MAR1 | 06/09/13 15:03 |
| Chloride | | | 4.23 | | 4.18 | mg/L | 1.07 | | | (0%-20%) | | |
| Fluoride | | | 0.319 | | 0.306 | mg/L | 4.45 | ^ | | (+/-0.100) | | |
| Sulfate | | | 4.82 | | 4.95 | mg/L | 2.59 | | | (0%-20%) | | |
| QC1202881259 LCS | | | | | | | | | | | | |
| Bromide | 1.25 | | | | 1.29 | mg/L | | | 103 | (90%-110%) | | 06/09/13 14:03 |

## QC Summary

**Workorder: 325847**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Ion Chromatography** | | | | | | | | | | | |
| Batch 1303846 | | | | | | | | | | | |
| Chloride | 5.00 | | | | 5.22 | mg/L | | 104 | (90%-110%) | MAR1 | 06/09/13 14:03 |
| Fluoride | 2.50 | | | | 2.66 | mg/L | | 106 | (90%-110%) | | |
| Sulfate | 10.0 | | | | 10.3 | mg/L | | 103 | (90%-110%) | | |
| QC1202881256 MB | | | | | | | | | | | |
| Bromide | | | | U | ND | mg/L | | | | | 06/09/13 13:33 |
| Chloride | | | | U | ND | mg/L | | | | | |
| Fluoride | | | | U | ND | mg/L | | | | | |
| Sulfate | | | | U | ND | mg/L | | | | | |
| QC1202881258 325847002 PS | | | | | | | | | | | |
| Bromide | 1.25 | J | 0.0687 | | 1.33 | mg/L | | 101 | (90%-110%) | | 06/09/13 15:33 |
| Chloride | 5.00 | | 4.23 | | 9.90 | mg/L | | 113* | (90%-110%) | | |
| Fluoride | 2.50 | | 0.319 | | 2.87 | mg/L | | 102 | (90%-110%) | | |
| Sulfate | 10.0 | | 4.82 | | 15.3 | mg/L | | 104 | (90%-110%) | | |
| **Nutrient Analysis** | | | | | | | | | | | |
| Batch 1302881 | | | | | | | | | | | |
| QC1202878737 325847002 DUP | | | | | | | | | | | |
| Nitrogen, Ammonia | | | 0.0526 | | 0.0684 | mg/L | 26.1 ^ | | (+/-0.050) | KLP1 | 05/22/13 10:47 |
| QC1202878741 LCS | | | | | | | | | | | |
| Nitrogen, Ammonia | 1.00 | | | | 1.10 | mg/L | | 110 | (90%-110%) | | 05/22/13 10:34 |
| QC1202878736 MB | | | | | | | | | | | |
| Nitrogen, Ammonia | | | | J | 0.0344 | mg/L | | | | | 05/22/13 10:33 |
| QC1202878739 325847002 MS | | | | | | | | | | | |
| Nitrogen, Ammonia | 1.00 | | 0.0526 | | 1.06 | mg/L | | 101 | (90%-110%) | | 05/22/13 10:48 |
| Batch 1302885 | | | | | | | | | | | |
| QC1202878750 325736002 DUP | | | | | | | | | | | |
| Phosphorus, Total as P | | J | 0.0492 | J | 0.0253 | mg/L | 64.2 ^ | | (+/-0.050) | KLP1 | 05/30/13 13:43 |
| QC1202878753 LCS | | | | | | | | | | | |
| Phosphorus, Total as P | 1.00 | | | | 0.995 | mg/L | | 99.5 | (76%-120%) | | 05/30/13 13:42 |

## QC Summary

**Workorder: 325847**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Nutrient Analysis** | | | | | | | | | | | |
| Batch 1302885 | | | | | | | | | | | |
| QC1202878748 MB | | | | | | | | | | | |
| Phosphorus, Total as P | | | | U | ND | mg/L | | | | KLP1 | 05/30/13 13:41 |
| QC1202878752 325736002 MS | | | | | | | | | | | |
| Phosphorus, Total as P | 1.00 | J | 0.0492 | | 1.19 | mg/L | | 114 | (62%-139%) | | 05/30/13 13:44 |
| Batch 1302891 | | | | | | | | | | | |
| QC1202878778 325847002 DUP | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | | 1.34 | | 1.34 | mg/L | 0.00 | | (0%-20%) | KLP1 | 06/07/13 13:02 |
| QC1202878781 LCS | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | 1.00 | | | | 1.00 | mg/L | | 100 | (90%-110%) | | 06/07/13 12:59 |
| QC1202878776 MB | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | | | U | ND | mg/L | | | | | 06/07/13 12:58 |
| QC1202878780 325847002 PS | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | 1.00 | | 1.34 | | 2.29 | mg/L | | 95 | (90%-110%) | | 06/07/13 13:03 |
| Batch 1302893 | | | | | | | | | | | |
| QC1202878783 325733001 DUP | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | | 0.183 | J | 0.081 | mg/L | 77.3*^ | | (+/-0.100) | KLP1 | 05/30/13 11:35 |
| QC1202878784 326427001 DUP | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | | 0.388 | | 0.373 | mg/L | 3.94 ^ | | (+/-0.100) | | 05/30/13 11:51 |
| QC1202878787 LCS | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | | | | 0.967 | mg/L | | 96.7 | (90%-110%) | | 05/30/13 11:33 |
| QC1202878782 MB | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | | | U | ND | mg/L | | | | | 05/30/13 11:32 |
| QC1202878785 325733001 MS | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | | 0.183 | | 1.17 | mg/L | | 98.7 | (90%-110%) | | 05/30/13 11:35 |
| QC1202878786 326427001 MS | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | | 0.388 | | 1.54 | mg/L | | 115* | (90%-110%) | | 05/30/13 11:52 |
| **Solids Analysis** | | | | | | | | | | | |
| Batch 1302524 | | | | | | | | | | | |
| QC1202877818 325847002 DUP | | | | | | | | | | | |
| Total Dissolved Solids | | | 146 | | 146 | mg/L | 0.985 | | (0%-10%) | LYG1 | 05/17/13 10:43 |
| QC1202877819 LCS | | | | | | | | | | | |
| Total Dissolved Solids | 300 | | | | 294 | mg/L | | 98.1 | (95%-105%) | | 05/17/13 10:43 |

## QC Summary

**Workorder:** **325847**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Solids Analysis** | | | | | | | | | | | |
| Batch 1302524 | | | | | | | | | | | |
| QC1202877816 MB | | | | | | | | | | | |
| Total Dissolved Solids | | | U | ND | mg/L | | | | LYG1 | 05/17/13 | 10:43 |
| **Titration Analysis** | | | | | | | | | | | |
| Batch 1303727 | | | | | | | | | | | |
| QC1202880980 325847002 DUP | | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | 79.2 | | 79.7 | mg/L | 0.639 | | (0%-20%) | LXA1 | 05/24/13 | 11:57 |
| Carbonate alkalinity (CaCO3) | | 8.12 | | 8.12 | mg/L | 0.00 | | (0%-20%) | | | |
| QC1202881631 LCS | | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | 50.0 | | | 51.8 | mg/L | | 104 | (90%-110%) | | 05/24/13 | 10:56 |
| QC1202880981 325847002 MS | | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | 50.0 | 79.2 | | 128 | mg/L | | 98.5 | (80%-120%) | | 05/24/13 | 12:13 |

**Notes:**

| | |
|---|---|
| ** | Analyte is a surrogate compound |
| < | Result is less than value reported |
| > | Result is greater than value reported |
| A | The TIC is a suspected aldol-condensation product |
| B | The target analyte was detected in the associated blank. |
| C | Analyte has been confirmed by GC/MS analysis |
| D | Results are reported from a diluted aliquot of the sample |
| E | %difference of sample and SD is >10%. Sample concentration must meet flagging criteria |
| E | Concentration of the target analyte exceeds the instrument calibration range |
| E | General Chemistry--Concentration of the target analyte exceeds the instrument calibration range |
| FB | Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies |
| H | Analytical holding time was exceeded |
| J | Value is estimated |
| JNX | Non Calibrated Compound |
| N | Metals--The Matrix spike sample recovery is not within specified control limits |
| N | Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N | Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N/A | RPD or %Recovery limits do not apply. |

## QC Summary

**Workorder:** **325847**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|

| | |
|---|---|
| N1 | See case narrative |
| ND | Analyte concentration is not detected above the detection limit |
| NJ | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| P | Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70% |
| Q | One or more quality control criteria have not been met. Refer to the applicable narrative or DER. |
| R | Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes. |
| R | Sample results are rejected |
| U | Analyte was analyzed for, but not detected above the MDL, MDA, or LOD. |
| UJ | Compound cannot be extracted |
| X | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| Y | Other specific qualifiers were required to properly define the results. Consult case narrative. |
| Y | QC Samples were not spiked with this compound |
| Z | Paint Filter Test--Particulates passed through the filter, however no free liquids were observed. |
| ^ | RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry. |
| d | 5-day BOD--The 2:1 depletion requirement was not met for this sample |
| h | Preparation or preservation holding time was exceeded |

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

# Miscellaneous

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 21-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| ELECTRODE | EPA 150.1 | Liquid | BETT, ESHL, GELC, UCOR |
| **Batch ID:** | **Sample Numbers:** | | |
| 1302797 | See below. | | |

**Potentially affected work order(s)(SDG):** **325724,325736(2013-840),325739(2013-841),325752,325759,325847(2013-847),325922(2013-855),325923(2013-856),326018(2013-865),326020(2013-866)**

**Application Issues:**

Sample received out of holding

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Sample received out of holding:<br>325724 001,002<br>325736 002,004<br>325739 002<br>325752 002,006,010<br>325759 007,013,019,025,031<br>325847 002<br>325922 002<br>325923 002<br>326018 002<br>326020 002 | 1. Samples were received out of holding. |

**Originator's Name:**
Lisa Gregory 22-MAY-13

**Data Validator/Group Leader:**
Julia Hamilton 29-MAY-13

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 30-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| LACHAT Flow Injection Analyzer | EPA 351.2 | Liquid | BETT, ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1302893 | See below. | | |

**Potentially affected work order(s)(SDG):** **325733(2013-838),325736(2013-840),325739(2013-841),325752,325847(2013-847),325922(2013-855),325923(2013-856),326018(2013-865),326056(2013-868),326427(2013-887)**

**Application Issues:**

Failed Recovery for MS/PS

Failed RPD for DUP

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed Recovery for MS:<br>QC 1202878786MS<br>2. Failed RPD for DUP:<br>QC 1202878783DUP | 1. The spike recovery falls outside of the GEL acceptance limits but within the client specified limits.<br>2. The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample. |

**Originator's Name:**

Kristen Parson 30-MAY-13

**Data Validator/Group Leader:**

Julia Hamilton 30-MAY-13

**DER Report No.: 1193509**
**Revision No.:**

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 11-JUN-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| IC | EPA 300.0 | Liquid | ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1303846 | See Below | | |

**Potentially affected work order(s)(SDG): 325847(2013-847),325922(2013-855),325923(2013-856),326018(2013-865),326020(2013-866),326056(2013-868),326057(2013-869),326213(2013-873),326214(2013-874),326426(2013-886)**

**Application Issues:**

Failed Recovery for MS/PS

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed Recovery for MS/PS:<br><br>QC 1202881258PS | 1. The MS/PS mixture contains seven anions of interest. Of those, all requested anions except chloride met normal acceptance criteria for recovery (90 - 110%). This failure is attributed to the matrix of the sample because the successful recovery of the other compounds indicate that the laboratory process was in control. This variance is judged to have no negative impact on the data. The deviation is noted in the Case Narrative and DER, and the data has been reported. |

**Originator's Name:**
Mary Sherwood 11-JUN-13

**Data Validator/Group Leader:**
Virginia Wininger 11-JUN-13

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

# Chain of Custody/Analysis Request

**COC/Lab Request #:** 2013-841



**Client Contact:**

**Lab Agreement # :** 126310011

**Project Number :**

**Analysis Turnaround Time:**

- 24 Hour - ☐ Other - ☐
- 7 Day - ☐
- 14 Day - ☐
- 21 Day - ☐
- 28 Day - ☒

**Site Name:** Los Alamos National Laboratory

**Rad Screening Info:** Yes, Below Background

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | WSP-CL04 | WSP-GENINORG | WSP-Met+B+SN+SR+U | WSP-NH3+NO3/NO2+PO4 | WSP-TKN+TOC | Special Instructions: |
|---|---|---|---|---|---|---|---|---|---|
| CAMO-13-30583 | May 13 2013 | 14:10 | W | | | | | 1 | |
| CAMO-13-30599 | May 13 2013 | 14:10 | W | 1 | 1 | 1 | 1 | | |

**Special Instructions:**

| | | | | |
|---|---|---|---|---|
| Relinquished by: Melissa Montoya | | Date/Time: 5/14/13 3:00 | Received by: | |
| Relinquished by: | | Date/Time: | Received by: | |
| Relinquished by: | | Date/Time: | Received by: | |

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30583

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | 05/13/2013 | FIELD MATRIX: | WG | o/c |
| TIME COLLECTED (HH:MM): | | 1410 | MEDIA: | UA | ↓ |
| PRS ID: | | o/c | SAMPLE TECH CODE: | UA | GSP |
| LOCATION ID: | R-50 S2 | ↓ | FIELD PREP: | UF | o/c |
| LOCATION TYPE: | MON | ↓ | FIELD QC TYPE: | REG | ↓ |
| PORT: | P2A | ↓ | SAMPLE USAGE: | INV | ↓ |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-LL-H-3 | 1 LITER POLY | 1 | NONE | Y | NA |
| NA | WSP-TKN+TOC | 500 ML AMBER GLASS | 1 | H2SO4 | Y | NA |

**SAMPLE COMMENTS:** Sampled R-50 S2 with generator Running 50' Away.

**LOCATION COMMENTS:** NA

**FIELD PARAMETERS:**

Dissolved Oxygen 7.29 mg/L  Oxidation-Reduction Potential 117.0 MV  pH 8.07 SU

Specific Conductance 131 uS/cm  Temperature 22.85 deg C  Turbidity 1.0 NTU

**COLLECTED BY (PRINT)** D. Fellenz

| RELINQUISHED BY | Date/Time | RECEIVED BY | Date/Time |
|---|---|---|---|
| (Printed Name) Maurice Shendo<br>(Signature) [signature] | 05/13/13 1520 | (Printed Name) S. Sherwood<br>(Signature) Sheri Sherwood | 5/13/13 1520 |
| **RELINQUISHED BY** | **Date/Time** | **RECEIVED BY** | **Date/Time** |
| (Printed Name)<br>(Signature) | | (Printed Name)<br>(Signature) | |

Report Date 04/30/2013

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30599

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | 05/13/2013 | FIELD MATRIX: | WG | ok |
| TIME COLLECTED (HH:MM): | | 1410 | MEDIA: | UA | ↓ |
| PRS ID: | | ok | SAMPLE TECH CODE: | UA | GSP |
| LOCATION ID: | R-50 S2 | ↓ | FIELD PREP: | F | ok |
| LOCATION TYPE: | MON | ↓ | FIELD QC TYPE: | REG | ↓ |
| PORT: | P2A | ↓ | SAMPLE USAGE: | INV | ↓ |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-CL04 | 250 ML POLY | 1 | ICE | Y | NA |
| NA | WSP-GENINORG | 1 LITER POLY | 1 | ICE | ↓ | ↓ |
| NA | WSP-Met+B+SN+SR+U | 1 LITER POLY | 1 | HNO3 | ↓ | ↓ |
| NA | WSP-NH3+NO3/NO2+PO4 | 500 ML AMBER GLASS | 1 | H2SO4 | ↓ | ↓ |

**SAMPLE COMMENTS:** NA

**LOCATION COMMENTS:** NA

**FIELD PARAMETERS:**

Dissolved Oxygen NA mg/L  Oxidation-Reduction Potential NA MV  pH NA SU

Specific Conductance NA uS/cm  Temperature NA deg C  Turbidity NA NTU

**COLLECTED BY (PRINT)** D. Fellenz

| RELINQUISHED BY | Date/Time | RECEIVED BY | Date/Time |
|---|---|---|---|
| (Printed Name) Maurice Shendo<br>(Signature) [signature] | 5/13/13<br>1520 | (Printed Name) S. Sherwood<br>(Signature) [signature] | 5/13/13<br>1520 |
| **RELINQUISHED BY**<br>(Printed Name)<br>(Signature) | **Date/Time** | **RECEIVED BY**<br>(Printed Name)<br>(Signature) | **Date/Time** |

Report Date 04/30/2013

Data Validation Report

Chain Of Custody No. 2013-841

**1. Distribution Of Samples In EDD.**

| SDG | Analytical Method | Regular Samples | Field Duplicates | Trip Blanks | Field Blanks | Equipment Blanks |
|---|---|---|---|---|---|---|
| 325739 | EPA:120.1 | 1 | | | | |
| 325739 | EPA:150.1 | 1 | | | | |
| 325739 | EPA:160.1 | 1 | | | | |
| 325739 | EPA:245.2 | 1 | | | | |
| 325739 | EPA:300.0 | 1 | | | | |
| 325739 | EPA:310.1 | 1 | | | | |
| 325739 | EPA:350.1 | 1 | | | | |
| 325739 | EPA:351.2 | 1 | | | | |
| 325739 | EPA:353.2 | 1 | | | | |
| 325739 | EPA:365.4 | 1 | | | | |
| 325739 | SM:A2340B | 1 | | | | |
| 325739 | SW-846:6010B | 1 | | | | |
| 325739 | SW-846:6020 | 1 | | | | |
| 325739 | SW-846:6850 | 1 | | | | |
| 325739 | SW-846:9060 | 1 | | | | |

| SDG | Analytical Method | Analysis Lot ID | Prep Lot ID | Regular Samples | Field Duplicates | Trip Blanks | Field Blanks | Equipment Blanks | Method Blanks | Matrix Spikes | Matrix Spike Dups |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 325739 | EPA:120.1 | 1305069 | 1305069 | 1 | | | | | | | |
| 325739 | EPA:150.1 | 1302797 | 1302797 | 1 | | | | | | | |
| 325739 | EPA:160.1 | 1302093 | 1302093 | 1 | | | | | 1 | | |
| 325739 | EPA:245.2 | 1302867 | 1302865 | 1 | | | | | 1 | 2 | |
| 325739 | EPA:300.0 | 1301913 | 1301913 | 1 | | | | | 1 | | |
| 325739 | EPA:310.1 | 1303137 | 1303137 | 1 | | | | | 2 | 1 | |
| 325739 | EPA:350.1 | 1302059 | 1302058 | 1 | | | | | 1 | 2 | |
| 325739 | EPA:351.2 | 1302893 | 1302892 | 1 | | | | | 1 | 2 | |
| 325739 | EPA:353.2 | 1302060 | 1302060 | 1 | | | | | 1 | | |
| 325739 | EPA:365.4 | 1302885 | 1302884 | 1 | | | | | 1 | 1 | |
| 325739 | SM:A2340B | 1306981 | 1306981 | 1 | | | | | | | |
| 325739 | SW-846:6010B | 1304837 | 1304836 | 1 | | | | | 1 | 1 | |
| 325739 | SW-846:6020 | 1304840 | 1304838 | 1 | | | | | 1 | 1 | |
| 325739 | SW-846:6850 | 1302799 | 1302798 | 1 | | | | | 1 | 2 | 2 |
| 325739 | SW-846:9060 | 1302095 | 1302095 | 1 | | | | | 1 | | |

**2. Distribution Of Analytes In EDD.**

| Analytical Method | Method Category | Field Sample ID | Lab Sample ID | Sample Purpose | Target Analytes | Surrogates | Spikes | TICS |
|---|---|---|---|---|---|---|---|---|
| EPA:120.1 | GENERAL CHEMISTRY | CAMO-13-30594 | 1202884560 | DUP | 1 | 0 | 0 | 0 |
| EPA:120.1 | GENERAL CHEMISTRY | CAMO-13-30599 | 325739002 | REG | 1 | 0 | 0 | 0 |
| EPA:120.1 | GENERAL CHEMISTRY | LCS | 1202884559 | LCS | 0 | 0 | 1 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | CAMO-13-30599 | 325739002 | REG | 1 | 0 | 0 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | CASA-13-30550 | 1202878491 | DUP | 1 | 0 | 0 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | LCS | 1202878493 | LCS | 0 | 0 | 1 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | CAMO-13-30599 | 325739002 | REG | 1 | 0 | 0 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | CASA-13-30541 | 1202876774 | DUP | 1 | 0 | 0 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | LCS | 1202876775 | LCS | 0 | 0 | 1 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | MB | 1202876773 | MB | 1 | 0 | 0 | 0 |

| Analytical Spikes | Post-Digestion Spikes | Lab Control Samples | Lab Control Sample Dups | Blank Spikes | Blank Spike Dups | Lab Duplicates | Storage Blanks | Preparation Blanks | Reagent Blanks |
|---|---|---|---|---|---|---|---|---|---|
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 2 | | | |
| | | 1 | | | | 1 | | | |
| | | 2 | | | | 1 | | | |
| | | 1 | | | | 2 | | | |
| | | 1 | | | | 2 | | | |
| | | 1 | | | | 2 | | | |
| | | 1 | | | | 1 | | | |
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| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | | | | |
| | | 1 | | | | 1 | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| EPA:245.2 | INORGANIC | CAMO-13-30599 | 325739002 | REG | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30620 | 1202878704 | DUP | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30620 | 1202878708 | MS | 0 | 0 | 1 | 0 |
| EPA:245.2 | INORGANIC | CASA-13-30555 | 1202878705 | DUP | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CASA-13-30555 | 1202878709 | MS | 0 | 0 | 1 | 0 |
| EPA:245.2 | INORGANIC | LCS | 1202878710 | LCS | 0 | 0 | 1 | 0 |
| EPA:245.2 | INORGANIC | MB | 1202878703 | MB | 1 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | CAMO-13-30599 | 325739002 | REG | 4 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | CASA-13-30550 | 1202876345 | DUP | 4 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | LCS | 1202876347 | LCS | 0 | 0 | 4 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | MB | 1202876344 | MB | 4 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CAMO-13-30598 | 1202879526 | DUP | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CAMO-13-30598 | 1202879527 | MS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CAMO-13-30599 | 325739002 | REG | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | LCS | 1202879523 | LCS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | LCS | 1202880029 | LCS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | MB | 1202879522 | MB | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | MB | 1202880028 | MB | 2 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30594 | 1202876695 | DUP | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30594 | 1202876697 | MS | 0 | 0 | 1 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30595 | 1202876696 | DUP | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30595 | 1202876698 | MS | 0 | 0 | 1 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30599 | 325739002 | REG | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | LCS | 1202876699 | LCS | 0 | 0 | 1 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | MB | 1202876694 | MB | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30583 | 325739001 | REG | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-31070 | 1202878783 | DUP | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-31070 | 1202878785 | MS | 0 | 0 | 1 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | LCS | 1202878787 | LCS | 0 | 0 | 1 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | MB | 1202878782 | MB | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | SWWS46-13-33497 | 1202878784 | DUP | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | SWWS46-13-33497 | 1202878786 | MS | 0 | 0 | 1 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CAMO-13-30594 | 1202876701 | DUP | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CAMO-13-30595 | 1202876702 | DUP | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CAMO-13-30599 | 325739002 | REG | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | LCS | 1202876705 | LCS | 0 | 0 | 1 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | MB | 1202876700 | MB | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CAMO-13-30599 | 325739002 | REG | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CASA-13-30550 | 1202878750 | DUP | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CASA-13-30550 | 1202878752 | MS | 0 | 0 | 1 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | LCS | 1202878753 | LCS | 0 | 0 | 1 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | MB | 1202878748 | MB | 1 | 0 | 0 | 0 |
| SM:A2340B | INORGANIC | CAMO-13-30599 | 325739002 | REG | 1 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30594 | 1202883951 | DUP | 17 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30594 | 1202883952 | MS | 0 | 0 | 17 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30599 | 325739002 | REG | 17 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | LCS | 1202883950 | LCS | 0 | 0 | 17 | 0 |
| SW-846:6010B | INORGANIC | MB | 1202883949 | MB | 17 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30594 | 1202883956 | DUP | 11 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30594 | 1202883957 | MS | 0 | 0 | 11 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30599 | 325739002 | REG | 11 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | LCS | 1202883955 | LCS | 0 | 0 | 11 | 0 |
| SW-846:6020 | INORGANIC | MB | 1202883954 | MB | 11 | 0 | 0 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | CAMO-13-30599 | 325739002 | REG | 1 | 0 | 0 | 0 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| SW-846:6850 | LCMS/MS PERCHLORATE | CAMO-13-30600 | 1202878496 | MS | 0 | 0 | 1 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | CAMO-13-30600 | 1202878497 | MSD | 0 | 0 | 1 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | LCS | 1202878495 | LCS | 0 | 0 | 1 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | MB | 1202878494 | MB | 1 | 0 | 0 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | SWWS46-13-33504 | 1202882336 | MS | 0 | 0 | 1 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | SWWS46-13-33504 | 1202882337 | MSD | 0 | 0 | 1 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | CAMO-13-30583 | 325739001 | REG | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | CAMO-13-30586 | 1202876781 | DUP | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | LCS | 1202876785 | LCS | 0 | 0 | 1 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | MB | 1202876780 | MB | 1 | 0 | 0 | 0 |

**3. Are any analytes missing?**

No.

**4. Were any holding times exceeded?**

No.

**5. Any contaminants in blanks?**

No.

**Any samples affected by the presence of contaminants in blanks?**

No.

**6. Any surrogate recoveries outside the control limits?**

No.

**7. Any MS/MSD recoveries or RPDs outside the control limits?**

| Field Sample ID | Matrix Spike ID | Matrix Spike Dup ID | Analytical Method | Parameter Name | Analysis Lot ID | Analysis Date | Sample Matrix | MS % Recvry | MSD % Recvry | Upper Limit | Lower Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SWWS46-13-33497 | 1202878786 | | EPA:351.2 | Total Kjeldahl Nitrogen | 1302892 | 5/30/2013 | W | 115 | | 110 | 90 |
| CAMO-13-30594 | 1202883952 | | SW-846:6010B | Silicon Dioxide | 1304836 | 6/6/2013 | W | 62.8 | | 125 | 75 |

**8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?**

No.

**9. Any Field Duplicate RPDs outside the desired limits?**

No.

**10. Any Lab Duplicate RPDs outside the desired limits?**

No.

Data Validation Report for:

Chain Of Custody No. 2013-841

| Rejection Limit RPD |
| --- |
| 10 |
| 10 |

RPD Limit

**11. Any required reporting limits exceeded?**

No.

**12. Additional Validator's Coments.**

None.

**13. Display Flagged Data.**

No.

| **Reason Code** | Description |
|---|---|
| J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL |
| NQ | The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample. |
| U_LAB | The analytical laboratory qualified the analyte as not detected. |

**14. Useable Result Count.**

| Field Sample ID | Location ID | Sample Purpose | Analytical Method | No. Unuseable Records | Total No. Of Records |
|---|---|---|---|---|---|
| CAMO-13-30583 | R-50 S2 | REG | EPA:351.2 | 0 | 1 |
| CAMO-13-30583 | R-50 S2 | REG | SW-846:9060 | 0 | 1 |
| CAMO-13-30599 | R-50 S2 | REG | EPA:120.1 | 0 | 1 |
| CAMO-13-30599 | R-50 S2 | REG | EPA:150.1 | 0 | 1 |
| CAMO-13-30599 | R-50 S2 | REG | EPA:160.1 | 0 | 1 |
| CAMO-13-30599 | R-50 S2 | REG | EPA:245.2 | 0 | 1 |
| CAMO-13-30599 | R-50 S2 | REG | EPA:300.0 | 0 | 4 |
| CAMO-13-30599 | R-50 S2 | REG | EPA:310.1 | 0 | 2 |
| CAMO-13-30599 | R-50 S2 | REG | EPA:350.1 | 0 | 1 |
| CAMO-13-30599 | R-50 S2 | REG | EPA:353.2 | 0 | 1 |
| CAMO-13-30599 | R-50 S2 | REG | EPA:365.4 | 0 | 1 |
| CAMO-13-30599 | R-50 S2 | REG | SM:A2340B | 0 | 1 |
| CAMO-13-30599 | R-50 S2 | REG | SW-846:6010B | 0 | 17 |
| CAMO-13-30599 | R-50 S2 | REG | SW-846:6020 | 0 | 11 |
| CAMO-13-30599 | R-50 S2 | REG | SW-846:6850 | 0 | 1 |

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178
www.gel.com

June 11, 2013

Keith Greene
Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Re: LANL-WQH Water Samples
Work Order: 325739
SDG: 2013-841

Dear Keith Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on May 15, 2013, and analyzed for General Chemistry, Metals and Perchlorates by LCMSMS. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,

Hope Taylor for
Valerie Davis
Project Manager

Purchase Order: 63641-10
Chain of Custody: 2013-841
Enclosures

**ARS International (63641-10)**
**LANL-WQH Water Samples**
**Work Order #: 325739**
**SDG: 2013-841**

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# Case Narrative

**Case Narrative for**
**ARS International (63641-10)**
**LANL-WQH Water Samples**
**Workorder #: 325739**
**SDG # : 2013-841**

**June 11, 2013**

**Laboratory Identification:**

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

**Summary**

**Sample receipt** The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on May 15, 2013 for analysis. The samples were delivered with proper chain of custody documentation and signatures. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. Containers were checked for pH, where appropriate, and matched the preservative as documented on the accompanying chain of custody. Shipping container temperature was within specification (0 - 6C). Shipping container temperatures were checked, documented, and within specifications. There are no additional comments concerning sample receipt.

**Sample Identification** The laboratory received the following samples:

| Laboratory ID | Client ID |
|---|---|
| 325739001 | CAMO-13-30583 |
| 325739002 | CAMO-13-30599 |

**Case Narrative**

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

**Data Package**

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: General Chemistry, Metals and Perchlorates by LCMSMS.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.

Hope Taylor for
Valerie Davis
Project Manager

**List of current GEL Certifications as of 11 June 2013**

| State | Certification |
|---|---|
| Alaska | UST−110 |
| Arkansas | 88−0651 |
| CLIA | 42D0904046 |
| California NELAP | 01151CA |
| Colorado | SC00012 |
| Connecticut | PH−0169 |
| Delaware | SC00012 |
| DoD ELAP A2LA ISO 17025 | 2567.01 |
| Florida NELAP | E87156 |
| Foreign Soils Permit | P330−12−00283, P330−12−00284 |
| Georgia | SC00012 |
| Georgia SDWA | 967 |
| Hawaii | SC00012 |
| Idaho | SC00012 |
| Illinois NELAP | 200029 |
| Indiana | C−SC−01 |
| Kansas NELAP | E−10332 |
| Kentucky | 90129 |
| Louisiana NELAP | 03046 (AI33904) |
| Louisiana SDWA | LA130005 |
| Maryland | 270 |
| Massachusetts | M−SC012 |
| Nevada | SC000122011−1 |
| New Hampshire NELAP | 2054 |
| New Jersey NELAP | SC002 |
| New Mexico | SC00012 |
| New York NELAP | 11501 |
| North Carolina | 233 |
| North Carolina SDWA | 45709 |
| Oklahoma | 9904 |
| Pennsylvania NELAP | 68−00485 |
| Plant Material Permit | PDEP−12−00260 |
| South Carolina Chemistry | 10120001 |
| South Carolina Radiochemi | 10120002 |
| Tennessee | TN 02934 |
| Texas NELAP | T104704235−13−8 |
| Utah NELAP | SC000122013−8 |
| Vermont | VT87156 |
| Virginia NELAP | 460202 |
| Washington | C780−12 |
| Wisconsin | 999887790 |

# Chain of Custody and Supporting Documentation

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

# Chain of Custody/Analysis Request

325739

**COC/Lab Request #:** 2013-841

Page 1 of 1

**Client Contact:**

**Lab Agreement # :** 126310011

**Project Number :**

**Analysis Turnaround Time:**

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

**Site Name:** Los Alamos National Laboratory

**Rad Screening Info:** Yes, Below Background

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | WSP-CL04 | WSP-GENINORG | WSP-Met+B+SN+SR+U | WSP-NH3+NO3/NO2+PO4 | WSP-TKN+TOC |
|---|---|---|---|---|---|---|---|---|
| CAMO-13-30583 | May 13 2013 | 14:10 | W | | | | | 1 |
| CAMO-13-30599 | May 13 2013 | 14:10 | W | 1 | 1 | 1 | 1 | |

**Special Instructions:**

Special Instructions:

| | | | | |
|---|---|---|---|---|
| Relinquished by: Melissa Montoya | | Date/Time: 5/14/13 3:00 | Received by: | 5-15-13 0855 |
| Relinquished by: | | Date/Time: | Received by: | |
| Relinquished by: | | Date/Time: | Received by: | |

GEL Laboratories LLC

# SAMPLE RECEIPT & REVIEW FORM

| | |
|---|---|
| **Client:** LANL | **SDG/AR/COC/Work Order:** 2013-841 |
| **Received By:** JP | **Date Received:** 5-15-13 |

| **Suspected Hazard Information** | **Yes** | **No** | *If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation. |
|---|---|---|---|
| COC/Samples marked as radioactive? | | ✓ | Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 cpm |
| Classified Radioactive II or III by RSO? | | ✓ | If yes, Were swipes taken of sample contatiners < action levels? |
| COC/Samples marked containing PCBs? | | ✓ | |
| Package, COC, and/or Samples marked as beryllium or asbestos containing? | | ✓ | If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group. |
| Shipped as a DOT Hazardous? | | ✓ | Hazard Class Shipped: UN#: |
| Samples identified as Foreign Soil? | | ✓ | |

| | **Sample Receipt Criteria** | **Yes** | **NA** | **No** | **Comments/Qualifiers (Required for Non-Conforming Items)** |
|---|---|---|---|---|---|
| 1 | Shipping containers received intact and sealed? | ✓ | | | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 2 | Samples requiring cold preservation within (0 ≤ 6 deg. C)?* | ✓ | | | Preservation Method: Ice bags (Blue ice) Dry ice None Other (describe) *all temperatures are recorded in Celsius 6.5 |
| 2a | Daily check performed and passed on IR temperature gun? | ✓ | | | Temperature Device Serial #: 41502209 Secondary Temperature Device Serial # (If Applicable): |
| 3 | Chain of custody documents included with shipment? | ✓ | | | |
| 4 | Sample containers intact and sealed? | ✓ | | | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 5 | Samples requiring chemical preservation at proper pH? | ✓ | | | Sample ID's, containers affected and observed pH: If Preservation added, Lot#: |
| 6 | VOA vials free of headspace (defined as < 6mm bubble)? | ✓ | | | Sample ID's and containers affected: |
| 7 | Are Encore containers present? | | | ✓ | (If yes, immediately deliver to Volatiles laboratory) |
| 8 | Samples received within holding time? | ✓ | | | ID's and tests affected: |
| 9 | Sample ID's on COC match ID's on bottles? | ✓ | | | Sample ID's and containers affected: |
| 10 | Date & time on COC match date & time on bottles? | ✓ | | | Sample ID's affected: |
| 11 | Number of containers received match number indicated on COC? | ✓ | | | Sample ID's affected: |
| 12 | Are sample containers identifiable as GEL provided? | | | ✓ | |
| 13 | COC form is properly signed in relinquished/received sections? | ✓ | | | |
| 14 | ~~Carrier and tracking number.~~ | | | | Circle Applicable: (FedEx Air) FedEx Ground UPS Field Services Courier Other 5462 9833 0115-6° 5462 9833 0104-5° |

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials JP Date 5-15-13 Page 1 of 1

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 14MAY13
ACTWGT: 52.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWKO

6

FedEx Express

WED - 15 MAY 10:30A
PRIORITY OVERNIGHT

TRK# 0201 5462 9833 0115

XX CHSA

29407
SC-US CHS

Part # 156140-434 RITZ 08/10

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 14MAY13
ACTWGT: 39.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: XFM12Q030040

5

FedEx Express

WED - 15 MAY 10:30A
PRIORITY OVERNIGHT

TRK# 0201 5462 9833 0104

XX CHSA

29407
SC-US CHS

Part # 156140-434 RITZ 08/10

# Data Review Qualifier Flag Definition Sheet

## Data Review Qualifier Definitions

| Qualifier | Explanation |
|---|---|
| * | A quality control analyte recovery is outside of specified acceptance criteria |
| ** | Analyte is a surrogate compound |
| < | Result is less than value reported |
| > | Result is greater than value reported |
| ^ | RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL |
| A | The TIC is a suspected aldol-condensation product |
| B | Target analyte was detected in the associated blank |
| B | Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL |
| BD | Results are either below the MDC or tracer recovery is low |
| C | Analyte has been confirmed by GC/MS analysis |
| D | Results are reported from a diluted aliquot of the sample |
| d | 5-day BOD-The 2:1 depletion requirement was not met for this sample |
| E | Organics-Concentration of the target analyte exceeds the instrument calibration range |
| E | Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria |
| H | Analytical holding time was exceeded |
| h | Preparation or preservation holding time was exceeded |
| J | Value is estimated |
| N | Metals-The Matrix spike sample recovery is not within specified control limits |
| N | Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N/A | Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more |
| ND | Analyte concentration is not detected above the reporting limit |
| UI | Gamma Spectroscopy-Uncertain identification |
| X | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| Y | QC Samples were not spiked with this compound |
| Z | Paint Filter Test-Particulates passed through the filter, however no free liquids were observed. |

# Perchlorates by LCMSMS Analysis

# Case Narrative

**Perchlorate by LC-MS/MS**
**ARS International (ARSL)**
**SDG 2013-841**

## Method/Analysis Information

| | |
|---|---|
| **Procedure:** | **Definitive Low Level Perchlorate Analysis Utilizing Liquid Chromatography-Mass Spectrometry/Mass Spectrometry (LC-MS/MS) by EPA Method 6850 Modified (6850M)** |
| Analytical Method: | SW846 6850 Modified |
| Prep Method: | SW846 6850 Modified |
| Analytical Batch Number: | 1302799 |
| Prep Batch Number: | 1302798 |

## Sample Analysis

| Sample ID | Client ID |
|---|---|
| 325739002 | CAMO-13-30599 |
| 1202878498 | Interference Check Sample (ICS) |
| 1202878494 | Method Blank (MB) |
| 1202878495 | Laboratory Control Sample (LCS) |
| 1202878496 | 326020002(CAMO-13-30600) Matrix Spike (MS) |
| 1202878497 | 326020002(CAMO-13-30600) Matrix Spike Duplicate (MSD) |

The samples in this SDG were analyzed on an "as received" basis.

## Preparation/Analytical Method Verification

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP).

The data discussed in this narrative has been analyzed in accordance with GL-OA-E-067 REV# 10.

## Calibration Information

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

Due to software constraints, all Initial Calibration Blanks must be designated as IPB001.

**ICV Requirements**
All associated initial calibration verification standards (ICV) met the acceptance criteria.

**CCB Requirements**
All continuing calibration blanks (CCB) bracketing the analyses associated with this batch were within acceptance criteria.

**CCV Requirements**
All continuing calibration checks (CCV) requirements were met by all bracketing CCV standards.

**Low Level Standard (CRI) Requirements**
All low level calibration verification (CRI) requirements were met by all bracketing CRI standards.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Interference Check Sample (ICS)**
The ICS met all recovery acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recoveries met the acceptance limits.

**QC Sample Designation**
Client sample 326020002 (CAMO-13-30600) from SDG 2013-866 was chosen for matrix spike and matrix spike duplicate analysis.

**Matrix Spike (MS) Recovery Statement**
A low recovery for Perchlorate was observed in 1202878496 (MS). The recovery was 35% and the acceptance range is 75-125%. This may be the result of the background concentration present in the parent sample, 326020002 (CAMO-13-30600), and the need to dilute all at a 1:10 dilution prior to analysis. The data are reported with the appropriate DER.

**Matrix Spike Duplicate (MSD) Recovery Statement**
Low recoveries for Perchlorate and Perchlorate-101 were observed in 1202878497 (MSD). The recoveries were 29% and 36%, respectively. The acceptance range is 75-125%. This may be the result of the background concentration present in the parent sample, 326020002 (CAMO-13-30600), and the need to dilute all at a 1:10 dilution prior to analysis. The data are reported with the appropriate DER.

**MS/MSD Relative Percent Difference (RPD) Statement**
The RPDs between the MS and MSD met the acceptance limits.

**Retention Time Standard Area Acceptance**
The retention time standard areas were within the required acceptance criteria for all samples and QC.

**Retention Time**
During the analysis of Perchlorate by LC/MS/MS, retention time shifts are commonly observed. These retention time shifts, which are caused by fouling of the column by the sample matrices, are problematic when the retention time is used as one of the criterion for confirmation. To overcome this problem, a known amount of O(18) labeled Perchlorate was added to each sample as a retention time standard.

The presence of Perchlorate was confirmed by the relative retention time (RRT) of the Perchlorate peak and the O(18) standard. A RRT window of 0.98 to 1.02, as required by Method 332.0, has been used.

In addition to the isotopic ratio, the presence of Perchlorate in the samples associated with this data package have been confirmed using the relative retention criteria stated above, not the absolute retention time.

## Technical Information

**Holding Time Specifications**
All samples in this SDG in this analytical batch met the specified holding time. GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

**Preparation/Analytical Method Verification**
All procedures were performed as stated in the SOP.

**Sample Dilutions**
QC samples 1202878496MS (CAMO-13-30600) and 1202878497MSD (CAMO-13-30600) were diluted to bring the over range concentrations within the calibration range.

**Sample Re-extraction/Re-analysis**
Sample 325739002 (CAMO-13-30599) was re-analyzed to confirm potential carryover from the previous sample analysis. The re-analysis data are reported.

The samples in this batch were initially analyzed on 05/28/13, however due to the bracketing CCVs not meeting the required acceptance criteria, the data was no valid and could not be reported. The samples were re-analyzed the following day.

## Miscellaneous Information

**Data Exception (DER) Documentation**
Data Exception Report 1190616 was generated for this SDG.

A low recovery for Perchlorate was observed in 1202878496 (MS). The recovery was 35% and the acceptance range is 75-125%. This may be the result of the background concentration present in the parent sample, 326020002 (CAMO-13-30600), and the need to dilute all at a 1:10 dilution prior to analysis. The data are reported with the appropriate DER.

Low recoveries for Perchlorate and Perchlorate-101 were observed in 1202878497 (MSD). The recoveries were 29% and 36%, respectively. The acceptance range is 75-125%. This may be the result of the background concentration present in the parent sample, 326020002 (CAMO-13-30600), and the need to dilute all at a 1:10 dilution prior to analysis. The data are reported with the appropriate DER.

**Manual Integrations**
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations.

**Method Comments**
The samples in this SDG were not originally analyzed using EPA Method 314.0.

**Additional Comments**
The Perchlorate Isotope Ratio on the Form I may differ slightly from the ratio on the corresponding raw data due to rounding rules and/or significant figures or due to software limitations when there are manual integrations, dilutions or other factors. The ratio value of the Form I is the correct value.

The retention time marker, Perchlorate-O (18), is added to all samples, instrument blanks, and standards prior to injection. It is used to verify the retention time of Perchlorate and Perchlorate-101 and to insure an accurate injection occurred.

Due to various anions affecting the recovery of Perchlorate-O (18) and not Perchlorate and Perchlorate-101, the calibration curves of Perchlorate and Perchlorate-101 are not internally corrected for using Perchlorate-O (18). They are external calibrations.

**Perchlorate Isotope Ratio**
The Perchlorate isotope ratio met acceptance criteria for all samples and QC samples.

Please see the isotope ratio criteria in the Miscellaneous Section.

**System Configuration**

The laboratory utilizes a Waters LC 2795 liquid chromatography instrument for Perchlorate analysis. It is coupled with either a Micromass Quattro Micro Mass Spectrometer/ Mass Spectrometer, or a Micromass Quattro Ultima Mass Spectrometer/ Mass Spectrometer. Each being designated as LCMSMS #1 and LCMSMS #2, respectively. It is fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

The laboratory may also utilize an Agilent 1100 liquid chromatography instrument for Perchlorate analysis. It is coupled with an Applied Biosystems 4000 Mass Spectrometer/ Mass Spectrometer, designated as LCMSMS #3 or LCMSMS #4. It is also fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package.

Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Chromatographic Columns**

Chromatographic separation of Perchlorate is accomplished through analysis on the following anion column:

Dionex: IonPac AG-16 2 x 50 mm.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-841  GEL Work Order: 325739

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

**  Analyte is a surrogate compound

J  Value is estimated

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL  Indicates that sample is diluted.
RA  Indicates that sample is re-analyzed without re-extraction.
RE  Indicates that sample is re-extracted.

**Review/Validation**

GEL requires all analytical data to be verified by a qualified data reviewer.  In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

**Signature:** Michael A. Penny Jr.  **Name: Michael Penny**

**Date: 03 JUN 2013**  **Title: Group Leader**

# Sample Data Summary

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1302798

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CAMO-13-30599

**Date Received:** 15-MAY-13

**GEL Job No (SDG):** 2013-841

**GEL Sample ID:** 325739002

**Date Filtered:** 28-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.306 | ug/L | | 1 | 30-MAY-13 13:38 | per0530014a |
| | Perchlorate Isotope Ratio | | | 3.05 | | | 1 | 30-MAY-13 13:38 | per0530014a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.315 | ug/L | | 1 | 30-MAY-13 13:38 | per0530014a |
| | Perchlorate-O(18) | | | 0.487 | ug/L | | 1 | 30-MAY-13 13:38 | per0530014a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Quality Control Summary

## Perchlorate Laboratory Control Sample

**Lab Name:** General Engineering Laboratories

**Lab Code:** GEL

**GEL Job No. (SDG):** 2013-841

**Extract Batch Code:** 1302798

**Date Filtered:** 28-MAY-13

**Matrix:** WATER

**Sample ID:** 1202878495

| Analyte^ | True | Found | Units | %Rec | Q | Control Limits |
|---|---|---|---|---|---|---|
| Perchlorate | 0.200 | .196 | ug/L | 98.2 | | 85 - 115 |
| Perchlorate Isotope Ratio | | 2.91 | | | | - |
| Perchlorate-101 | 0.200 | .21 | ug/L | 105 | | 85 - 115 |
| Perchlorate-O(18) | | .479 | ug/L | | | - |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

## Perchlorate Spike/Spike Duplicate Summary

**Lab Name:** General Engineering Laboratories

**Lab Code:** GEL

**GEL Job No (SDG):** 2013-841

**Extract Batch Code:** 1302798

**Date Extracted:** 28-MAY-13

**GEL MS/PS ID:** 1202878496

**Client ID:** CAMO-13-30600

**GEL MSD/PSD ID:** 1202878497

**QC Type:** MS

| Compound^ | Spike Added | Sample Conc | Units | MS Conc | MS Rec | # | MSD Conc | MSD Rec | # | RPD | # | RPD Limit | Recovery Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Perchlorate | 0.200 | 5.82 | ug/L | 5.89 | 34.9 | * | 5.88 | 29.4 | * | .186 | | 30 | 75 - 125 |
| Perchlorate Isotope Ratio | 0 | 3.16 | | 3.1 | | | 3.15 | | | 1.64 | | | - |
| Perchlorate-101 | 0.200 | 5.73 | ug/L | 5.91 | 89.3 | | 5.8 | 35.8 | * | 1.83 | | 30 | 75 - 125 |
| Perchlorate-O(18) | 0 | 4.70 | ug/L | 4.77 | | | 4.72 | | | 1.05 | | | - |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

# Quality Control Data

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** EPA 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1302798

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
MB

**Date Received:** 28-MAY-13

**GEL Job No (SDG):** 2013-841

**GEL Sample ID:** 1202878494

**Date Filtered:** 28-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.200 | ug/L | U | 1 | 29-MAY-13 17:16 | per0529012a |
| | Perchlorate Isotope Ratio | | | | | | 1 | 29-MAY-13 17:16 | per0529012a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.200 | ug/L | U | 1 | 29-MAY-13 17:16 | per0529012a |
| | Perchlorate-O(18) | | | 0.504 | ug/L | | 1 | 29-MAY-13 17:16 | per0529012a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** EPA 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1302798

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
LCS

**Date Received:** 28-MAY-13

**GEL Job No (SDG):** 2013-841

**GEL Sample ID:** 1202878495

**Date Filtered:** 28-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.196 | ug/L | J | 1 | 29-MAY-13 17:24 | per0529013a |
| | Perchlorate Isotope Ratio | | | 2.91 | | | 1 | 29-MAY-13 17:24 | per0529013a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.210 | ug/L | | 1 | 29-MAY-13 17:24 | per0529013a |
| | Perchlorate-O(18) | | | 0.479 | ug/L | | 1 | 29-MAY-13 17:24 | per0529013a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1302798

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
ICS

**Date Received:**

**GEL Job No (SDG):** 2013-841

**GEL Sample ID:** 1202878498

**Date Filtered:** 28-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.205 | ug/L | | 1 | 29-MAY-13 17:32 | per0529014a |
| | Perchlorate Isotope Ratio | | | 3.23 | | | 1 | 29-MAY-13 17:32 | per0529014a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.198 | ug/L | J | 1 | 29-MAY-13 17:32 | per0529014a |
| | Perchlorate-O(18) | | | 0.503 | ug/L | | 1 | 29-MAY-13 17:32 | per0529014a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1302798

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CAMO-13-30600MS

**Date Received:** 18-MAY-13

**GEL Job No (SDG):** 2013-841

**GEL Sample ID:** 1202878496

**Date Filtered:** 28-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .5 | 2 | 5.89 | ug/L | | 10 | 29-MAY-13 19:00 | per0529025a |
| | Perchlorate Isotope Ratio | | | 3.1 | | | 10 | 29-MAY-13 19:00 | per0529025a |
| 14797-73-0 | Perchlorate-101 | .5 | 2 | 5.91 | ug/L | | 10 | 29-MAY-13 19:00 | per0529025a |
| | Perchlorate-O(18) | | | 4.77 | ug/L | | 10 | 29-MAY-13 19:00 | per0529025a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1302798

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CAMO-13-30600MSD

**Date Received:** 18-MAY-13

**GEL Job No (SDG):** 2013-841

**GEL Sample ID:** 1202878497

**Date Filtered:** 28-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .5 | 2 | 5.88 | ug/L | | 10 | 29-MAY-13 19:08 | per0529026a |
| | Perchlorate Isotope Ratio | | | 3.15 | | | 10 | 29-MAY-13 19:08 | per0529026a |
| 14797-73-0 | Perchlorate-101 | .5 | 2 | 5.80 | ug/L | | 10 | 29-MAY-13 19:08 | per0529026a |
| | Perchlorate-O(18) | | | 4.72 | ug/L | | 10 | 29-MAY-13 19:08 | per0529026a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Miscellaneous

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 30-MAY-13 | Federal | | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| LC-MS/MS | SW846 6850 Modified | Liquid | ARSL001 |
| **Batch ID:** | **Sample Numbers:** | | |
| 1302799 | See below | | |

**Potentially affected work order(s)(SDG):** **325733(2013-838),325736(2013-840),325739(2013-841),325847(2013-847),325923(2013-856),326020(2013-866),326056(2013-868),326427(2013-887)**

**Application Issues:**

Failed Recovery for MS/PS

Failed Recovery for MSD/PSD

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Low recovery for Perchlorate was observed in 1202878496 (MS). The recovery was 35% and the acceptance range is 75-125%.<br><br>2. Low recoveries for Perchlorate and Perchlorate-101 were observed in 1202878497 (MSD). The recoveries were 29% and 36%, respectively. The acceptance range is 75-125%. | 1. & 2. The low recoveries may be the result of the background concentration present in the parent sample, 326020002, and the need to dilute all at a 1:10 dilution prior to analysis. The data are reported with the appropriate DER. |

**Originator's Name:**

Charles Wilson 30-MAY-13

**Data Validator/Group Leader:**

Michael Penny 30-MAY-13

# Metals Analysis

# Case Narrative

**Metals Fractional Narrative**
**ARS International (ARSL)**
**SDG 2013-841**

## Sample Analysis

| Sample ID | Client ID |
|---|---|
| 325739002 | CAMO-13-30599 |
| 1202883949 | Method Blank (MB) **ICP** |
| 1202883950 | Laboratory Control Sample (LCS) |
| 1202883953 | 325649002(CAMO-13-30594L) Serial Dilution (SD) |
| 1202883951 | 325649002(CAMO-13-30594D) Sample Duplicate (DUP) |
| 1202883952 | 325649002(CAMO-13-30594S) Matrix Spike (MS) |
| 1202883954 | Method Blank (MB) **ICP-MS** |
| 1202883955 | Laboratory Control Sample (LCS) |
| 1202883958 | 325649002(CAMO-13-30594L) Serial Dilution (SD) |
| 1202883956 | 325649002(CAMO-13-30594D) Sample Duplicate (DUP) |
| 1202883957 | 325649002(CAMO-13-30594S) Matrix Spike (MS) |
| 1202878703 | Method Blank (MB) **CVAA** |
| 1202878710 | Laboratory Control Sample (LCS) |
| 1202878707 | 325847002(CASA-13-30555L) Serial Dilution (SD) |
| 1202878705 | 325847002(CASA-13-30555D) Sample Duplicate (DUP) |
| 1202878709 | 325847002(CASA-13-30555S) Matrix Spike (MS) |

## Method/Analysis Information

| | |
|---|---|
| **Analytical Batch:** | 1304837, 1304840, 1302867 and 1306981 |
| **Prep Batch :** | 1304836, 1304838 and 1302865 |
| **Standard Operating Procedures:** | GL-MA-E-013 REV# 22, GL-MA-E-006 REV# 9, GL-MA-E-014 REV# 25, GL-MA-E-010 REV# 26 and GL-GC-E-107 REV# 8 |
| **Analytical Method:** | SW846 3005/6010B, SW846 3005/6020 DOE-AL, EPA 245.1/245.2 and SM 2340 B |
| **Prep Method :** | SW846 3005A and EPA 245.1/245.2 Prep |

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

**System Configuration**

The Hardness as CaCO3 is calculated from Calcium and Magnesium results.

The Metals analysis-ICP was performed on a P E 5300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis-ICP was performed on a PE 7300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN 9000 inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadruple mass spectrometer, and dual mode electron multiplier detector. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum. Operating conditions are set at 1400W power and combined argon pressures of 360+/-7 kPa for the plasma and auxiliary gases, and 0.85 L/min carrier gas flow, and an initial lens voltage of 5.2.

The Metals analysis-Mercury was performed on a Perkin-Elmer Flow Injection Mercury System (FIMS-100) automated mercury analyzer. The instrument consists of a cold vapor atomic absorption spectrometer set to detect mercury at a wavelength of 253.7 nm. Sample introduction through the flow injection system is performed via a peristaltic pump at 9 mL/min and nitrogen carrier gas rate of 80 mL/min.

**Calibration Information**

**Instrument Calibration**
All initial calibration requirements have been met for this sample delivery group (SDG).

**CRDL Requirements**
All CRDL standard(s) met the referenced advisory control limits.

**ICSA/ICSAB Statement**
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

**Continuing Calibration Blank (CCB) Requirements**
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

**Continuing Calibration Verification (CCV) Requirements**
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MBs analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recoveries met the acceptance limits.

**Quality Control (QC) Sample Statement**
The following samples were selected as the quality control (QC) samples for this SDG: 325649002 (CAMO-13-30594)-ICP and ICP-MS and 325847002 (CASA-13-30555)-CVAA.

**Matrix Spike (MS) Recovery Statement**
The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. All applicable elements met the acceptance criteria.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. All applicable analytes met these requirements.

**Serial Dilution % Difference Statement**
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations that are 25X the IDL/MDL for CVAA, 50X the IDL/MDL for ICP, and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the acceptance criteria of less than 10% difference (%D).

## Technical Information

### Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

### Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

### Sample Dilutions
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. The samples in this SDG did not require dilutions.

### Preparation Information
The samples in this SDG were prepared exactly according to the cited SOP.

## Miscellaneous Information

### Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

### Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

### Additional Comments
Additional comments were not required for this SDG.
Total Hardness by Calculation is determined using the results of Total Calcium (Ca) and Total Magnesium (Mg) determined by ICP or ICP-MS.

Hardness = 2.497 (Ca) + 4.118 (Mg)

Please refer to the Total Ca and Total Mg data to validate results appearing on the Hardness Summary sheet. Both results are in the Inorganic/metals section of the package. There is no Batch QC for calculated results, and thus no QC Summary for the Hardness by Calculation Batch. The MDLs and PQLs are calculated using the higher of the two calculated values of Ca or Mg.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

**Review Validation:**

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

**The following data validator verified the information presented in this case narrative:**

**Reviewer:**_____ **Date:** 06/11/13

# Sample Data Summary

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-841  GEL Work Order: 325739

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

J  Value is estimated

N  Metals--The Matrix spike sample recovery is not within specified control limits

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____ 06/11/13

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−841 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

**SAMPLE ID:** 325739002 **BASIS:** As Received **DATE COLLECTED** 13−MAY−13

**CLIENT ID:** CAMO−13−30599 **LEVEL:** Low **DATE RECEIVED** 15−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7439−97−6 | Mercury | 0.20 | ug/L | U | 0.067 | 0.2 | 0.2 | 1 | AV | NOR1 | 05/21/13 11:49 | 052113W1−6 | 1302867 |

# METALS
## −1−
## INORGANICS ANALYSIS DATA PACKAGE

**SDG No:** 2013−841 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

**SAMPLE ID:** 325739002 **BASIS:** As Received **DATE COLLECTED** 13−MAY−13

**CLIENT ID:** CAMO−13−30599 **LEVEL:** Low **DATE RECEIVED** 15−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7429−90−5 | Aluminum | 200 | ug/L | U | 68 | 200 | 200 | 1 | P | HSC | 06/06/13 15:37 | 060613−1 | 1304837 |
| 7440−36−0 | Antimony | 3 | ug/L | U | 1 | 3 | 3 | 1 | MS | PRB | 06/08/13 03:17 | 130607−5 | 1304840 |
| 7440−38−2 | Arsenic | 5 | ug/L | U | 1.7 | 5 | 5 | 1 | MS | BAJ | 06/07/13 07:33 | 130606−3 | 1304840 |
| 7440−39−3 | Barium | 25.3 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:37 | 060613−1 | 1304837 |
| 7440−41−7 | Beryllium | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:37 | 060613−1 | 1304837 |
| 7440−42−8 | Boron | 50 | ug/L | U | 15 | 50 | 50 | 1 | P | HSC | 06/06/13 15:37 | 060613−1 | 1304837 |
| 7440−43−9 | Cadmium | 1 | ug/L | U | 0.11 | 1 | 1 | 1 | MS | BAJ | 06/07/13 07:33 | 130606−3 | 1304840 |
| 7440−70−2 | Calcium | 11800 | ug/L | | 50 | 200 | 200 | 1 | P | HSC | 06/06/13 15:37 | 060613−1 | 1304837 |
| 7440−47−3 | Chromium | 3.18 | ug/L | J | 2 | 10 | 10 | 1 | MS | BAJ | 06/07/13 07:33 | 130606−3 | 1304840 |
| 7440−48−4 | Cobalt | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:37 | 060613−1 | 1304837 |
| 7440−50−8 | Copper | 10 | ug/L | U | 3 | 10 | 10 | 1 | P | HSC | 06/06/13 15:37 | 060613−1 | 1304837 |
| 7439−89−6 | Iron | 100 | ug/L | U | 30 | 100 | 100 | 1 | P | HSC | 06/06/13 15:37 | 060613−1 | 1304837 |
| 7439−92−1 | Lead | 2 | ug/L | U | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/07/13 07:33 | 130606−3 | 1304840 |
| 7439−95−4 | Magnesium | 4010 | ug/L | | 110 | 300 | 300 | 1 | P | HSC | 06/07/13 10:38 | 060713B−2 | 1304837 |
| 7439−96−5 | Manganese | 10 | ug/L | U | 2 | 10 | 10 | 1 | P | HSC | 06/06/13 15:37 | 060613−1 | 1304837 |
| 7439−98−7 | Molybdenum | 1.05 | ug/L | | 0.165 | 0.5 | 0.5 | 1 | MS | BAJ | 06/07/13 16:18 | 130607−4 | 1304840 |
| 7440−02−0 | Nickel | 1.87 | ug/L | J | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/07/13 07:33 | 130606−3 | 1304840 |
| 7440−09−7 | Potassium | 1490 | ug/L | | 50 | 150 | 150 | 1 | P | HSC | 06/06/13 15:37 | 060613−1 | 1304837 |
| 7782−49−2 | Selenium | 5 | ug/L | U | 1.5 | 5 | 5 | 1 | MS | BAJ | 06/07/13 07:33 | 130606−3 | 1304840 |
| 7631−86−9 | Silica | 81800 | ug/L | | 53 | 213 | 213 | 1 | P | HSC | 06/06/13 15:37 | 060613−1 | 1304837 |
| 7440−22−4 | Silver | 1 | ug/L | U | 0.2 | 1 | 1 | 1 | MS | BAJ | 06/07/13 07:33 | 130606−3 | 1304840 |
| 7440−23−5 | Sodium | 11000 | ug/L | | 100 | 300 | 300 | 1 | P | HSC | 06/07/13 10:38 | 060713B−2 | 1304837 |
| 7440−24−6 | Strontium | 53.7 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:37 | 060613−1 | 1304837 |
| 7440−28−0 | Thallium | 2 | ug/L | U | 0.45 | 2 | 2 | 1 | MS | BAJ | 06/07/13 07:33 | 130606−3 | 1304840 |
| 7440−31−5 | Tin | 10 | ug/L | U | 2.5 | 10 | 10 | 1 | P | HSC | 06/07/13 10:38 | 060713B−2 | 1304837 |
| 7440−61−1 | Uranium | 0.544 | ug/L | | 0.067 | 0.2 | 0.2 | 1 | MS | BAJ | 06/07/13 16:18 | 130607−4 | 1304840 |
| 7440−62−2 | Vanadium | 7.67 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:37 | 060613−1 | 1304837 |
| 7440−66−6 | Zinc | 5.59 | ug/L | J | 3.3 | 10 | 10 | 1 | P | HSC | 06/06/13 15:37 | 060613−1 | 1304837 |

# METALS
## −1−
## INORGANICS ANALYSIS DATA PACKAGE

**SDG No:** 2013−841 **CONTRACT:** ESHL00210 **METHOD TYPE:**

**SAMPLE ID:** 325739002 **BASIS:** As Received **DATE COLLECTED** 13−MAY−13

**CLIENT ID:** CAMO−13−30599 **LEVEL:** Low **DATE RECEIVED** 15−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Hardness as CaCO3 | 46 | mg/L | | 0.453 | 1.24 | 1.24 | 1 | | JJ2 | 06/10/13 14:12 | | 1306981 |

**Prep Information:**

| Analytical Batch | Prep Batch | Prep Method | Initial wt./vol. | Units | Final wt./vol. | Units | Date | Analyst |
|---|---|---|---|---|---|---|---|---|
| 1302867 | 1302865 | EPA 245.1/245.2 Prep | 20 | mL | 20 | mL | 05/20/13 | AXS5 |
| 1304837 | 1304836 | SW846 3005A | 50 | mL | 50 | mL | 06/06/13 | AXG2 |
| 1304840 | 1304838 | SW846 3005A | 50 | mL | 50 | mL | 06/06/13 | AXG2 |

***Analytical Methods:**

| | |
|---|---|
| **MS** | **SW846 3005/6020 DOE−AL** |
| **P** | **SW846 3005/6010B** |
| **AV** | **EPA 245.1/245.2** |

# Quality Control Summary

**METALS**
**−3b−**
**PREPARATION BLANK SUMMARY**

**SDG NO.** 2013−841

**Contract:** ESHL00210

**Matrix:** W

| Sample ID | Analyte | Result | Units | Acceptance Window | Conc Qual | M* | MDL | RDL |
|---|---|---|---|---|---|---|---|---|
| 1202878703 | | | | | | | | |
| | Mercury | 0.067 | ug/L | +/−0.2 | U | AV | 0.067 | 0.2 |
| 1202883949 | | | | | | | | |
| | Barium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Beryllium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Boron | 15 | ug/L | +/−50 | U | P | 15 | 50 |
| | Calcium | 50 | ug/L | +/−200 | U | P | 50 | 200 |
| | Cobalt | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Copper | 3 | ug/L | +/−10 | U | P | 3 | 10 |
| | Iron | 30 | ug/L | +/−100 | U | P | 30 | 100 |
| | Magnesium | 110 | ug/L | +/−300 | U | P | 110 | 300 |
| | Manganese | 2 | ug/L | +/−10 | U | P | 2 | 10 |
| | Potassium | 50 | ug/L | +/−150 | U | P | 50 | 150 |
| | Silica | 53 | ug/L | +/−213 | U | P | 53 | 213 |
| | Sodium | 100 | ug/L | +/−300 | U | P | 100 | 300 |
| | Aluminum | 68 | ug/L | +/−200 | U | P | 68 | 200 |
| | Strontium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Tin | 2.5 | ug/L | +/−10 | U | P | 2.5 | 10 |
| | Vanadium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Zinc | 3.3 | ug/L | +/−10 | U | P | 3.3 | 10 |
| 1202883954 | | | | | | | | |
| | Antimony | 1 | ug/L | +/−3 | U | MS | 1 | 3 |
| | Arsenic | 1.7 | ug/L | +/−5 | U | MS | 1.7 | 5 |
| | Cadmium | 0.11 | ug/L | +/−1 | U | MS | 0.11 | 1 |
| | Chromium | 2 | ug/L | +/−10 | U | MS | 2 | 10 |
| | Lead | 0.5 | ug/L | +/−2 | U | MS | 0.5 | 2 |
| | Molybdenum | 0.165 | ug/L | +/−0.5 | U | MS | 0.165 | 0.5 |
| | Nickel | 0.5 | ug/L | +/−2 | U | MS | 0.5 | 2 |
| | Selenium | 1.5 | ug/L | +/−5 | U | MS | 1.5 | 5 |
| | Silver | 0.2 | ug/L | +/−1 | U | MS | 0.2 | 1 |
| | Thallium | 0.45 | ug/L | +/−2 | U | MS | 0.45 | 2 |
| | Uranium | 0.067 | ug/L | +/−0.2 | U | MS | 0.067 | 0.2 |

***Analytical Methods:**

| | |
|---|---|
| **MS** | **SW846 3005/6020 DOE−AL** |
| **P** | **SW846 3005/6010B** |
| **AV** | **EPA 245.1/245.2** |

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−841 **Client ID** CASA−13−30555S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 325847002 **Spike ID:** 1202878709

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | ug/L | 75−125 | 1.98 | | 0.067 | U | 2 | 99.2 | | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−841 **Client ID** CAMO−13−30594S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 325649002 **Spike ID:** 1202883952

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | ug/L | 75−125 | 5060 | | 68 | U | 5000 | 101 | | P |
| Barium | ug/L | 75−125 | 513 | | 21.9 | | 500 | 98.3 | | P |
| Beryllium | ug/L | 75−125 | 498 | | 1 | U | 500 | 99.5 | | P |
| Boron | ug/L | 75−125 | 491 | | 15 | U | 500 | 97.5 | | P |
| Calcium | ug/L | 75−125 | 17600 | | 13300 | | 5000 | 86.2 | | P |
| Cobalt | ug/L | 75−125 | 496 | | 1 | U | 500 | 99.2 | | P |
| Copper | ug/L | 75−125 | 532 | | 3 | U | 500 | 106 | | P |
| Iron | ug/L | 75−125 | 5140 | | 30 | U | 5000 | 103 | | P |
| Magnesium | ug/L | 75−125 | 8390 | | 3700 | | 5000 | 93.7 | | P |
| Manganese | ug/L | 75−125 | 492 | | 2 | U | 500 | 98.3 | | P |
| Potassium | ug/L | 75−125 | 5990 | | 1210 | | 5000 | 95.6 | | P |
| Silica | ug/L | | 81700 | | 74900 | | 10700 | 62.8 | N/A | P |
| Sodium | ug/L | 75−125 | 14200 | | 9930 | | 5000 | 85.2 | | P |
| Strontium | ug/L | 75−125 | 560 | | 58.8 | | 500 | 100 | | P |
| Tin | ug/L | 75−125 | 470 | | 2.5 | U | 500 | 94 | | P |
| Vanadium | ug/L | 75−125 | 507 | | 5.58 | | 500 | 100 | | P |
| Zinc | ug/L | 75−125 | 490 | | 3.3 | U | 500 | 97.4 | | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−841 **Client ID** CAMO−13−30594S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 325649002 **Spike ID:** 1202883957

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ug/L | 75−125 | 55 | | 1 | U | 50 | 110 | | MS |
| Arsenic | ug/L | 75−125 | 52.4 | | 1.7 | U | 50 | 102 | | MS |
| Cadmium | ug/L | 75−125 | 54.8 | | 0.11 | U | 50 | 110 | | MS |
| Chromium | ug/L | 75−125 | 68.1 | | 17.5 | | 50 | 101 | | MS |
| Lead | ug/L | 75−125 | 51.2 | | 0.5 | U | 50 | 102 | | MS |
| Molybdenum | ug/L | 75−125 | 51.8 | | 0.849 | | 50 | 102 | | MS |
| Nickel | ug/L | 75−125 | 53.4 | | 2.22 | | 50 | 102 | | MS |
| Selenium | ug/L | 75−125 | 59.2 | | 1.5 | U | 50 | 116 | | MS |
| Silver | ug/L | 75−125 | 54 | | 0.2 | U | 50 | 108 | | MS |
| Thallium | ug/L | 75−125 | 47.3 | | 0.45 | U | 50 | 94.6 | | MS |
| Uranium | ug/L | 75−125 | 51.9 | | 0.429 | | 50 | 103 | | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−841 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CASA−13−30555D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325847002 **Duplicate ID:** 1202878705 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | ug/L | | 0.067 | U | 0.067 | U | | | AV |

***Analytical Methods:**

**AV EPA 245.1/245.2**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−841 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CAMO−13−30594D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325649002 **Duplicate ID:** 1202883951 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | ug/L | | 68 | U | 68 | U | | | P |
| Barium | ug/L | +/−5 | 21.9 | | 20.8 | | 5.14 | | P |
| Beryllium | ug/L | | 1 | U | 1 | U | | | P |
| Boron | ug/L | | 15 | U | 15 | U | | | P |
| Calcium | ug/L | +/−20% | 13300 | | 12900 | | 3.27 | | P |
| Cobalt | ug/L | | 1 | U | 1 | U | | | P |
| Copper | ug/L | | 3 | U | 3 | U | | | P |
| Iron | ug/L | | 30 | U | 30 | U | | | P |
| Magnesium | ug/L | +/−20% | 3700 | | 3510 | | 5.41 | | P |
| Manganese | ug/L | | 2 | U | 2 | U | | | P |
| Potassium | ug/L | +/−20% | 1210 | | 1170 | | 3.01 | | P |
| Silica | ug/L | +/−20% | 74900 | | 72500 | | 3.29 | | P |
| Sodium | ug/L | +/−20% | 9930 | | 9590 | | 3.45 | | P |
| Strontium | ug/L | +/−20% | 58.8 | | 56.4 | | 4.05 | | P |
| Tin | ug/L | | 2.5 | U | 2.5 | U | | | P |
| Vanadium | ug/L | +/−5 | 5.58 | | 4.98 | J | 11.3 | | P |
| Zinc | ug/L | | 3.3 | U | 3.3 | U | | | P |

***Analytical Methods:**

**P SW846 3005/6010B**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−841 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CAMO−13−30594D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325649002 **Duplicate ID:** 1202883956 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Antimony | ug/L | | 1 | U | 1 | U | | | MS |
| Arsenic | ug/L | | 1.7 | U | 1.7 | U | | | MS |
| Cadmium | ug/L | | 0.11 | U | 0.11 | U | | | MS |
| Chromium | ug/L | +/−10 | 17.5 | | 16 | | 9.39 | | MS |
| Lead | ug/L | | 0.5 | U | 0.5 | U | | | MS |
| Molybdenum | ug/L | +/−.5 | 0.849 | | 0.877 | | 3.24 | | MS |
| Nickel | ug/L | +/−2 | 2.22 | | 1.9 | J | 15.5 | | MS |
| Selenium | ug/L | | 1.5 | U | 1.5 | U | | | MS |
| Silver | ug/L | | 0.2 | U | 0.2 | U | | | MS |
| Thallium | ug/L | | 0.45 | U | 0.45 | U | | | MS |
| Uranium | ug/L | +/−.2 | 0.429 | | 0.42 | | 2.12 | | MS |

***Analytical Methods:**

**MS SW846 3005/6020 DOE−AL**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−841

**Contract:** ESHL00210

**Aqueous LCS Source:** GEL **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202878710 | | | | | | | | |
| | Mercury | ug/L | 2 | 2.08 | | 104 | 85−115 | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−841

**Contract:** ESHL00210

**Aqueous LCS Source:** OS2I **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202883950 | | | | | | | | |
| | Aluminum | ug/L | 5000 | 5200 | | 104 | 80−120 | P |
| | Barium | ug/L | 500 | 510 | | 102 | 80−120 | P |
| | Beryllium | ug/L | 500 | 508 | | 102 | 80−120 | P |
| | Boron | ug/L | 500 | 488 | | 97.7 | 80−120 | P |
| | Calcium | ug/L | 5000 | 5150 | | 103 | 80−120 | P |
| | Cobalt | ug/L | 500 | 508 | | 102 | 80−120 | P |
| | Copper | ug/L | 500 | 533 | | 107 | 80−120 | P |
| | Iron | ug/L | 5000 | 5300 | | 106 | 80−120 | P |
| | Magnesium | ug/L | 5000 | 5140 | | 103 | 80−120 | P |
| | Manganese | ug/L | 500 | 517 | | 103 | 80−120 | P |
| | Potassium | ug/L | 5000 | 5100 | | 102 | 80−120 | P |
| | Silica | ug/L | 10700 | 10800 | | 101 | 80−120 | P |
| | Sodium | ug/L | 5000 | 5040 | | 101 | 80−120 | P |
| | Strontium | ug/L | 500 | 527 | | 105 | 80−120 | P |
| | Tin | ug/L | 500 | 496 | | 99.2 | 80−120 | P |
| | Vanadium | ug/L | 500 | 517 | | 103 | 80−120 | P |
| | Zinc | ug/L | 500 | 493 | | 98.5 | 80−120 | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−841

**Contract:** ESHL00210

**Aqueous LCS Source:** O2Si **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202883955 | | | | | | | | |
| | Antimony | ug/L | 50 | 55.6 | | 111 | 80−120 | MS |
| | Arsenic | ug/L | 50 | 51.7 | | 103 | 80−120 | MS |
| | Cadmium | ug/L | 50 | 54.4 | | 109 | 80−120 | MS |
| | Chromium | ug/L | 50 | 52.9 | | 106 | 80−120 | MS |
| | Lead | ug/L | 50 | 51.4 | | 103 | 80−120 | MS |
| | Molybdenum | ug/L | 50 | 50.2 | | 100 | 80−120 | MS |
| | Nickel | ug/L | 50 | 52.7 | | 105 | 80−120 | MS |
| | Selenium | ug/L | 50 | 59.7 | | 119 | 80−120 | MS |
| | Silver | ug/L | 50 | 53.8 | | 108 | 80−120 | MS |
| | Thallium | ug/L | 50 | 46.7 | | 93.5 | 80−120 | MS |
| | Uranium | ug/L | 50 | 49.6 | | 99.3 | 80−120 | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−841 **Client ID** CASA−13−30555L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325847002 **Serial Dilution ID:** 1202878707

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Mercury | .067 | U | .335 | U | | | | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−841 **Client ID** CAMO−13−30594L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325649002 **Serial Dilution ID:** 1202883953

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Aluminum | 68 | U | 340 | U | | | | P |
| Barium | 21.9 | | 25.2 | | 14.8 | | | P |
| Beryllium | 1 | U | 5 | U | | | | P |
| Boron | 15 | U | 75 | U | | | | P |
| Calcium | 13300 | | 13000 | | 2.28 | | 10 | P |
| Cobalt | 1 | U | 5 | U | | | | P |
| Copper | 3 | U | 15 | U | | | | P |
| Iron | 30 | U | 150 | U | | | | P |
| Magnesium | 3700 | | 3680 | | .612 | | | P |
| Manganese | 2 | U | 10 | U | | | | P |
| Potassium | 1210 | | 1320 | | 8.88 | | | P |
| Silica | 74900 | | 73100 | | 2.4 | | 10 | P |
| Sodium | 9930 | | 10500 | | 5.47 | | 10 | P |
| Strontium | 58.8 | | 56.9 | | 3.16 | | 10 | P |
| Tin | 2.5 | U | 12.5 | U | | | | P |
| Vanadium | 5.58 | | 6.2 | J | 11.1 | | | P |
| Zinc | 3.3 | U | 16.5 | U | | | | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−841 **Client ID** CAMO−13−30594L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325649002 **Serial Dilution ID:** 1202883958

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Antimony | 1 | U | 5 | U | | | | MS |
| Arsenic | 1.7 | U | 8.5 | U | | | | MS |
| Cadmium | .11 | U | .55 | U | | | | MS |
| Chromium | 17.5 | | 16.6 | J | 5.12 | | | MS |
| Lead | .5 | U | 2.5 | U | | | | MS |
| Molybdenum | .849 | | 1.15 | J | 35.5 | | | MS |
| Nickel | 2.22 | | 2.5 | U | 100 | | | MS |
| Selenium | 1.5 | U | 7.5 | U | | | | MS |
| Silver | .2 | U | 1 | U | | | | MS |
| Thallium | .45 | U | 2.25 | U | | | | MS |
| Uranium | .429 | | .53 | J | 23.5 | | | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

# General Chem Analysis

# Case Narrative

**General Chemistry Narrative**
**ARS International (ARSL)**
**SDG 2013-841**

## Method/Analysis Information

**Product:** **Carbon, Total Organic**

**Analytical Batch:** 1302095 **Method:** SW 9060 Total Organic Carbon

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9060:

| Sample ID | Client ID |
|---|---|
| 325739001 | CAMO-13-30583 |
| 1202876780 | Method Blank (MB) |
| 1202876781 | 325479001(CAMO-13-30586) Sample Duplicate (DUP) |
| 1202876783 | 325479001(CAMO-13-30586) Post Spike (PS) |
| 1202876785 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-093 REV# 12.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Carbon analysis was performed on a O-I Analytical Model 1010 Total Organic Carbon Analyzer.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

## Quality Control (QC) Information

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325479001 (CAMO-13-30586).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

## Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

## Miscellaneous Information

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
A 15 mg/L Total Inorganic Carbon check standard is analyzed with each analytical run to prove that the instrument is effectively sparging away the inorganic carbon.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages

electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Specific Conductivity** | | |
| **Analytical Batch:** | 1305069 | **Method:** | EPA120.1 Specific Conductivity |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 120.1:

| Sample ID | Client ID |
|---|---|
| 325739002 | CAMO-13-30599 |
| 1202884559 | Laboratory Control Sample (LCS) |
| 1202884560 | 325649002(CAMO-13-30594) Sample Duplicate (DUP) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-009 REV# 11.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Conductivity analysis was performed on a Orion 160 Conductivity Meter.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325649002 (CAMO-13-30594).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

## Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

## Miscellaneous Information

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

**Product:** **pH**

**Analytical Batch:** 1302797 **Method:** EPA 150.1 pH

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 150.1:

| Sample ID | Client ID |
|---|---|
| 325739002 | CAMO-13-30599 |
| 1202878491 | 325736002(CASA-13-30550) Sample Duplicate (DUP) |
| 1202878493 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-008 REV# 21.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Electrode analysis was performed on a PerpHect pH Meter Orion 370.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**

The following sample was selected for QC analysis: 325736002 (CASA-13-30550).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
The following sample from this sample group was received by the lab outside of the method specified holding time: 325739002 (CAMO-13-30599).

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1188061 325739002 (CAMO-13-30599).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Ion Chromatography** | | |
| **Analytical Batch:** | 1301913 | **Method:** | EPA 300.0 Anions Liquid 28 day |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

| Sample ID | Client ID |
|---|---|
| 325739002 | CAMO-13-30599 |
| 1202876344 | Method Blank (MB) |
| 1202876345 | 325736002(CASA-13-30550) Sample Duplicate (DUP) |
| 1202876346 | 325736002(CASA-13-30550) Post Spike (PS) |
| 1202876347 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 21.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-3000 Ion Chromatograph.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325736002 (CASA-13-30550).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The spike recovery falls outside of the established acceptance limits due to matrix interference: 1202876346 (CASA-13-30550).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1191933 1202876346 (CASA-13-30550).

**Manual Integrations**
The following samples from this sample group had to be manually integrated due to errors in the instrument software peak integration: 1202876345 (CASA-13-30550), 1202876346 (CASA-13-30550) and 325739002 (CAMO-13-30599).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an

effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Ammonia Nitrogen** | | |
| **Analytical Batch:** | 1302059 | **Method:** | EPA 350.1 Nitrogen and Ammonia L |
| **Prep Batch :** | 1302058 | **Method:** | EEPA 350.2 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 350.1:

| Sample ID | Client ID |
|---|---|
| 325739002 | CAMO-13-30599 |
| 1202876694 | Method Blank (MB) |
| 1202876695 | 325649002(CAMO-13-30594) Sample Duplicate (DUP) |
| 1202876696 | 325649004(CAMO-13-30595) Sample Duplicate (DUP) |
| 1202876697 | 325649002(CAMO-13-30594) Matrix Spike (MS) |
| 1202876698 | 325649004(CAMO-13-30595) Matrix Spike (MS) |
| 1202876699 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-106 REV# 9.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following samples were selected for QC analysis: 325649002 (CAMO-13-30594) and 325649004 (CAMO-13-30595).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recoveries for this sample set were within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**

Additional comments were not required for this SDG.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Total Kjeldahl Nitrogen** | | |
| **Analytical Batch:** | 1302893 | **Method:** | Nitrogen and Total Kjeldahl (TKN) |
| **Prep Batch :** | 1302892 | **Method:** | EEPA 351.2 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 351.2:

| Sample ID | Client ID |
|---|---|
| 325739001 | CAMO-13-30583 |
| 1202878782 | Method Blank (MB) |
| 1202878783 | 325733001(CAMO-13-31070) Sample Duplicate (DUP) |
| 1202878784 | 326427001(SWWS46-13-33497) Sample Duplicate (DUP) |
| 1202878785 | 325733001(CAMO-13-31070) Matrix Spike (MS) |
| 1202878786 | 326427001(SWWS46-13-33497) Matrix Spike (MS) |
| 1202878787 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-104 REV# 14.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following samples were selected for QC analysis: 325733001 (CAMO-13-31070) and 326427001 (SWWS46-13-33497).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The spike recovery falls outside of the GEL acceptance limits but within the client specified limits. 1202878786 (SWWS46-13-33497).

**Duplicate Relative Percent Difference (RPD) Statement**
The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample: 1202878783 (CAMO-13-31070).

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1190664 1202878783 (CAMO-13-31070) and 1202878786 (SWWS46-13-33497).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Nitrate Nitrite by Cadmium Reduction** | | |
| **Analytical Batch:** | 1302060 | **Method:** | EPA 353.2 Nitrogen and Nitrate/Nitrite |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 353.2:

| Sample ID | Client ID |
|---|---|
| 325739002 | CAMO-13-30599 |
| 1202876700 | Method Blank (MB) |
| 1202876701 | 325649002(CAMO-13-30594) Sample Duplicate (DUP) |
| 1202876702 | 325649004(CAMO-13-30595) Sample Duplicate (DUP) |
| 1202876703 | 325649002(CAMO-13-30594) Post Spike (PS) |
| 1202876704 | 325649004(CAMO-13-30595) Post Spike (PS) |
| 1202876705 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-128 REV# 8.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8500 Series.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following samples were selected for QC analysis: 325649002 (CAMO-13-30594) and 325649004 (CAMO-13-30595).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recoveries for this sample set were within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Total Phosphorus** | | |
| **Analytical Batch:** | 1302885 | **Method:** | EPA 365.4 Phosphorus and Total in |
| **Prep Batch :** | 1302884 | **Method:** | EEPA 365.4 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 365.4:

| Sample ID | Client ID |
|---|---|
| 325739002 | CAMO-13-30599 |
| 1202878748 | Method Blank (MB) |
| 1202878750 | 325736002(CASA-13-30550) Sample Duplicate (DUP) |
| 1202878752 | 325736002(CASA-13-30550) Matrix Spike (MS) |
| 1202878753 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-103 REV# 10.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

## Quality Control (QC) Information

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325736002 (CASA-13-30550).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202878750 (CASA-13-30550).

## Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

## Miscellaneous Information

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are

present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Solids, Total Dissolved** | | |
| **Analytical Batch:** | 1302093 | **Method:** | EPA 160.1 Solids and Dissolved-F |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 160.1:

| Sample ID | Client ID |
|---|---|
| 325739002 | CAMO-13-30599 |
| 1202876773 | Method Blank (MB) |
| 1202876774 | 325736004(CASA-13-30541) Sample Duplicate (DUP) |
| 1202876775 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-001 REV# 13.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Solids analysis was performed on a Sartorius Balance BAL216. Solids lab

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

## Quality Control (QC) Information

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**

The following sample was selected for QC analysis: 325736004 (CASA-13-30541).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Sample Aliquot**
A sufficient amount of sample was provided by the client for analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

**Product:** **Alkalinity**

**Analytical Batch:** 1303137 **Method:** EPA 310.1 Total Alkalinity

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 310.1:

| Sample ID | Client ID |
|---|---|
| 325739002 | CAMO-13-30599 |
| 1202879523 | Laboratory Control Sample (LCS) |
| 1202879526 | 325643002(CAMO-13-30598) Sample Duplicate (DUP) |
| 1202879527 | 325643002(CAMO-13-30598) Matrix Spike (MS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-033 REV# 10.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Titration analysis was performed on a Manually operated buret.

**Initial Standardization**
The titrant was properly standardized

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325643002 (CAMO-13-30598).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**

The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

**Review Validation:**

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

**The following data validator verified the information presented in this case narrative:**

**Reviewer:**_____ **Date:**_____11Jun13_____

# Sample Data Summary

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-841  GEL Work Order: 325739

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

**  Analyte is a Tracer compound

**  Analyte is a surrogate compound

H  Analytical holding time was exceeded

J  Value is estimated

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: June 6, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-841

Client Sample ID: CAMO-13-30583
Sample ID: 325739001
Matrix: W
Collect Date: 13-MAY-13 14:10
Receive Date: 15-MAY-13
Collector: Client
Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon Analysis | | | | | | | | | | | |
| SW 9060 Total Organic Carbon "As Received" | | | | | | | | | | | |
| Total Organic Carbon Average | J | 0.717 | 0.330 | 1.00 | mg/L | 1 | TSM | 05/16/13 | 2355 | 1302095 | 1 |
| Nutrient Analysis | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl (TKN) "As Received" | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | U | ND | 0.033 | 0.100 | mg/L | 1 | KLP1 | 05/30/13 | 1138 | 1302893 | 2 |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 351.2 Prep | EPA 351.2 Total Kjeldahl Nitrogen Prep | KLP1 | 05/29/13 | 1700 | 1302892 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | SW846 9060 | |
| 2 | EPA 351.2 | |

**Notes:**

# GEL LABORATORIES LLC

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## Certificate of Analysis

Report Date: June 6, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-841

Client Sample ID: CAMO-13-30599
Sample ID: 325739002
Matrix: W
Collect Date: 13-MAY-13 14:10
Receive Date: 15-MAY-13
Collector: Client
Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Conductivity Analysis | | | | | | | | | | | |
| EPA120.1 Specific Conductivity "As Received" | | | | | | | | | | | |
| Conductivity | | 136 | 1.00 | 1.00 | umhos/cm | 1 | LXA1 | 05/31/13 | 1559 | 1305069 | 1 |
| Electrode Analysis | | | | | | | | | | | |
| EPA 150.1 pH "As Received" | | | | | | | | | | | |
| pH at Temp 9.50C | H | 7.98 | 0.010 | 0.100 | SU | 1 | LYG1 | 05/20/13 | 0855 | 1302797 | 2 |
| Ion Chromatography | | | | | | | | | | | |
| EPA 300.0 Anions Liquid 28 day "As Received" | | | | | | | | | | | |
| Bromide | U | ND | 0.067 | 0.200 | mg/L | 1 | MAR1 | 06/04/13 | 0430 | 1301913 | 3 |
| Chloride | | 2.22 | 0.067 | 0.200 | mg/L | 1 | | | | | |
| Fluoride | | 0.423 | 0.033 | 0.100 | mg/L | 1 | | | | | |
| Sulfate | | 2.61 | 0.133 | 0.400 | mg/L | 1 | | | | | |
| Nutrient Analysis | | | | | | | | | | | |
| EPA 350.1 Nitrogen, Ammonia L "As Received" | | | | | | | | | | | |
| Nitrogen, Ammonia | U | ND | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/28/13 | 1026 | 1302059 | 4 |
| EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received" | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | 0.407 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/29/13 | 1626 | 1302060 | 5 |
| EPA 365.4 Phosphorus, Total in "As Received" | | | | | | | | | | | |
| Phosphorus, Total as P | U | ND | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/30/13 | 1346 | 1302885 | 6 |
| Solids Analysis | | | | | | | | | | | |
| EPA 160.1 Solids, Dissolved-F "As Received" | | | | | | | | | | | |
| Total Dissolved Solids | | 107 | 3.40 | 14.3 | mg/L | | LYG1 | 05/16/13 | 0753 | 1302093 | 7 |
| Titration Analysis | | | | | | | | | | | |
| EPA 310.1 Total Alkalinity "As Received" | | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | 60.9 | 0.725 | 1.00 | mg/L | | LXA1 | 05/21/13 | 1557 | 1303137 | 8 |
| Carbonate alkalinity (CaCO3) | U | ND | 0.725 | 1.00 | mg/L | | | | | | |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 350.2 Prep | EPA 350.1 Ammonia Nitrogen Prep | KLP1 | 05/28/13 | 0800 | 1302058 |
| EPA 365.4 Prep | EPA 365.4 Phosphorus, Total in liquid PR | KLP1 | 05/29/13 | 1700 | 1302884 |

# GEL LABORATORIES LLC

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## Certificate of Analysis

Report Date: June 6, 2013

| | | | |
|---|---|---|---|
| Company : | Los Alamos National Laboratory | | |
| Address : | PO Box 1663<br>TA-03, SM271, Drop Pt. 02U, Rm111<br>Los Alamos, New Mexico 87545 | | |
| Contact: | Keith Greene | Client SDG: | 2013-841 |
| Project: | LANL-WQH Water Samples | | |

| | | | |
|---|---|---|---|
| Client Sample ID: | CAMO-13-30599 | Project: | ESHL00210 |
| Sample ID: | 325739002 | Client ID: | ARSL001 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | EPA 120.1 | |
| 2 | EPA 150.1 | |
| 3 | EPA 300.0 | |
| 4 | EPA 350.1 | |
| 5 | EPA 353.2 | |
| 6 | EPA 365.4 | |
| 7 | EPA 160.1 | |
| 8 | EPA 310.1 | |

**Notes:**

# Quality Control Summary

# GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

## QC Summary

**Report Date: June 6, 2013**


**Los Alamos National Laboratory**
**PO Box 1663**
**TA-03, SM271, Drop Pt. 02U, Rm111**
**Los Alamos, New Mexico**

**Contact:** **Keith Greene**

**Workorder:** **325739**

| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Carbon Analysis** | | | | | | | | | | | | |
| Batch 1302095 | | | | | | | | | | | | |
| QC1202876781 325479001 DUP | | | | | | | | | | | | |
| Total Organic Carbon Average | | J | 0.510 | J | 0.511 | mg/L | 0.196 | ^ | | (+/-1.00) | TSM | 05/16/13 16:57 |
| QC1202876785 LCS | | | | | | | | | | | | |
| Total Organic Carbon Average | 10.0 | | | | 9.70 | mg/L | | | 97 | (85%-115%) | | 05/16/13 16:15 |
| QC1202876780 MB | | | | | | | | | | | | |
| Total Organic Carbon Average | | | | U | ND | mg/L | | | | | | 05/16/13 16:06 |
| QC1202876783 325479001 PS | | | | | | | | | | | | |
| Total Organic Carbon Average | 10.0 | J | 0.510 | | 10.4 | mg/L | | | 99 | (65%-120%) | | 05/16/13 17:16 |
| **Conductivity Analysis** | | | | | | | | | | | | |
| Batch 1305069 | | | | | | | | | | | | |
| QC1202884560 325649002 DUP | | | | | | | | | | | | |
| Conductivity | | | 135 | | 137 | umhos/cm | 1.91 | | | (0%-10%) | LXA1 | 05/31/13 15:56 |
| QC1202884559 LCS | | | | | | | | | | | | |
| Conductivity | 1410 | | | | 1450 | umhos/cm | | | 102 | (95%-105%) | | 05/31/13 15:54 |
| **Electrode Analysis** | | | | | | | | | | | | |
| Batch 1302797 | | | | | | | | | | | | |
| QC1202878491 325736002 DUP | | | | | | | | | | | | |
| pH | | H | 7.98 | H | 8.01 | SU | 0.375 | | | (0%-10%) | LYG1 | 05/20/13 08:50 |
| QC1202878493 LCS | | | | | | | | | | | | |
| pH | 7.00 | | | | 6.96 | SU | | | 99.4 | (99%-101%) | | 05/20/13 08:39 |
| **Ion Chromatography** | | | | | | | | | | | | |
| Batch 1301913 | | | | | | | | | | | | |
| QC1202876345 325736002 DUP | | | | | | | | | | | | |
| Bromide | | J | 0.102 | J | 0.098 | mg/L | 4.20 | ^ | | (+/-0.200) | MAR1 | 06/04/13 03:00 |
| Chloride | | | 6.31 | | 6.65 | mg/L | 5.21 | | | (0%-20%) | | |
| Fluoride | | | 0.418 | | 0.446 | mg/L | 6.41 | ^ | | (+/-0.100) | | |
| Sulfate | | | 15.4 | | 15.8 | mg/L | 3.18 | | | (0%-20%) | | |
| QC1202876347 LCS | | | | | | | | | | | | |
| Bromide | 1.25 | | | | 1.30 | mg/L | | | 104 | (90%-110%) | | 06/04/13 01:31 |

## QC Summary

**Workorder: 325739**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Ion Chromatography** | | | | | | | | | | | |
| Batch 1301913 | | | | | | | | | | | |
| Chloride | 5.00 | | | | 5.36 | mg/L | | 107 | (90%-110%) | MAR1 | 06/04/13 01:31 |
| Fluoride | 2.50 | | | | 2.66 | mg/L | | 106 | (90%-110%) | | |
| Sulfate | 10.0 | | | | 10.5 | mg/L | | 105 | (90%-110%) | | |
| QC1202876344 MB | | | | | | | | | | | |
| Bromide | | | | U | ND | mg/L | | | | | 06/04/13 01:01 |
| Chloride | | | | U | ND | mg/L | | | | | |
| Fluoride | | | | U | ND | mg/L | | | | | |
| Sulfate | | | | U | ND | mg/L | | | | | |
| QC1202876346 325736002 PS | | | | | | | | | | | |
| Bromide | 1.25 | J | 0.102 | | 1.36 | mg/L | | 101 | (90%-110%) | | 06/04/13 03:30 |
| Chloride | 5.00 | | 6.31 | | 12.0 | mg/L | | 113* | (90%-110%) | | |
| Fluoride | 2.50 | | 0.418 | | 3.01 | mg/L | | 104 | (90%-110%) | | |
| Sulfate | 10.0 | | 15.4 | | 26.8 | mg/L | | 114* | (90%-110%) | | |
| **Nutrient Analysis** | | | | | | | | | | | |
| Batch 1302059 | | | | | | | | | | | |
| QC1202876695 325649002 DUP | | | | | | | | | | | |
| Nitrogen, Ammonia | | | 0.0529 | J | 0.0472 | mg/L | 11.4 ^ | | (+/-0.050) | KLP1 | 05/28/13 10:12 |
| QC1202876696 325649004 DUP | | | | | | | | | | | |
| Nitrogen, Ammonia | | J | 0.0394 | J | 0.0394 | mg/L | 0.00 ^ | | (+/-0.050) | | 05/28/13 10:14 |
| QC1202876699 LCS | | | | | | | | | | | |
| Nitrogen, Ammonia | 1.00 | | | | 1.07 | mg/L | | 107 | (90%-110%) | | 05/28/13 10:01 |
| QC1202876694 MB | | | | | | | | | | | |
| Nitrogen, Ammonia | | | | J | 0.0186 | mg/L | | | | | 05/28/13 10:00 |
| QC1202876697 325649002 MS | | | | | | | | | | | |
| Nitrogen, Ammonia | 1.00 | | 0.0529 | | 1.06 | mg/L | | 101 | (90%-110%) | | 05/28/13 10:12 |
| QC1202876698 325649004 MS | | | | | | | | | | | |
| Nitrogen, Ammonia | 1.00 | J | 0.0394 | | 1.11 | mg/L | | 107 | (90%-110%) | | 05/28/13 10:15 |

## QC Summary

**Workorder: 325739**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Nutrient Analysis** | | | | | | | | | | | |
| Batch 1302060 | | | | | | | | | | | |
| QC1202876701 325649002 DUP | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | | 0.986 | | 0.986 | mg/L | 0.00 | | (0%-20%) | KLP1 | 05/29/13 15:53 |
| QC1202876702 325649004 DUP | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | | 0.565 | | 0.564 | mg/L | 0.177 | | (0%-20%) | | 05/29/13 15:56 |
| QC1202876705 LCS | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | 1.00 | | | | 0.975 | mg/L | | 97.5 | (90%-110%) | | 05/29/13 15:43 |
| QC1202876700 MB | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | | | U | ND | mg/L | | | | | 05/29/13 15:42 |
| QC1202876703 325649002 PS | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | 1.00 | | 0.986 | | 1.92 | mg/L | | 93.4 | (90%-110%) | | 05/29/13 15:54 |
| QC1202876704 325649004 PS | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | 1.00 | | 0.565 | | 1.49 | mg/L | | 92.5 | (90%-110%) | | 05/29/13 15:58 |
| Batch 1302885 | | | | | | | | | | | |
| QC1202878750 325736002 DUP | | | | | | | | | | | |
| Phosphorus, Total as P | | J | 0.0492 | J | 0.0253 | mg/L | 64.2 ^ | | (+/-0.050) | KLP1 | 05/30/13 13:43 |
| QC1202878753 LCS | | | | | | | | | | | |
| Phosphorus, Total as P | 1.00 | | | | 0.995 | mg/L | | 99.5 | (76%-120%) | | 05/30/13 13:42 |
| QC1202878748 MB | | | | | | | | | | | |
| Phosphorus, Total as P | | | | U | ND | mg/L | | | | | 05/30/13 13:41 |
| QC1202878752 325736002 MS | | | | | | | | | | | |
| Phosphorus, Total as P | 1.00 | J | 0.0492 | | 1.19 | mg/L | | 114 | (62%-139%) | | 05/30/13 13:44 |
| Batch 1302893 | | | | | | | | | | | |
| QC1202878783 325733001 DUP | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | | 0.183 | J | 0.081 | mg/L | 77.3*^ | | (+/-0.100) | KLP1 | 05/30/13 11:35 |
| QC1202878784 326427001 DUP | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | | 0.388 | | 0.373 | mg/L | 3.94 ^ | | (+/-0.100) | | 05/30/13 11:51 |
| QC1202878787 LCS | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | | | | 0.967 | mg/L | | 96.7 | (90%-110%) | | 05/30/13 11:33 |
| QC1202878782 MB | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | | | U | ND | mg/L | | | | | 05/30/13 11:32 |
| QC1202878785 325733001 MS | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | | 0.183 | | 1.17 | mg/L | | 98.7 | (90%-110%) | | 05/30/13 11:35 |
| QC1202878786 326427001 MS | | | | | | | | | | | |

## QC Summary

**Workorder: 325739**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Nutrient Analysis** | | | | | | | | | | |
| Batch 1302893 | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | 0.388 | | 1.54 | mg/L | | 115* | (90%-110%) | | 05/30/13 11:52 |
| **Solids Analysis** | | | | | | | | | | |
| Batch 1302093 | | | | | | | | | | |
| QC1202876774 325736004 DUP | | | | | | | | | | |
| Total Dissolved Solids | | 204 | | 206 | mg/L | 0.697 | | (0%-10%) | LYG1 | 05/16/13 07:53 |
| QC1202876775 LCS | | | | | | | | | | |
| Total Dissolved Solids | 300 | | | 291 | mg/L | | 97.1 | (95%-105%) | | 05/16/13 07:53 |
| QC1202876773 MB | | | | | | | | | | |
| Total Dissolved Solids | | | U | ND | mg/L | | | | | 05/16/13 07:53 |
| **Titration Analysis** | | | | | | | | | | |
| Batch 1303137 | | | | | | | | | | |
| QC1202879526 325643002 DUP | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | 59.9 | | 59.4 | mg/L | 0.851 | | (0%-20%) | LXA1 | 05/21/13 14:55 |
| Carbonate alkalinity (CaCO3) | U | ND | U | ND | mg/L | N/A | | | | |
| QC1202879523 LCS | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | 50.0 | | | 51.8 | mg/L | | 104 | (90%-110%) | | 05/21/13 12:19 |
| QC1202879527 325643002 MS | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | 50.0 | 59.9 | | 109 | mg/L | | 98.5 | (80%-120%) | | 05/21/13 14:58 |

**Notes:**

| | |
|---|---|
| ** | Analyte is a surrogate compound |
| < | Result is less than value reported |
| > | Result is greater than value reported |
| A | The TIC is a suspected aldol-condensation product |
| B | The target analyte was detected in the associated blank. |
| C | Analyte has been confirmed by GC/MS analysis |
| D | Results are reported from a diluted aliquot of the sample |
| E | %difference of sample and SD is >10%. Sample concentration must meet flagging criteria |
| E | Concentration of the target analyte exceeds the instrument calibration range |
| E | General Chemistry--Concentration of the target analyte exceeds the instrument calibration range |
| FB | Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies |
| H | Analytical holding time was exceeded |
| J | Value is estimated |

## QC Summary

**Workorder:** **325739**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|

| | |
|---|---|
| JNX | Non Calibrated Compound |
| N | Metals--The Matrix spike sample recovery is not within specified control limits |
| N | Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N | Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N/A | RPD or %Recovery limits do not apply. |
| N1 | See case narrative |
| ND | Analyte concentration is not detected above the detection limit |
| NJ | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| P | Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70% |
| Q | One or more quality control criteria have not been met. Refer to the applicable narrative or DER. |
| R | Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes. |
| R | Sample results are rejected |
| U | Analyte was analyzed for, but not detected above the MDL, MDA, or LOD. |
| UJ | Compound cannot be extracted |
| X | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| Y | Other specific qualifiers were required to properly define the results. Consult case narrative. |
| Y | QC Samples were not spiked with this compound |
| Z | Paint Filter Test--Particulates passed through the filter, however no free liquids were observed. |
| ^ | RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry. |
| d | 5-day BOD--The 2:1 depletion requirement was not met for this sample |
| h | Preparation or preservation holding time was exceeded |

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

# Miscellaneous

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 21-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| ELECTRODE | EPA 150.1 | Liquid | BETT, ESHL, GELC, UCOR |
| **Batch ID:** | **Sample Numbers:** | | |
| 1302797 | See below. | | |

**Potentially affected work order(s)(SDG):** **325724,325736(2013-840),325739(2013-841),325752,325759,325847(2013-847),325922(2013-855),325923(2013-856),326018(2013-865),326020(2013-866)**

**Application Issues:**

Sample received out of holding

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Sample received out of holding:<br>325724 001,002<br>325736 002,004<br>325739 002<br>325752 002,006,010<br>325759 007,013,019,025,031<br>325847 002<br>325922 002<br>325923 002<br>326018 002<br>326020 002 | 1. Samples were received out of holding. |

**Originator's Name:**
Lisa Gregory 22-MAY-13

**Data Validator/Group Leader:**
Julia Hamilton 29-MAY-13

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 30-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| LACHAT Flow Injection Analyzer | EPA 351.2 | Liquid | BETT, ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1302893 | See below. | | |

**Potentially affected work order(s)(SDG):** **325733(2013-838),325736(2013-840),325739(2013-841),325752,325847(2013-847),325922(2013-855),325923(2013-856),326018(2013-865),326056(2013-868),326427(2013-887)**

**Application Issues:**

Failed Recovery for MS/PS

Failed RPD for DUP

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed Recovery for MS:<br>QC 1202878786MS<br>2. Failed RPD for DUP:<br>QC 1202878783DUP | 1. The spike recovery falls outside of the GEL acceptance limits but within the client specified limits.<br>2. The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample. |

**Originator's Name:**

Kristen Parson 30-MAY-13

**Data Validator/Group Leader:**

Julia Hamilton 30-MAY-13

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 04-JUN-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| IC | EPA 300.0 | Liquid | ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1301913 | See Below | | |

**Potentially affected work order(s)(SDG): 325733(2013-838),325736(2013-840),325739(2013-841)**

**Application Issues:**

Failed Recovery for MS/PS

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed Recovery for MS/PS:<br><br>QC 1202876346PS | 1. The MS/PS mixture contains seven anions of interest. Of those, all requested anions except chloride and sulfate met normal acceptance criteria for recovery (90 - 110%). This failure is attributed to the matrix of the sample because the successful recovery of the other compounds indicate that the laboratory process was in control. This variance is judged to have no negative impact on the data. The deviation is noted in the Case Narrative and DER, and the data has been reported. |

**Originator's Name:**

Mary Sherwood 05-JUN-13

**Data Validator/Group Leader:**

Virginia Wininger 05-JUN-13

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

# Chain of Custody/Analysis Request

COC/Lab Request #: 2013-840



**Client Contact:**

**Lab Agreement # :** 126310011

**Project Number :**

**Analysis Turnaround Time:**

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

**Site Name:** Los Alamos National Laboratory

**Rad Screening Info:** Yes, Below Background

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | WSP-CL04 | WSP-GENINORG | WSP-Met+B+SN+SR+U | WSP-NH3+NO3/NO2+PO4 | WSP-TKN+TOC | Special Instructions: |
|---|---|---|---|---|---|---|---|---|---|
| CASA-13-30542 | May 13 2013 | 13:49 | W | | | | | 1 | |
| CASA-13-30550 | May 13 2013 | 13:49 | W | 1 | 1 | 1 | 1 | | |
| CASA-13-30540 | May 13 2013 | 13:49 | W | | | | | 1 | |
| CASA-13-30541 | May 13 2013 | 13:49 | W | 1 | 1 | 1 | 1 | | |

Special Instructions:

| | | | |
|---|---|---|---|
| Relinquished by: Melissa Montoya | | Date/Time: 5/14/13 3:00 | Received by: |
| Relinquished by: | | Date/Time: | Received by: |
| Relinquished by: | | Date/Time: | Received by: |

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4194

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_SANDIA

**SAMPLE ID:** CASA-13-30540

**WORK ORDER:**

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| **DATE COLLECTED (MM/DD/YYYY):** | | 05/13/2013 | **FIELD MATRIX:** | WG | ok |
| **TIME COLLECTED (HH:MM):** | | 1349 | **MEDIA:** | UA | ↓ |
| **PRS ID:** | | ok | **SAMPLE TECH CODE:** | UA | GSF |
| **LOCATION ID:** | R-11 | ↓ | **FIELD PREP:** | UF | ok |
| **LOCATION TYPE:** | | ↓ | **FIELD QC TYPE:** | FD | ↓ |
| **PORT:** | SINGLE COMPLETION | ↓ | **SAMPLE USAGE:** | QC | ↓ |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-TKN+TOC | 500 ML AMBER GLASS | 1 | H2SO4 | Y | NA |

**SAMPLE COMMENTS:**

NA

**LOCATION COMMENTS:**

NA

**FIELD PARAMETERS:**

Dissolved Oxygen NA mg/L Oxidation-Reduction Potential NA MV pH NA SU

Specific Conductance NA uS/cm Temperature NA deg C Turbidity NA NTU

**COLLECTED BY (PRINT)** W. Shaw

| | | | |
|---|---|---|---|
| **RELINQUISHED BY (Printed Name) (Signature)** | **Date/Time** 5/13/13 1430 | **RECEIVED BY (Printed Name) (Signature)** | **Date/Time** 5/13/13 1430 |
| **RELINQUISHED BY (Printed Name) (Signature)** | **Date/Time** | **RECEIVED BY (Printed Name) (Signature)** | **Date/Time** |

Report Date 04/30/2013

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4194

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_SANDIA

**SAMPLE ID:** CASA-13-30541

**WORK ORDER:**

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | 05/13/2013 | FIELD MATRIX: | WG | ok |
| TIME COLLECTED (HH:MM): | | 1349 | MEDIA: | UA | ↓ |
| PRS ID: | | ok | SAMPLE TECH CODE: | UA | GSP |
| LOCATION ID: | R-11 | ↓ | FIELD PREP: | F | ok |
| LOCATION TYPE: | | ↓ | FIELD QC TYPE: | FD | ↓ |
| PORT: | SINGLE COMPLETION | ↓ | SAMPLE USAGE: | QC | ↓ |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-CL04 | 250 ML POLY | 1 | ICE | Y | NA |
| ↓ | WSP-GENINORG | 1 LITER POLY | 1 | ICE | ↓ | ↓ |
| ↓ | WSP-Met+B+SN+SR+U | 1 LITER POLY | 1 | HNO3 | ↓ | ↓ |
| ↓ | WSP-NH3+NO3/NO2+PO4 | 500 ML AMBER GLASS | 1 | H2SO4 | ↓ | ↓ |

**SAMPLE COMMENTS:**

NA

**LOCATION COMMENTS:**

NA

**FIELD PARAMETERS:**

Dissolved Oxygen NA mg/L  Oxidation-Reduction Potential NA MV  pH NA SU

Specific Conductance NA uS/cm  Temperature NA deg C  Turbidity NA NTU

**COLLECTED BY (PRINT)** W. Stan

| RELINQUISHED BY | Date/Time | RECEIVED BY | Date/Time |
|---|---|---|---|
| (Printed Name) Andrew Stokes<br>(Signature) | 5/13/13 1430 | (Printed Name) S. Sherwood<br>(Signature) Sherwood | 5/13/13 1430 |
| **RELINQUISHED BY**<br>(Printed Name)<br>(Signature) | **Date/Time** | **RECEIVED BY**<br>(Printed Name)<br>(Signature) | **Date/Time** |

Report Date 04/30/2013

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4194

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_SANDIA

**SAMPLE ID:** CASA-13-30542

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | 05/13/2013 | FIELD MATRIX: | WG | ok |
| TIME COLLECTED (HH:MM): | | 1349 | MEDIA: | UA | |
| PRS ID: | | ok | SAMPLE TECH CODE: | UA | GSP |
| LOCATION ID: | R-11 | | FIELD PREP: | UF | ok |
| LOCATION TYPE: | MON | | FIELD QC TYPE: | REG | |
| PORT: | SINGLE COMPLETION | | SAMPLE USAGE: | INV | |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-TKN+TOC | 500 ML AMBER GLASS | 1 | H2SO4 | Y | NA |

**SAMPLE COMMENTS:**

NA

**LOCATION COMMENTS:**

diesel generator running 40'

**FIELD PARAMETERS:**

Dissolved Oxygen 7.45 mg/L Oxidation-Reduction Potential 190.7 MV pH 7.96 SU

Specific Conductance 237 uS/cm Temperature 22.54 deg C Turbidity 0.4 NTU

**COLLECTED BY (PRINT)** W. Shaw

| RELINQUISHED BY (Printed Name) (Signature) | Date/Time | RECEIVED BY (Printed Name) (Signature) | Date/Time |
|---|---|---|---|
| Andrew Shaw | 5/13/13 1430 | S. Sherwood Sherri Sherwood | 5/13/13 1430 |
| RELINQUISHED BY (Printed Name) (Signature) | Date/Time | RECEIVED BY (Printed Name) (Signature) | Date/Time |

Report Date 04/30/2013

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4194

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_SANDIA

**SAMPLE ID:** CASA-13-30550

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | 05/13/2013 | FIELD MATRIX: | WG | ok |
| TIME COLLECTED (HH:MM): | | 1349 | MEDIA: | UA | |
| PRS ID: | | ok | SAMPLE TECH CODE: | UA | GSP |
| LOCATION ID: | R-11 | | FIELD PREP: | F | ok |
| LOCATION TYPE: | MON | | FIELD QC TYPE: | REG | |
| PORT: | SINGLE COMPLETION | | SAMPLE USAGE: | INV | |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-CL04 | 250 ML POLY | 1 | ICE | Y | NA |
| | WSP-GENINORG | 1 LITER POLY | 1 | ICE | | |
| | WSP-Met+B+SN+SR+U | 1 LITER POLY | 1 | HNO3 | | |
| | WSP-NH3+NO3/NO2+PO4 | 500 ML AMBER GLASS | 1 | H2SO4 | | |

**SAMPLE COMMENTS:**

NA

**LOCATION COMMENTS:**

NA

**FIELD PARAMETERS:**

Dissolved Oxygen NA mg/L  Oxidation-Reduction Potential NA MV  pH NA SU

Specific Conductance NA uS/cm  Temperature NA deg C  Turbidity NA NTU

**COLLECTED BY (PRINT)** W. Stan

| RELINQUISHED BY | Date/Time | RECEIVED BY | Date/Time |
|---|---|---|---|
| (Printed Name) Andrew Stefan | 5/13/13 1430 | (Printed Name) S. Sherwood | 5/13/13 1430 |
| (Signature) | | (Signature) Sherwood | |
| **RELINQUISHED BY** | **Date/Time** | **RECEIVED BY** | **Date/Time** |
| (Printed Name) | | (Printed Name) | |
| (Signature) | | (Signature) | |

Report Date 04/30/2013

Data Validation Report

Chain Of Custody No. 2013-840

**1. Distribution Of Samples In EDD.**

| SDG | Analytical Method | Regular Samples | Field Duplicates | Trip Blanks | Field Blanks | Equipment Blanks |
|---|---|---|---|---|---|---|
| 325736 | EPA:120.1 | 1 | 1 | | | |
| 325736 | EPA:150.1 | 1 | 1 | | | |
| 325736 | EPA:160.1 | 1 | 1 | | | |
| 325736 | EPA:245.2 | 1 | 1 | | | |
| 325736 | EPA:300.0 | 1 | 1 | | | |
| 325736 | EPA:310.1 | 1 | 1 | | | |
| 325736 | EPA:350.1 | 1 | 1 | | | |
| 325736 | EPA:351.2 | 1 | 1 | | | |
| 325736 | EPA:353.2 | 1 | 1 | | | |
| 325736 | EPA:365.4 | 1 | 1 | | | |
| 325736 | SM:A2340B | 1 | 1 | | | |
| 325736 | SW-846:6010B | 1 | 1 | | | |
| 325736 | SW-846:6020 | 1 | 1 | | | |
| 325736 | SW-846:6850 | 1 | 1 | | | |
| 325736 | SW-846:9060 | 1 | 1 | | | |

| SDG | Analytical Method | Analysis Lot ID | Prep Lot ID | Regular Samples | Field Duplicates | Trip Blanks | Field Blanks | Equipment Blanks | Method Blanks | Matrix Spikes | Matrix Spike Dups |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 325736 | EPA:120.1 | 1305069 | 1305069 | 1 | 1 | | | | | | |
| 325736 | EPA:150.1 | 1302797 | 1302797 | 1 | 1 | | | | | | |
| 325736 | EPA:160.1 | 1302093 | 1302093 | 1 | 1 | | | | 1 | | |
| 325736 | EPA:245.2 | 1302867 | 1302865 | 1 | 1 | | | | 1 | 2 | |
| 325736 | EPA:300.0 | 1301913 | 1301913 | 1 | 1 | | | | 1 | | |
| 325736 | EPA:310.1 | 1303137 | 1303137 | 1 | 1 | | | | 2 | 1 | |
| 325736 | EPA:350.1 | 1302059 | 1302058 | 1 | 1 | | | | 1 | 2 | |
| 325736 | EPA:351.2 | 1302893 | 1302892 | 1 | 1 | | | | 1 | 2 | |
| 325736 | EPA:353.2 | 1302060 | 1302060 | 1 | 1 | | | | 1 | | |
| 325736 | EPA:365.4 | 1302885 | 1302884 | 1 | 1 | | | | 1 | 1 | |
| 325736 | SM:A2340B | 1306981 | 1306981 | 1 | 1 | | | | | | |
| 325736 | SW-846:6010B | 1304837 | 1304836 | 1 | 1 | | | | 1 | 1 | |
| 325736 | SW-846:6020 | 1304840 | 1304838 | 1 | 1 | | | | 1 | 1 | |
| 325736 | SW-846:6850 | 1302799 | 1302798 | 1 | 1 | | | | 1 | 2 | 2 |
| 325736 | SW-846:9060 | 1302095 | 1302095 | 1 | 1 | | | | 1 | | |

**2. Distribution Of Analytes In EDD.**

| Analytical Method | Method Category | Field Sample ID | Lab Sample ID | Sample Purpose | Target Analytes | Surrogates | Spikes | TICS |
|---|---|---|---|---|---|---|---|---|
| EPA:120.1 | GENERAL CHEMISTRY | CAMO-13-30594 | 1202884560 | DUP | 1 | 0 | 0 | 0 |
| EPA:120.1 | GENERAL CHEMISTRY | CASA-13-30541 | 325736004 | FD | 1 | 0 | 0 | 0 |
| EPA:120.1 | GENERAL CHEMISTRY | CASA-13-30550 | 325736002 | REG | 1 | 0 | 0 | 0 |
| EPA:120.1 | GENERAL CHEMISTRY | LCS | 1202884559 | LCS | 0 | 0 | 1 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | CASA-13-30541 | 325736004 | FD | 1 | 0 | 0 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | CASA-13-30550 | 1202878491 | DUP | 1 | 0 | 0 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | CASA-13-30550 | 325736002 | REG | 1 | 0 | 0 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | LCS | 1202878493 | LCS | 0 | 0 | 1 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | CASA-13-30541 | 1202876774 | DUP | 1 | 0 | 0 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | CASA-13-30541 | 325736004 | FD | 1 | 0 | 0 | 0 |

Data Validation Report for:

Chain Of Custody No. 2013-840

| Analytical Spikes | Post-Digestion Spikes | Lab Control Samples | Lab Control Sample Dups | Blank Spikes | Blank Spike Dups | Lab Duplicates | Storage Blanks | Preparation Blanks | Reagent Blanks |
|---|---|---|---|---|---|---|---|---|---|
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 2 | | | |
| | | 1 | | | | 1 | | | |
| | | 2 | | | | 1 | | | |
| | | 1 | | | | 2 | | | |
| | | 1 | | | | 2 | | | |
| | | 1 | | | | 2 | | | |
| | | 1 | | | | 1 | | | |
| | | | | | | | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | | | | |
| | | 1 | | | | 1 | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| EPA:160.1 | GENERAL CHEMISTRY | CASA-13-30550 | 325736002 | REG | 1 | 0 | 0 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | LCS | 1202876775 | LCS | 0 | 0 | 1 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | MB | 1202876773 | MB | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30620 | 1202878704 | DUP | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30620 | 1202878708 | MS | 0 | 0 | 1 | 0 |
| EPA:245.2 | INORGANIC | CASA-13-30541 | 325736004 | FD | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CASA-13-30550 | 325736002 | REG | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CASA-13-30555 | 1202878705 | DUP | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CASA-13-30555 | 1202878709 | MS | 0 | 0 | 1 | 0 |
| EPA:245.2 | INORGANIC | LCS | 1202878710 | LCS | 0 | 0 | 1 | 0 |
| EPA:245.2 | INORGANIC | MB | 1202878703 | MB | 1 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | CASA-13-30541 | 325736004 | FD | 4 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | CASA-13-30550 | 1202876345 | DUP | 4 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | CASA-13-30550 | 325736002 | REG | 4 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | LCS | 1202876347 | LCS | 0 | 0 | 4 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | MB | 1202876344 | MB | 4 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CAMO-13-30598 | 1202879526 | DUP | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CAMO-13-30598 | 1202879527 | MS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CASA-13-30541 | 325736004 | FD | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CASA-13-30550 | 325736002 | REG | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | LCS | 1202879523 | LCS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | LCS | 1202880029 | LCS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | MB | 1202879522 | MB | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | MB | 1202880028 | MB | 2 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30594 | 1202876695 | DUP | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30594 | 1202876697 | MS | 0 | 0 | 1 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30595 | 1202876696 | DUP | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30595 | 1202876698 | MS | 0 | 0 | 1 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CASA-13-30541 | 325736004 | FD | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CASA-13-30550 | 325736002 | REG | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | LCS | 1202876699 | LCS | 0 | 0 | 1 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | MB | 1202876694 | MB | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-31070 | 1202878783 | DUP | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-31070 | 1202878785 | MS | 0 | 0 | 1 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CASA-13-30540 | 325736003 | FD | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CASA-13-30542 | 325736001 | REG | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | LCS | 1202878787 | LCS | 0 | 0 | 1 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | MB | 1202878782 | MB | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | SWWS46-13-33497 | 1202878784 | DUP | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | SWWS46-13-33497 | 1202878786 | MS | 0 | 0 | 1 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CAMO-13-30594 | 1202876701 | DUP | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CAMO-13-30595 | 1202876702 | DUP | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CASA-13-30541 | 325736004 | FD | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CASA-13-30550 | 325736002 | REG | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | LCS | 1202876705 | LCS | 0 | 0 | 1 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | MB | 1202876700 | MB | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CASA-13-30541 | 325736004 | FD | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CASA-13-30550 | 1202878750 | DUP | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CASA-13-30550 | 1202878752 | MS | 0 | 0 | 1 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CASA-13-30550 | 325736002 | REG | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | LCS | 1202878753 | LCS | 0 | 0 | 1 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | MB | 1202878748 | MB | 1 | 0 | 0 | 0 |
| SM:A2340B | INORGANIC | CASA-13-30541 | 325736004 | FD | 1 | 0 | 0 | 0 |
| SM:A2340B | INORGANIC | CASA-13-30550 | 325736002 | REG | 1 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30594 | 1202883951 | DUP | 17 | 0 | 0 | 0 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| SW-846:6010B | INORGANIC | CAMO-13-30594 | 1202883952 | MS | 0 | 0 | 17 | 0 |
| SW-846:6010B | INORGANIC | CASA-13-30541 | 325736004 | FD | 17 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | CASA-13-30550 | 325736002 | REG | 17 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | LCS | 1202883950 | LCS | 0 | 0 | 17 | 0 |
| SW-846:6010B | INORGANIC | MB | 1202883949 | MB | 17 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30594 | 1202883956 | DUP | 11 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30594 | 1202883957 | MS | 0 | 0 | 11 | 0 |
| SW-846:6020 | INORGANIC | CASA-13-30541 | 325736004 | FD | 11 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | CASA-13-30550 | 325736002 | REG | 11 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | LCS | 1202883955 | LCS | 0 | 0 | 11 | 0 |
| SW-846:6020 | INORGANIC | MB | 1202883954 | MB | 11 | 0 | 0 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | CAMO-13-30600 | 1202878496 | MS | 0 | 0 | 1 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | CAMO-13-30600 | 1202878497 | MSD | 0 | 0 | 1 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | CASA-13-30541 | 325736004 | FD | 1 | 0 | 0 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | CASA-13-30550 | 325736002 | REG | 1 | 0 | 0 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | LCS | 1202878495 | LCS | 0 | 0 | 1 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | MB | 1202878494 | MB | 1 | 0 | 0 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | SWWS46-13-33504 | 1202882336 | MS | 0 | 0 | 1 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | SWWS46-13-33504 | 1202882337 | MSD | 0 | 0 | 1 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | CAMO-13-30586 | 1202876781 | DUP | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | CASA-13-30540 | 325736003 | FD | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | CASA-13-30542 | 325736001 | REG | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | LCS | 1202876785 | LCS | 0 | 0 | 1 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | MB | 1202876780 | MB | 1 | 0 | 0 | 0 |

**3. Are any analytes missing?**

No.

**4. Were any holding times exceeded?**

No.

**5. Any contaminants in blanks?**

| Field Sample ID | Lab Sample ID | Type Of Blank | Analytical Method | Sample Matrix | Parameter Name | Lab Result | Lab Qualifier | Units | Lab Detection Limit |
|---|---|---|---|---|---|---|---|---|---|
| MB | 1202876694 | METHOD BLANK | EPA:350.1 | W | Ammonia as Nitrogen | 0.0186 | J | mg/L | 0.05 |

**Any samples affected by the presence of contaminants in blanks?**

| Field Sample ID | Blank Field Sample ID | Blank Lab Sample ID | Blank Type | Analytical Method | Parameter Name | Units | Blank Result | Sample Result | Lab Qualifier | Detect Limit | Detected |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CASA-13-30550 | MB | 1202876694 | METHOD BLANK | EPA:350.1 | Ammonia as Nitrogen | mg/L | 0.0186 | 0.0198 | J | 0.05 | Y |
| CASA-13-30541 | MB | 1202876694 | METHOD BLANK | EPA:350.1 | Ammonia as Nitrogen | mg/L | 0.0186 | 0.0448 | J | 0.05 | Y |

Data Validation Report for:

Chain Of Custody No. 2013-840

| Correction Factor (ND) | Correction Factor (J) | Use Factors |
|---|---|---|
| 5 | | Y |
| 5 | | Y |

**6. Any surrogate recoveries outside the control limits?**

No.

**7. Any MS/MSD recoveries or RPDs outside the control limits?**

| Field Sample ID | Matrix Spike ID | Matrix Spike Dup ID | Analytical Method | Parameter Name | Analysis Lot ID | Analysis Date | Sample Matrix | MS % Recvry | MSD % Recvry | Upper Limit | Lower Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SWWS46-13-33497 | 1202878786 | | EPA:351.2 | Total Kjeldahl Nitrogen | 1302892 | 5/30/2013 | W | 115 | | 110 | 90 |
| CAMO-13-30594 | 1202883952 | | SW-846:6010B | Silicon Dioxide | 1304836 | 6/6/2013 | W | 62.8 | | 125 | 75 |

**8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?**

No.

**9. Any Field Duplicate RPDs outside the desired limits?**

No.

**10. Any Lab Duplicate RPDs outside the desired limits?**

No.

**11. Any required reporting limits exceeded?**

No.

**12. Additional Validator's Coments.**

None.

**13. Display Flagged Data.**

| Location ID | Chain Of Custody No | Field Sample ID | Sample Purpose | Analysis Type Code | Analytical Suite | Analytical Method | Parameter Name | Lab Qualifier | Validation Qualifier | Validation Reason Codes | Detected |
|---|---|---|---|---|---|---|---|---|---|---|---|
| R-11 | 2013-840 | CASA-13-30541 | FD | INIT | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | J | U | I4 | N |
| R-11 | 2013-840 | CASA-13-30550 | REG | INIT | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | J | U | I4 | N |

| **Reason Code** | Description |
|---|---|
| I4 | the sample result is =<5x the concentration of related analyte in the method blank. |
| J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL |
| NQ | The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample. |
| U_LAB | The analytical laboratory qualified the analyte as not detected. |

**14. Useable Result Count.**

| Field Sample ID | Location ID | Sample Purpose | Analytical Method | No. Unuseable Records | Total No. Of Records |
|---|---|---|---|---|---|
| CASA-13-30540 | R-11 | FD | EPA:351.2 | 0 | 1 |
| CASA-13-30540 | R-11 | FD | SW-846:9060 | 0 | 1 |
| CASA-13-30541 | R-11 | FD | EPA:120.1 | 0 | 1 |

Data Validation Report for:

Chain Of Custody No. 2013-840

| Rejection Limit | RPD | RPD Limit |
|---|---|---|
| 10 | | |
| 10 | | |

| Lab Result | Lab Units | Report Result | Report Units | Report MDA | Report Uncertainty | Lab Matrix | Sample Date | Percent Moisture | Analysis Lot ID | Validation Status Code | Use Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0448 | mg/L | 0.0448 | mg/L | | | W | 5/13/2013 | | 1302059 | VAL | Y |
| 0.0198 | mg/L | 0.0198 | mg/L | | | W | 5/13/2013 | | 1302059 | VAL | Y |

| | | | | | |
|---|---|---|---|---|---|
| CASA-13-30541 | R-11 | FD | EPA:150.1 | 0 | 1 |
| CASA-13-30541 | R-11 | FD | EPA:160.1 | 0 | 1 |
| CASA-13-30541 | R-11 | FD | EPA:245.2 | 0 | 1 |
| CASA-13-30541 | R-11 | FD | EPA:300.0 | 0 | 4 |
| CASA-13-30541 | R-11 | FD | EPA:310.1 | 0 | 2 |
| CASA-13-30541 | R-11 | FD | EPA:350.1 | 0 | 1 |
| CASA-13-30541 | R-11 | FD | EPA:353.2 | 0 | 1 |
| CASA-13-30541 | R-11 | FD | EPA:365.4 | 0 | 1 |
| CASA-13-30541 | R-11 | FD | SM:A2340B | 0 | 1 |
| CASA-13-30541 | R-11 | FD | SW-846:6010B | 0 | 17 |
| CASA-13-30541 | R-11 | FD | SW-846:6020 | 0 | 11 |
| CASA-13-30541 | R-11 | FD | SW-846:6850 | 0 | 1 |
| CASA-13-30542 | R-11 | REG | EPA:351.2 | 0 | 1 |
| CASA-13-30542 | R-11 | REG | SW-846:9060 | 0 | 1 |
| CASA-13-30550 | R-11 | REG | EPA:120.1 | 0 | 1 |
| CASA-13-30550 | R-11 | REG | EPA:150.1 | 0 | 1 |
| CASA-13-30550 | R-11 | REG | EPA:160.1 | 0 | 1 |
| CASA-13-30550 | R-11 | REG | EPA:245.2 | 0 | 1 |
| CASA-13-30550 | R-11 | REG | EPA:300.0 | 0 | 4 |
| CASA-13-30550 | R-11 | REG | EPA:310.1 | 0 | 2 |
| CASA-13-30550 | R-11 | REG | EPA:350.1 | 0 | 1 |
| CASA-13-30550 | R-11 | REG | EPA:353.2 | 0 | 1 |
| CASA-13-30550 | R-11 | REG | EPA:365.4 | 0 | 1 |
| CASA-13-30550 | R-11 | REG | SM:A2340B | 0 | 1 |
| CASA-13-30550 | R-11 | REG | SW-846:6010B | 0 | 17 |
| CASA-13-30550 | R-11 | REG | SW-846:6020 | 0 | 11 |
| CASA-13-30550 | R-11 | REG | SW-846:6850 | 0 | 1 |

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178
www.gel.com

June 11, 2013

Keith Greene
Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Re: LANL-WQH Water Samples
Work Order: 325736
SDG: 2013-840

Dear Keith Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on May 15, 2013, and analyzed for General Chemistry, Metals and Perchlorates by LCMSMS. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,

for

Valerie Davis
Project Manager

Purchase Order: 63641-10
Chain of Custody: 2013-840
Enclosures

**ARS International (63641-10)**
**LANL-WQH Water Samples**
**Work Order #: 325736**
**SDG: 2013-840**

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# Case Narrative

**Case Narrative for**
**ARS International (63641-10)**
**LANL-WQH Water Samples**
**Workorder #: 325736**
**SDG # : 2013-840**

**June 11, 2013**

**Laboratory Identification:**

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

**Summary**

**Sample receipt** The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on May 15, 2013 for analysis. The samples were delivered with proper chain of custody documentation and signatures. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. Containers were checked for pH, where appropriate, and matched the preservative as documented on the accompanying chain of custody. Shipping container temperature was within specification (0 - 6C). Shipping container temperatures were checked, documented, and within specifications. There are no additional comments concerning sample receipt.

**Sample Identification** The laboratory received the following samples:

| Laboratory ID | Client ID |
|---|---|
| 325736001 | CASA-13-30542 |
| 325736002 | CASA-13-30550 |
| 325736003 | CASA-13-30540 |
| 325736004 | CASA-13-30541 |

**Case Narrative**

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

**Data Package**

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: General Chemistry, Metals and Perchlorates by LCMSMS.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.

for

Valerie Davis
Project Manager

**List of current GEL Certifications as of 11 June 2013**

| State | Certification |
|---|---|
| Alaska | UST−110 |
| Arkansas | 88−0651 |
| CLIA | 42D0904046 |
| California NELAP | 01151CA |
| Colorado | SC00012 |
| Connecticut | PH−0169 |
| Delaware | SC00012 |
| DoD ELAP A2LA ISO 17025 | 2567.01 |
| Florida NELAP | E87156 |
| Foreign Soils Permit | P330−12−00283, P330−12−00284 |
| Georgia | SC00012 |
| Georgia SDWA | 967 |
| Hawaii | SC00012 |
| Idaho | SC00012 |
| Illinois NELAP | 200029 |
| Indiana | C−SC−01 |
| Kansas NELAP | E−10332 |
| Kentucky | 90129 |
| Louisiana NELAP | 03046 (AI33904) |
| Louisiana SDWA | LA130005 |
| Maryland | 270 |
| Massachusetts | M−SC012 |
| Nevada | SC000122011−1 |
| New Hampshire NELAP | 2054 |
| New Jersey NELAP | SC002 |
| New Mexico | SC00012 |
| New York NELAP | 11501 |
| North Carolina | 233 |
| North Carolina SDWA | 45709 |
| Oklahoma | 9904 |
| Pennsylvania NELAP | 68−00485 |
| Plant Material Permit | PDEP−12−00260 |
| South Carolina Chemistry | 10120001 |
| South Carolina Radiochemi | 10120002 |
| Tennessee | TN 02934 |
| Texas NELAP | T104704235−13−8 |
| Utah NELAP | SC000122013−8 |
| Vermont | VT87156 |
| Virginia NELAP | 460202 |
| Washington | C780−12 |
| Wisconsin | 999887790 |

# Chain of Custody and Supporting Documentation

General Engineering Laboratories, Inc., Charleston, SC.
2040 Savage Rd
Charleston SC 29407

# Chain of Custody/Analysis Request

3257346

**COC/Lab Request #:** 2013-840

Page 1 of 1

**Client Contact:**

**Lab Agreement # :** 126310011

**Project Number :**

**Analysis Turnaround Time:**
24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

**Site Name:** Los Alamos National Laboratory

**Rad Screening Info:** Yes, Below Background

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | WSP-CL04 | WSP-GENINORG | WSP-Met+B+SN+SR+U | WSP-NH3+NO3/NO2+PO4 | WSP-TKN+TOC |
|---|---|---|---|---|---|---|---|---|
| CASA-13-30542 | May 13 2013 | 13:49 | W | | | | | 1 |
| CASA-13-30550 | May 13 2013 | 13:49 | W | 1 | 1 | 1 | 1 | |
| CASA-13-30540 | May 13 2013 | 13:49 | W | | | | | 1 |
| CASA-13-30541 | May 13 2013 | 13:49 | W | 1 | 1 | 1 | 1 | |

**Special Instructions:**

**Special Instructions:**

| | | | | |
|---|---|---|---|---|
| Relinquished by: Melissa Montoya | | Date/Time: 5/14/13 3:00 | Received by: | 5-15-13 0855 |
| Relinquished by: | | Date/Time: | Received by: | |
| Relinquished by: | | Date/Time: | Received by: | |

GEL Laboratories LLC

# SAMPLE RECEIPT & REVIEW FORM

| | |
|---|---|
| Client: LANL | SDG/AR/COC/Work Order: 2013-840 |
| Received By: JP | Date Received: 5-15-13 |

| Suspected Hazard Information | Yes | No | *If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation. |
|---|---|---|---|
| COC/Samples marked as radioactive? | | ✓ | Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 cpm |
| Classified Radioactive II or III by RSO? | | ✓ | If yes, Were swipes taken of sample contatiners < action levels? |
| COC/Samples marked containing PCBs? | | ✓ | |
| Package, COC, and/or Samples marked as beryllium or asbestos containing? | | ✓ | If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group. |
| Shipped as a DOT Hazardous? | | ✓ | Hazard Class Shipped: UN#: |
| Samples identified as Foreign Soil? | | ✓ | |

| | Sample Receipt Criteria | Yes | NA | No | Comments/Qualifiers (Required for Non-Conforming Items) |
|---|---|---|---|---|---|
| 1 | Shipping containers received intact and sealed? | ✓ | | | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 2 | Samples requiring cold preservation within (0 ≤ 6 deg. C)?* | ✓ | | | Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius 6.5 |
| 2a | Daily check performed and passed on IR temperature gun? | ✓ | | | Temperature Device Serial # 41502209 Secondary Temperature Device Serial # (If Applicable): |
| 3 | Chain of custody documents included with shipment? | ✓ | | | |
| 4 | Sample containers intact and sealed? | ✓ | | | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 5 | Samples requiring chemical preservation at proper pH? | ✓ | | | Sample ID's, containers affected and observed pH: If Preservation added, Lot#: |
| 6 | VOA vials free of headspace (defined as < 6mm bubble)? | ✓ | | | Sample ID's and containers affected: |
| 7 | Are Encore containers present? | | | ✓ | (If yes, immediately deliver to Volatiles laboratory) |
| 8 | Samples received within holding time? | ✓ | | | ID's and tests affected: |
| 9 | Sample ID's on COC match ID's on bottles? | ✓ | | | Sample ID's and containers affected: |
| 10 | Date & time on COC match date & time on bottles? | ✓ | | | Sample ID's affected: |
| 11 | Number of containers received match number indicated on COC? | ✓ | | | Sample ID's affected: |
| 12 | Are sample containers identifiable as GEL provided? | | | ✓ | |
| 13 | COC form is properly signed in relinquished/received sections? | ✓ | | | |
| 14 | ~~Carrier and tracking number.~~ | | | | Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other 5462 9833 0115-6° 5462 9833 0104-5° |

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials JP Date 5-15-13 Page 1 of 1

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 14MAY13
ACTWGT: 52.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

6

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWKO

58DC1/99983/10BC

FedEx Express

J111311060600125

WED - 15 MAY 10:30A
PRIORITY OVERNIGHT

TRK# 0201 5462 9833 0115

XX CHSA

29407
SC-US CHS

Part # 156148-434 RITZ 08/10 ©

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

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CAD: 0014176/CAFE2511

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# Data Review Qualifier Flag Definition Sheet

## Data Review Qualifier Definitions

| Qualifier | Explanation |
|---|---|
| * | A quality control analyte recovery is outside of specified acceptance criteria |
| ** | Analyte is a surrogate compound |
| < | Result is less than value reported |
| > | Result is greater than value reported |
| ^ | RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL |
| A | The TIC is a suspected aldol-condensation product |
| B | Target analyte was detected in the associated blank |
| B | Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL |
| BD | Results are either below the MDC or tracer recovery is low |
| C | Analyte has been confirmed by GC/MS analysis |
| D | Results are reported from a diluted aliquot of the sample |
| d | 5-day BOD-The 2:1 depletion requirement was not met for this sample |
| E | Organics-Concentration of the target analyte exceeds the instrument calibration range |
| E | Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria |
| H | Analytical holding time was exceeded |
| h | Preparation or preservation holding time was exceeded |
| J | Value is estimated |
| N | Metals-The Matrix spike sample recovery is not within specified control limits |
| N | Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N/A | Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more |
| ND | Analyte concentration is not detected above the reporting limit |
| UI | Gamma Spectroscopy-Uncertain identification |
| X | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| Y | QC Samples were not spiked with this compound |
| Z | Paint Filter Test-Particulates passed through the filter, however no free liquids were observed. |

# Perchlorates by LCMSMS Analysis

# Case Narrative

**Perchlorate by LC-MS/MS**
**ARS International (ARSL)**
**SDG 2013-840**

## Method/Analysis Information

| | |
|---|---|
| **Procedure:** | **Definitive Low Level Perchlorate Analysis Utilizing Liquid Chromatography-Mass Spectrometry/Mass Spectrometry (LC-MS/MS) by EPA Method 6850 Modified (6850M)** |
| Analytical Method: | SW846 6850 Modified |
| Prep Method: | SW846 6850 Modified |
| Analytical Batch Number: | 1302799 |
| Prep Batch Number: | 1302798 |

## Sample Analysis

| Sample ID | Client ID |
|---|---|
| 325736002 | CASA-13-30550 |
| 325736004 | CASA-13-30541 |
| 1202878498 | Interference Check Sample (ICS) |
| 1202878494 | Method Blank (MB) |
| 1202878495 | Laboratory Control Sample (LCS) |
| 1202878496 | 326020002(CAMO-13-30600) Matrix Spike (MS) |
| 1202878497 | 326020002(CAMO-13-30600) Matrix Spike Duplicate (MSD) |

The samples in this SDG were analyzed on an "as received" basis.

## Preparation/Analytical Method Verification

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP).

The data discussed in this narrative has been analyzed in accordance with GL-OA-E-067 REV# 10.

## Calibration Information

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

Due to software constraints, all Initial Calibration Blanks must be designated as IPB001.

**ICV Requirements**
All associated initial calibration verification standards (ICV) met the acceptance criteria.

**CCB Requirements**
All continuing calibration blanks (CCB) bracketing the analyses associated with this batch were within acceptance criteria.

**CCV Requirements**
All continuing calibration checks (CCV) requirements were met by all bracketing CCV standards.

**Low Level Standard (CRI) Requirements**
All low level calibration verification (CRI) requirements were met by all bracketing CRI standards.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Interference Check Sample (ICS)**
The ICS met all recovery acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recoveries met the acceptance limits.

**QC Sample Designation**
Client sample 326020002 (CAMO-13-30600) from SDG 2013-866 was chosen for matrix spike and matrix spike duplicate analysis.

**Matrix Spike (MS) Recovery Statement**
A low recovery for Perchlorate was observed in 1202878496 (MS). The recovery was 35% and the acceptance range is 75-125%. This may be the result of the background concentration present in the parent sample, 326020002 (CAMO-13-30600), and the need to dilute all at a 1:10 dilution prior to analysis. The data are reported with the appropriate DER.

**Matrix Spike Duplicate (MSD) Recovery Statement**
Low recoveries for Perchlorate and Perchlorate-101 were observed in 1202878497 (MSD). The recoveries were 29% and 36%, respectively. The acceptance range is 75-125%. This may be the result of the background concentration present in the parent sample, 326020002 (CAMO-13-30600), and the need to dilute all at a 1:10 dilution prior to analysis. The data are reported with the appropriate DER.

**MS/MSD Relative Percent Difference (RPD) Statement**
The RPDs between the MS and MSD met the acceptance limits.

**Retention Time Standard Area Acceptance**
The retention time standard areas were within the required acceptance criteria for all samples and QC.

**Retention Time**
During the analysis of Perchlorate by LC/MS/MS, retention time shifts are commonly observed. These retention time shifts, which are caused by fouling of the column by the sample matrices, are problematic when the retention time is used as one of the criterion for confirmation. To overcome this problem, a known amount of O(18) labeled Perchlorate was added to each sample as a retention time standard.

The presence of Perchlorate was confirmed by the relative retention time (RRT) of the Perchlorate peak and the O(18) standard. A RRT window of 0.98 to 1.02, as required by Method 332.0, has been used.

In addition to the isotopic ratio, the presence of Perchlorate in the samples associated with this data package have been confirmed using the relative retention criteria stated above, not the absolute retention time.

## Technical Information

**Holding Time Specifications**
All samples in this SDG in this analytical batch met the specified holding time. GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

**Preparation/Analytical Method Verification**
All procedures were performed as stated in the SOP.

**Sample Dilutions**
QC samples 1202878496MS (CAMO-13-30600) and 1202878497MSD (CAMO-13-30600) were diluted to bring the over range concentrations within the calibration range.

**Sample Re-extraction/Re-analysis**
The samples in this batch were initially analyzed on 05/28/13, however due to the bracketing CCVs not meeting the required acceptance criteria, the data was no valid and could not be reported. The samples were re-analyzed the following day.

Samples 325736002 (CASA-13-30550) and 325736004 (CASA-13-30541) required re-analysis due to high recovery of Perchlorate-(O)18. The samples were analyzed at a 1:2 dilution and neat. Upon review of the data, it was possible to report the neat analyses for both samples.

## Miscellaneous Information

**Data Exception (DER) Documentation**
Data Exception Report 1190616 was generated for this SDG.

A low recovery for Perchlorate was observed in 1202878496 (MS). The recovery was 35% and the acceptance range is 75-125%. This may be the result of the background concentration present in the parent sample, 326020002 (CAMO-13-30600), and the need to dilute all at a 1:10 dilution prior to analysis. The data are reported with the appropriate DER.

Low recoveries for Perchlorate and Perchlorate-101 were observed in 1202878497 (MSD). The recoveries were 29% and 36%, respectively. The acceptance range is 75-125%. This may be the result of the background concentration present in the parent sample, 326020002 (CAMO-13-30600), and the need to dilute all at a 1:10 dilution prior to analysis. The data are reported with the appropriate DER.

**Manual Integrations**
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations.

**Method Comments**
The samples in this SDG were not originally analyzed using EPA Method 314.0.

**Additional Comments**
The Perchlorate Isotope Ratio on the Form I may differ slightly from the ratio on the corresponding raw data due to rounding rules and/or significant figures or due to software limitations when there are manual integrations, dilutions or other factors. The ratio value of the Form I is the correct value.

The retention time marker, Perchlorate-O (18), is added to all samples, instrument blanks, and standards prior to injection. It is used to verify the retention time of Perchlorate and Perchlorate-101 and to insure an accurate injection occurred.

Due to various anions affecting the recovery of Perchlorate-O (18) and not Perchlorate and Perchlorate-101, the calibration curves of Perchlorate and Perchlorate-101 are not internally corrected for using Perchlorate-O (18). They are external calibrations.

**Perchlorate Isotope Ratio**
The Perchlorate isotope ratio met acceptance criteria for all samples and QC samples.

Please see the isotope ratio criteria in the Miscellaneous Section.

**System Configuration**

The laboratory utilizes a Waters LC 2795 liquid chromatography instrument for Perchlorate analysis. It is coupled with either a Micromass Quattro Micro Mass Spectrometer/ Mass Spectrometer, or a Micromass Quattro Ultima Mass Spectrometer/ Mass Spectrometer. Each being designated as LCMSMS #1 and LCMSMS #2, respectively. It is fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

The laboratory may also utilize an Agilent 1100 liquid chromatography instrument for Perchlorate analysis. It is coupled with an Applied Biosystems 4000 Mass Spectrometer/ Mass Spectrometer, designated as LCMSMS #3 or LCMSMS #4. It is also fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package.

Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Chromatographic Columns**

Chromatographic separation of Perchlorate is accomplished through analysis on the following anion column:

Dionex: IonPac AG-16 2 x 50 mm.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-840  GEL Work Order: 325736

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

**  Analyte is a surrogate compound

J  Value is estimated

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL  Indicates that sample is diluted.
RA  Indicates that sample is re-analyzed without re-extraction.
RE  Indicates that sample is re-extracted.

**Review/Validation**

GEL requires all analytical data to be verified by a qualified data reviewer.  In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

**Signature:** Michael A. Penny Jr.  **Name: Michael Penny**

**Date: 03 JUN 2013**  **Title: Group Leader**

# Sample Data Summary

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1302798

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CASA-13-30550

**Date Received:** 15-MAY-13

**GEL Job No (SDG):** 2013-840

**GEL Sample ID:** 325736002

**Date Filtered:** 28-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.886 | ug/L | | 1 | 30-MAY-13 13:54 | per0530016a |
| | Perchlorate Isotope Ratio | | | 3.05 | | | 1 | 30-MAY-13 13:54 | per0530016a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.912 | ug/L | | 1 | 30-MAY-13 13:54 | per0530016a |
| | Perchlorate-O(18) | | | 0.550 | ug/L | | 1 | 30-MAY-13 13:54 | per0530016a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1302798

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CASA-13-30541

**Date Received:** 15-MAY-13

**GEL Job No (SDG):** 2013-840

**GEL Sample ID:** 325736004

**Date Filtered:** 28-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.884 | ug/L | | 1 | 30-MAY-13 14:10 | per0530018a |
| | Perchlorate Isotope Ratio | | | 3.11 | | | 1 | 30-MAY-13 14:10 | per0530018a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.892 | ug/L | | 1 | 30-MAY-13 14:10 | per0530018a |
| | Perchlorate-O(18) | | | 0.525 | ug/L | | 1 | 30-MAY-13 14:10 | per0530018a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Quality Control Summary

## Perchlorate Laboratory Control Sample

**Lab Name:** General Engineering Laboratories

**Lab Code:** GEL

**GEL Job No. (SDG):** 2013-840

**Extract Batch Code:** 1302798

**Date Filtered:** 28-MAY-13

**Matrix:** WATER

**Sample ID:** 1202878495

| Analyte^ | True | Found | Units | %Rec | Q | Control Limits |
|---|---|---|---|---|---|---|
| Perchlorate | 0.200 | .196 | ug/L | 98.2 | | 85 - 115 |
| Perchlorate Isotope Ratio | | 2.91 | | | | - |
| Perchlorate-101 | 0.200 | .21 | ug/L | 105 | | 85 - 115 |
| Perchlorate-O(18) | | .479 | ug/L | | | - |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

## Perchlorate Spike/Spike Duplicate Summary

**Lab Name:** General Engineering Laboratories

**Lab Code:** GEL

**GEL Job No (SDG):** 2013-840

**Extract Batch Code:** 1302798

**Date Extracted:** 28-MAY-13

**GEL MS/PS ID:** 1202878496

**Client ID:** CAMO-13-30600

**GEL MSD/PSD ID:** 1202878497

**QC Type:** MS

| Compound^ | Spike Added | Sample Conc | Units | MS Conc | MS Rec | # | MSD Conc | MSD Rec | # | RPD | # | RPD Limit | Recovery Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Perchlorate | 0.200 | 5.82 | ug/L | 5.89 | 34.9 | * | 5.88 | 29.4 | * | .186 | | 30 | 75 - 125 |
| Perchlorate Isotope Ratio | 0 | 3.16 | | 3.1 | | | 3.15 | | | 1.64 | | | - |
| Perchlorate-101 | 0.200 | 5.73 | ug/L | 5.91 | 89.3 | | 5.8 | 35.8 | * | 1.83 | | 30 | 75 - 125 |
| Perchlorate-O(18) | 0 | 4.70 | ug/L | 4.77 | | | 4.72 | | | 1.05 | | | - |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

# Quality Control Data

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** EPA 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1302798

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
MB

**Date Received:** 28-MAY-13

**GEL Job No (SDG):** 2013-840

**GEL Sample ID:** 1202878494

**Date Filtered:** 28-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.200 | ug/L | U | 1 | 29-MAY-13 17:16 | per0529012a |
| | Perchlorate Isotope Ratio | | | | | | 1 | 29-MAY-13 17:16 | per0529012a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.200 | ug/L | U | 1 | 29-MAY-13 17:16 | per0529012a |
| | Perchlorate-O(18) | | | 0.504 | ug/L | | 1 | 29-MAY-13 17:16 | per0529012a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** EPA 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1302798

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
LCS

**Date Received:** 28-MAY-13

**GEL Job No (SDG):** 2013-840

**GEL Sample ID:** 1202878495

**Date Filtered:** 28-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.196 | ug/L | J | 1 | 29-MAY-13 17:24 | per0529013a |
| | Perchlorate Isotope Ratio | | | 2.91 | | | 1 | 29-MAY-13 17:24 | per0529013a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.210 | ug/L | | 1 | 29-MAY-13 17:24 | per0529013a |
| | Perchlorate-O(18) | | | 0.479 | ug/L | | 1 | 29-MAY-13 17:24 | per0529013a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1302798

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
ICS

**Date Received:**

**GEL Job No (SDG):** 2013-840

**GEL Sample ID:** 1202878498

**Date Filtered:** 28-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.205 | ug/L | | 1 | 29-MAY-13 17:32 | per0529014a |
| | Perchlorate Isotope Ratio | | | 3.23 | | | 1 | 29-MAY-13 17:32 | per0529014a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.198 | ug/L | J | 1 | 29-MAY-13 17:32 | per0529014a |
| | Perchlorate-O(18) | | | 0.503 | ug/L | | 1 | 29-MAY-13 17:32 | per0529014a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1302798

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CAMO-13-30600MS

**Date Received:** 18-MAY-13

**GEL Job No (SDG):** 2013-840

**GEL Sample ID:** 1202878496

**Date Filtered:** 28-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .5 | 2 | 5.89 | ug/L | | 10 | 29-MAY-13 19:00 | per0529025a |
| | Perchlorate Isotope Ratio | | | 3.1 | | | 10 | 29-MAY-13 19:00 | per0529025a |
| 14797-73-0 | Perchlorate-101 | .5 | 2 | 5.91 | ug/L | | 10 | 29-MAY-13 19:00 | per0529025a |
| | Perchlorate-O(18) | | | 4.77 | ug/L | | 10 | 29-MAY-13 19:00 | per0529025a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1302798

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CAMO-13-30600MSD

**Date Received:** 18-MAY-13

**GEL Job No (SDG):** 2013-840

**GEL Sample ID:** 1202878497

**Date Filtered:** 28-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .5 | 2 | 5.88 | ug/L | | 10 | 29-MAY-13 19:08 | per0529026a |
| | Perchlorate Isotope Ratio | | | 3.15 | | | 10 | 29-MAY-13 19:08 | per0529026a |
| 14797-73-0 | Perchlorate-101 | .5 | 2 | 5.80 | ug/L | | 10 | 29-MAY-13 19:08 | per0529026a |
| | Perchlorate-O(18) | | | 4.72 | ug/L | | 10 | 29-MAY-13 19:08 | per0529026a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Miscellaneous

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 30-MAY-13 | Federal | | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| LC-MS/MS | SW846 6850 Modified | Liquid | ARSL001 |
| **Batch ID:** | **Sample Numbers:** | | |
| 1302799 | See below | | |

**Potentially affected work order(s)(SDG):** **325733(2013-838),325736(2013-840),325739(2013-841),325847(2013-847),325923(2013-856),326020(2013-866),326056(2013-868),326427(2013-887)**

**Application Issues:**

Failed Recovery for MS/PS

Failed Recovery for MSD/PSD

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Low recovery for Perchlorate was observed in 1202878496 (MS). The recovery was 35% and the acceptance range is 75-125%.<br><br>2. Low recoveries for Perchlorate and Perchlorate-101 were observed in 1202878497 (MSD). The recoveries were 29% and 36%, respectively. The acceptance range is 75-125%. | 1. & 2. The low recoveries may be the result of the background concentration present in the parent sample, 326020002, and the need to dilute all at a 1:10 dilution prior to analysis. The data are reported with the appropriate DER. |

**Originator's Name:**

Charles Wilson 30-MAY-13

**Data Validator/Group Leader:**

Michael Penny 30-MAY-13

# Metals Analysis

# Case Narrative

**Metals Fractional Narrative**
**ARS International (ARSL)**
**SDG 2013-840**

## Sample Analysis

| Sample ID | Client ID |
|---|---|
| 325736002 | CASA-13-30550 |
| 325736004 | CASA-13-30541 |
| 1202883949 | Method Blank (MB) **ICP** |
| 1202883950 | Laboratory Control Sample (LCS) |
| 1202883953 | 325649002(CAMO-13-30594L) Serial Dilution (SD) |
| 1202883951 | 325649002(CAMO-13-30594D) Sample Duplicate (DUP) |
| 1202883952 | 325649002(CAMO-13-30594S) Matrix Spike (MS) |
| 1202883954 | Method Blank (MB) **ICP-MS** |
| 1202883955 | Laboratory Control Sample (LCS) |
| 1202883958 | 325649002(CAMO-13-30594L) Serial Dilution (SD) |
| 1202883956 | 325649002(CAMO-13-30594D) Sample Duplicate (DUP) |
| 1202883957 | 325649002(CAMO-13-30594S) Matrix Spike (MS) |
| 1202878703 | Method Blank (MB) **CVAA** |
| 1202878710 | Laboratory Control Sample (LCS) |
| 1202878707 | 325847002(CASA-13-30555L) Serial Dilution (SD) |
| 1202878705 | 325847002(CASA-13-30555D) Sample Duplicate (DUP) |
| 1202878709 | 325847002(CASA-13-30555S) Matrix Spike (MS) |

## Method/Analysis Information

| | |
|---|---|
| **Analytical Batch:** | 1304837, 1304840, 1302867 and 1306981 |
| **Prep Batch :** | 1304836, 1304838 and 1302865 |
| **Standard Operating Procedures:** | GL-MA-E-013 REV# 22, GL-MA-E-006 REV# 9, GL-MA-E-014 REV# 25, GL-MA-E-010 REV# 26 and GL-GC-E-107 REV# 8 |
| **Analytical Method:** | SW846 3005/6010B, SW846 3005/6020 DOE-AL, EPA 245.1/245.2 and SM 2340 B |

**Prep Method :** SW846 3005A and EPA 245.1/245.2 Prep

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

**System Configuration**

The Hardness as CaCO3 is calculated from Calcium and Magnesium results.

The Metals analysis-ICP was performed on a P E 5300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis-ICP was performed on a PE 7300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN 9000 inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadruple mass spectrometer, and dual mode electron multiplier detector. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum. Operating conditions are set at 1400W power and combined argon pressures of 360+/-7 kPa for the plasma and auxiliary gases, and 0.85 L/min carrier gas flow, and an initial lens voltage of 5.2.

The Metals analysis-Mercury was performed on a Perkin-Elmer Flow Injection Mercury System (FIMS-100) automated mercury analyzer. The instrument consists of a cold vapor atomic absorption spectrometer set to detect mercury at a wavelength of 253.7 nm. Sample introduction through the flow injection system is performed via a peristaltic pump at 9 mL/min and nitrogen carrier gas rate of 80 mL/min.

**Calibration Information**

**Instrument Calibration**
All initial calibration requirements have been met for this sample delivery group (SDG).

**CRDL Requirements**
All CRDL standard(s) met the referenced advisory control limits.

**ICSA/ICSAB Statement**
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

**Continuing Calibration Blank (CCB) Requirements**
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

**Continuing Calibration Verification (CCV) Requirements**
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MBs analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recoveries met the acceptance limits.

**Quality Control (QC) Sample Statement**
The following samples were selected as the quality control (QC) samples for this SDG: 325649002 (CAMO-13-30594)-ICP and ICP-MS and 325847002 (CASA-13-30555)-CVAA.

**Matrix Spike (MS) Recovery Statement**
The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. All applicable elements met the acceptance criteria.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. All applicable analytes met these requirements.

**Serial Dilution % Difference Statement**
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations that are 25X the IDL/MDL for CVAA, 50X the IDL/MDL for ICP, and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the acceptance criteria of less than 10% difference (%D).

## Technical Information

### Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

### Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

### Sample Dilutions
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. The samples in this SDG did not require dilutions.

### Preparation Information
The samples in this SDG were prepared exactly according to the cited SOP.

## Miscellaneous Information

### Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

### Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

### Additional Comments
Additional comments were not required for this SDG.
Total Hardness by Calculation is determined using the results of Total Calcium (Ca) and Total Magnesium (Mg) determined by ICP or ICP-MS.

Hardness = 2.497 (Ca) + 4.118 (Mg)

Please refer to the Total Ca and Total Mg data to validate results appearing on the Hardness Summary sheet. Both results are in the Inorganic/metals section of the package. There is no Batch QC for calculated results, and thus no QC Summary for the Hardness by Calculation Batch. The MDLs and PQLs are calculated using the higher of the two calculated values of Ca or Mg.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

**Review Validation:**

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

**The following data validator verified the information presented in this case narrative:**

**Reviewer:**_____ **Date:** 06/11/13

# Sample Data Summary

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-840  GEL Work Order: 325736

**The Qualifiers in this report are defined as follows:**

* A quality control analyte recovery is outside of specified acceptance criteria

J Value is estimated

N Metals--The Matrix spike sample recovery is not within specified control limits

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____ 06/11/13

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−840 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

**SAMPLE ID:** 325736002 **BASIS:** As Received **DATE COLLECTED** 13−MAY−13

**CLIENT ID:** CASA−13−30550 **LEVEL:** Low **DATE RECEIVED** 15−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7439−97−6 | Mercury | 0.20 | ug/L | U | 0.067 | 0.2 | 0.2 | 1 | AV | NOR1 | 05/21/13 11:45 | 052113W1−6 | 1302867 |

# METALS
## −1−
## INORGANICS ANALYSIS DATA PACKAGE

**SDG No:** 2013−840 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

**SAMPLE ID:** 325736002 **BASIS:** As Received **DATE COLLECTED** 13−MAY−13

**CLIENT ID:** CASA−13−30550 **LEVEL:** Low **DATE RECEIVED** 15−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7429−90−5 | Aluminum | 200 | ug/L | U | 68 | 200 | 200 | 1 | P | HSC | 06/06/13 15:31 | 060613−1 | 1304837 |
| 7440−36−0 | Antimony | 3 | ug/L | U | 1 | 3 | 3 | 1 | MS | PRB | 06/08/13 05:07 | 130607−5 | 1304840 |
| 7440−38−2 | Arsenic | 5 | ug/L | U | 1.7 | 5 | 5 | 1 | MS | BAJ | 06/07/13 09:54 | 130606−3 | 1304840 |
| 7440−39−3 | Barium | 43.9 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:31 | 060613−1 | 1304837 |
| 7440−41−7 | Beryllium | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:31 | 060613−1 | 1304837 |
| 7440−42−8 | Boron | 19.6 | ug/L | J | 15 | 50 | 50 | 1 | P | HSC | 06/06/13 15:31 | 060613−1 | 1304837 |
| 7440−43−9 | Cadmium | 1 | ug/L | U | 0.11 | 1 | 1 | 1 | MS | BAJ | 06/07/13 09:54 | 130606−3 | 1304840 |
| 7440−70−2 | Calcium | 24600 | ug/L | | 50 | 200 | 200 | 1 | P | HSC | 06/06/13 15:31 | 060613−1 | 1304837 |
| 7440−47−3 | Chromium | 31.9 | ug/L | | 2 | 10 | 10 | 1 | MS | BAJ | 06/07/13 09:54 | 130606−3 | 1304840 |
| 7440−48−4 | Cobalt | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:31 | 060613−1 | 1304837 |
| 7440−50−8 | Copper | 34.9 | ug/L | | 3 | 10 | 10 | 1 | P | HSC | 06/06/13 15:31 | 060613−1 | 1304837 |
| 7439−89−6 | Iron | 100 | ug/L | U | 30 | 100 | 100 | 1 | P | HSC | 06/06/13 15:31 | 060613−1 | 1304837 |
| 7439−92−1 | Lead | 2 | ug/L | U | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/07/13 09:54 | 130606−3 | 1304840 |
| 7439−95−4 | Magnesium | 6700 | ug/L | | 110 | 300 | 300 | 1 | P | HSC | 06/07/13 10:32 | 060713B−2 | 1304837 |
| 7439−96−5 | Manganese | 10 | ug/L | U | 2 | 10 | 10 | 1 | P | HSC | 06/06/13 15:31 | 060613−1 | 1304837 |
| 7439−98−7 | Molybdenum | 1.55 | ug/L | | 0.165 | 0.5 | 0.5 | 1 | MS | BAJ | 06/07/13 16:12 | 130607−4 | 1304840 |
| 7440−02−0 | Nickel | 1.1 | ug/L | J | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/07/13 09:54 | 130606−3 | 1304840 |
| 7440−09−7 | Potassium | 1780 | ug/L | | 50 | 150 | 150 | 1 | P | HSC | 06/06/13 15:31 | 060613−1 | 1304837 |
| 7782−49−2 | Selenium | 2.35 | ug/L | J | 1.5 | 5 | 5 | 1 | MS | BAJ | 06/07/13 09:54 | 130606−3 | 1304840 |
| 7631−86−9 | Silica | 80000 | ug/L | | 53 | 213 | 213 | 1 | P | HSC | 06/06/13 15:31 | 060613−1 | 1304837 |
| 7440−22−4 | Silver | 1 | ug/L | U | 0.2 | 1 | 1 | 1 | MS | BAJ | 06/07/13 09:54 | 130606−3 | 1304840 |
| 7440−23−5 | Sodium | 12800 | ug/L | | 100 | 300 | 300 | 1 | P | HSC | 06/07/13 10:32 | 060713B−2 | 1304837 |
| 7440−24−6 | Strontium | 99.3 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:31 | 060613−1 | 1304837 |
| 7440−28−0 | Thallium | 2 | ug/L | U | 0.45 | 2 | 2 | 1 | MS | BAJ | 06/07/13 09:54 | 130606−3 | 1304840 |
| 7440−31−5 | Tin | 10 | ug/L | U | 2.5 | 10 | 10 | 1 | P | HSC | 06/07/13 10:32 | 060713B−2 | 1304837 |
| 7440−61−1 | Uranium | 0.696 | ug/L | | 0.067 | 0.2 | 0.2 | 1 | MS | BAJ | 06/07/13 16:12 | 130607−4 | 1304840 |
| 7440−62−2 | Vanadium | 7.83 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:31 | 060613−1 | 1304837 |
| 7440−66−6 | Zinc | 17.2 | ug/L | | 3.3 | 10 | 10 | 1 | P | HSC | 06/06/13 15:31 | 060613−1 | 1304837 |

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−840 **CONTRACT:** ESHL00210 **METHOD TYPE:**

**SAMPLE ID:** 325736002 **BASIS:** As Received **DATE COLLECTED** 13−MAY−13

**CLIENT ID:** CASA−13−30550 **LEVEL:** Low **DATE RECEIVED** 15−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Hardness as CaCO3 | 89 | mg/L | | 0.453 | 1.24 | 1.24 | 1 | | JJ2 | 06/10/13 14:12 | | 1306981 |

**Prep Information:**

| Analytical Batch | Prep Batch | Prep Method | Initial wt./vol. | Units | Final wt./vol. | Units | Date | Analyst |
|---|---|---|---|---|---|---|---|---|
| 1302867 | 1302865 | EPA 245.1/245.2 Prep | 20 | mL | 20 | mL | 05/20/13 | AXS5 |
| 1304837 | 1304836 | SW846 3005A | 50 | mL | 50 | mL | 06/06/13 | AXG2 |
| 1304840 | 1304838 | SW846 3005A | 50 | mL | 50 | mL | 06/06/13 | AXG2 |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**
**P** **SW846 3005/6010B**
**AV** **EPA 245.1/245.2**

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−840 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

**SAMPLE ID:** 325736004 **BASIS:** As Received **DATE COLLECTED** 13−MAY−13

**CLIENT ID:** CASA−13−30541 **LEVEL:** Low **DATE RECEIVED** 15−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7439−97−6 | Mercury | 0.20 | ug/L | U | 0.067 | 0.2 | 0.2 | 1 | AV | NOR1 | 05/21/13 11:47 | 052113W1−6 | 1302867 |

# METALS
## −1−
## INORGANICS ANALYSIS DATA PACKAGE

**SDG No:** 2013−840 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

**SAMPLE ID:** 325736004 **BASIS:** As Received **DATE COLLECTED** 13−MAY−13

**CLIENT ID:** CASA−13−30541 **LEVEL:** Low **DATE RECEIVED** 15−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7429−90−5 | Aluminum | 200 | ug/L | U | 68 | 200 | 200 | 1 | P | HSC | 06/06/13 15:34 | 060613−1 | 1304837 |
| 7440−36−0 | Antimony | 3 | ug/L | U | 1 | 3 | 3 | 1 | MS | PRB | 06/08/13 05:10 | 130607−5 | 1304840 |
| 7440−38−2 | Arsenic | 5 | ug/L | U | 1.7 | 5 | 5 | 1 | MS | BAJ | 06/07/13 07:26 | 130606−3 | 1304840 |
| 7440−39−3 | Barium | 43.2 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:34 | 060613−1 | 1304837 |
| 7440−41−7 | Beryllium | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:34 | 060613−1 | 1304837 |
| 7440−42−8 | Boron | 19 | ug/L | J | 15 | 50 | 50 | 1 | P | HSC | 06/06/13 15:34 | 060613−1 | 1304837 |
| 7440−43−9 | Cadmium | 1 | ug/L | U | 0.11 | 1 | 1 | 1 | MS | BAJ | 06/07/13 07:26 | 130606−3 | 1304840 |
| 7440−70−2 | Calcium | 24100 | ug/L | | 50 | 200 | 200 | 1 | P | HSC | 06/06/13 15:34 | 060613−1 | 1304837 |
| 7440−47−3 | Chromium | 31.5 | ug/L | | 2 | 10 | 10 | 1 | MS | BAJ | 06/07/13 07:26 | 130606−3 | 1304840 |
| 7440−48−4 | Cobalt | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:34 | 060613−1 | 1304837 |
| 7440−50−8 | Copper | 10 | ug/L | U | 3 | 10 | 10 | 1 | P | HSC | 06/06/13 15:34 | 060613−1 | 1304837 |
| 7439−89−6 | Iron | 100 | ug/L | U | 30 | 100 | 100 | 1 | P | HSC | 06/06/13 15:34 | 060613−1 | 1304837 |
| 7439−92−1 | Lead | 2 | ug/L | U | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/07/13 07:26 | 130606−3 | 1304840 |
| 7439−95−4 | Magnesium | 6400 | ug/L | | 110 | 300 | 300 | 1 | P | HSC | 06/07/13 10:35 | 060713B−2 | 1304837 |
| 7439−96−5 | Manganese | 10 | ug/L | U | 2 | 10 | 10 | 1 | P | HSC | 06/06/13 15:34 | 060613−1 | 1304837 |
| 7439−98−7 | Molybdenum | 1.43 | ug/L | | 0.165 | 0.5 | 0.5 | 1 | MS | BAJ | 06/07/13 16:15 | 130607−4 | 1304840 |
| 7440−02−0 | Nickel | 1.08 | ug/L | J | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/07/13 07:26 | 130606−3 | 1304840 |
| 7440−09−7 | Potassium | 1630 | ug/L | | 50 | 150 | 150 | 1 | P | HSC | 06/06/13 15:34 | 060613−1 | 1304837 |
| 7782−49−2 | Selenium | 2.36 | ug/L | J | 1.5 | 5 | 5 | 1 | MS | BAJ | 06/07/13 07:26 | 130606−3 | 1304840 |
| 7631−86−9 | Silica | 77600 | ug/L | | 53 | 213 | 213 | 1 | P | HSC | 06/06/13 15:34 | 060613−1 | 1304837 |
| 7440−22−4 | Silver | 1 | ug/L | U | 0.2 | 1 | 1 | 1 | MS | BAJ | 06/07/13 07:26 | 130606−3 | 1304840 |
| 7440−23−5 | Sodium | 12300 | ug/L | | 100 | 300 | 300 | 1 | P | HSC | 06/07/13 10:35 | 060713B−2 | 1304837 |
| 7440−24−6 | Strontium | 97.3 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:34 | 060613−1 | 1304837 |
| 7440−28−0 | Thallium | 2 | ug/L | U | 0.45 | 2 | 2 | 1 | MS | BAJ | 06/07/13 07:26 | 130606−3 | 1304840 |
| 7440−31−5 | Tin | 10 | ug/L | U | 2.5 | 10 | 10 | 1 | P | HSC | 06/07/13 10:35 | 060713B−2 | 1304837 |
| 7440−61−1 | Uranium | 0.654 | ug/L | | 0.067 | 0.2 | 0.2 | 1 | MS | BAJ | 06/07/13 16:15 | 130607−4 | 1304840 |
| 7440−62−2 | Vanadium | 7.75 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:34 | 060613−1 | 1304837 |
| 7440−66−6 | Zinc | 9.98 | ug/L | J | 3.3 | 10 | 10 | 1 | P | HSC | 06/06/13 15:34 | 060613−1 | 1304837 |

# METALS
## −1−
## INORGANICS ANALYSIS DATA PACKAGE

**SDG No:** 2013−840 **CONTRACT:** ESHL00210 **METHOD TYPE:**

**SAMPLE ID:** 325736004 **BASIS:** As Received **DATE COLLECTED** 13−MAY−13

**CLIENT ID:** CASA−13−30541 **LEVEL:** Low **DATE RECEIVED** 15−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Hardness as CaCO3 | 86.5 | mg/L | | 0.453 | 1.24 | 1.24 | 1 | | JJ2 | 06/10/13 14:12 | | 1306981 |

**Prep Information:**

| Analytical Batch | Prep Batch | Prep Method | Initial wt./vol. | Units | Final wt./vol. | Units | Date | Analyst |
|---|---|---|---|---|---|---|---|---|
| 1302867 | 1302865 | EPA 245.1/245.2 Prep | 20 | mL | 20 | mL | 05/20/13 | AXS5 |
| 1304837 | 1304836 | SW846 3005A | 50 | mL | 50 | mL | 06/06/13 | AXG2 |
| 1304840 | 1304838 | SW846 3005A | 50 | mL | 50 | mL | 06/06/13 | AXG2 |

***Analytical Methods:**

| | |
|---|---|
| **MS** | **SW846 3005/6020 DOE−AL** |
| **P** | **SW846 3005/6010B** |
| **AV** | **EPA 245.1/245.2** |

# Quality Control Summary

**METALS**
**−3b−**
**PREPARATION BLANK SUMMARY**

**SDG NO.** 2013−840

**Contract:** ESHL00210

**Matrix:** W

| Sample ID | Analyte | Result | Units | Acceptance Window | Conc Qual | M* | MDL | RDL |
|---|---|---|---|---|---|---|---|---|
| 1202878703 | | | | | | | | |
| | Mercury | 0.067 | ug/L | +/−0.2 | U | AV | 0.067 | 0.2 |
| 1202883949 | | | | | | | | |
| | Aluminum | 68 | ug/L | +/−200 | U | P | 68 | 200 |
| | Barium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Beryllium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Boron | 15 | ug/L | +/−50 | U | P | 15 | 50 |
| | Calcium | 50 | ug/L | +/−200 | U | P | 50 | 200 |
| | Cobalt | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Copper | 3 | ug/L | +/−10 | U | P | 3 | 10 |
| | Iron | 30 | ug/L | +/−100 | U | P | 30 | 100 |
| | Magnesium | 110 | ug/L | +/−300 | U | P | 110 | 300 |
| | Manganese | 2 | ug/L | +/−10 | U | P | 2 | 10 |
| | Potassium | 50 | ug/L | +/−150 | U | P | 50 | 150 |
| | Silica | 53 | ug/L | +/−213 | U | P | 53 | 213 |
| | Sodium | 100 | ug/L | +/−300 | U | P | 100 | 300 |
| | Strontium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Tin | 2.5 | ug/L | +/−10 | U | P | 2.5 | 10 |
| | Vanadium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Zinc | 3.3 | ug/L | +/−10 | U | P | 3.3 | 10 |
| 1202883954 | | | | | | | | |
| | Antimony | 1 | ug/L | +/−3 | U | MS | 1 | 3 |
| | Arsenic | 1.7 | ug/L | +/−5 | U | MS | 1.7 | 5 |
| | Cadmium | 0.11 | ug/L | +/−1 | U | MS | 0.11 | 1 |
| | Chromium | 2 | ug/L | +/−10 | U | MS | 2 | 10 |
| | Lead | 0.5 | ug/L | +/−2 | U | MS | 0.5 | 2 |
| | Molybdenum | 0.165 | ug/L | +/−0.5 | U | MS | 0.165 | 0.5 |
| | Nickel | 0.5 | ug/L | +/−2 | U | MS | 0.5 | 2 |
| | Selenium | 1.5 | ug/L | +/−5 | U | MS | 1.5 | 5 |
| | Silver | 0.2 | ug/L | +/−1 | U | MS | 0.2 | 1 |
| | Thallium | 0.45 | ug/L | +/−2 | U | MS | 0.45 | 2 |
| | Uranium | 0.067 | ug/L | +/−0.2 | U | MS | 0.067 | 0.2 |

***Analytical Methods:**

| | |
|---|---|
| **MS** | **SW846 3005/6020 DOE−AL** |
| **P** | **SW846 3005/6010B** |
| **AV** | **EPA 245.1/245.2** |

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−840 **Client ID** CASA−13−30555S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 325847002 **Spike ID:** 1202878709

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | ug/L | 75−125 | 1.98 | | 0.067 | U | 2 | 99.2 | | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−840 **Client ID** CAMO−13−30594S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 325649002 **Spike ID:** 1202883952

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | ug/L | 75−125 | 5060 | | 68 | U | 5000 | 101 | | P |
| Barium | ug/L | 75−125 | 513 | | 21.9 | | 500 | 98.3 | | P |
| Beryllium | ug/L | 75−125 | 498 | | 1 | U | 500 | 99.5 | | P |
| Boron | ug/L | 75−125 | 491 | | 15 | U | 500 | 97.5 | | P |
| Calcium | ug/L | 75−125 | 17600 | | 13300 | | 5000 | 86.2 | | P |
| Cobalt | ug/L | 75−125 | 496 | | 1 | U | 500 | 99.2 | | P |
| Copper | ug/L | 75−125 | 532 | | 3 | U | 500 | 106 | | P |
| Iron | ug/L | 75−125 | 5140 | | 30 | U | 5000 | 103 | | P |
| Magnesium | ug/L | 75−125 | 8390 | | 3700 | | 5000 | 93.7 | | P |
| Manganese | ug/L | 75−125 | 492 | | 2 | U | 500 | 98.3 | | P |
| Potassium | ug/L | 75−125 | 5990 | | 1210 | | 5000 | 95.6 | | P |
| Silica | ug/L | | 81700 | | 74900 | | 10700 | 62.8 | N/A | P |
| Sodium | ug/L | 75−125 | 14200 | | 9930 | | 5000 | 85.2 | | P |
| Strontium | ug/L | 75−125 | 560 | | 58.8 | | 500 | 100 | | P |
| Tin | ug/L | 75−125 | 470 | | 2.5 | U | 500 | 94 | | P |
| Vanadium | ug/L | 75−125 | 507 | | 5.58 | | 500 | 100 | | P |
| Zinc | ug/L | 75−125 | 490 | | 3.3 | U | 500 | 97.4 | | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−840 **Client ID** CAMO−13−30594S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 325649002 **Spike ID:** 1202883957

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ug/L | 75−125 | 55 | | 1 | U | 50 | 110 | | MS |
| Arsenic | ug/L | 75−125 | 52.4 | | 1.7 | U | 50 | 102 | | MS |
| Cadmium | ug/L | 75−125 | 54.8 | | 0.11 | U | 50 | 110 | | MS |
| Chromium | ug/L | 75−125 | 68.1 | | 17.5 | | 50 | 101 | | MS |
| Lead | ug/L | 75−125 | 51.2 | | 0.5 | U | 50 | 102 | | MS |
| Molybdenum | ug/L | 75−125 | 51.8 | | 0.849 | | 50 | 102 | | MS |
| Nickel | ug/L | 75−125 | 53.4 | | 2.22 | | 50 | 102 | | MS |
| Silver | ug/L | 75−125 | 54 | | 0.2 | U | 50 | 108 | | MS |
| Thallium | ug/L | 75−125 | 47.3 | | 0.45 | U | 50 | 94.6 | | MS |
| Uranium | ug/L | 75−125 | 51.9 | | 0.429 | | 50 | 103 | | MS |
| Selenium | ug/L | 75−125 | 59.2 | | 1.5 | U | 50 | 116 | | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−840 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CASA−13−30555D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325847002 **Duplicate ID:** 1202878705 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | ug/L | | 0.067 | U | 0.067 | U | | | AV |

***Analytical Methods:**

**AV EPA 245.1/245.2**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−840 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CAMO−13−30594D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325649002 **Duplicate ID:** 1202883951 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | ug/L | | 68 | U | 68 | U | | | P |
| Barium | ug/L | +/−5 | 21.9 | | 20.8 | | 5.14 | | P |
| Beryllium | ug/L | | 1 | U | 1 | U | | | P |
| Boron | ug/L | | 15 | U | 15 | U | | | P |
| Calcium | ug/L | +/−20% | 13300 | | 12900 | | 3.27 | | P |
| Cobalt | ug/L | | 1 | U | 1 | U | | | P |
| Copper | ug/L | | 3 | U | 3 | U | | | P |
| Iron | ug/L | | 30 | U | 30 | U | | | P |
| Magnesium | ug/L | +/−20% | 3700 | | 3510 | | 5.41 | | P |
| Manganese | ug/L | | 2 | U | 2 | U | | | P |
| Potassium | ug/L | +/−20% | 1210 | | 1170 | | 3.01 | | P |
| Silica | ug/L | +/−20% | 74900 | | 72500 | | 3.29 | | P |
| Sodium | ug/L | +/−20% | 9930 | | 9590 | | 3.45 | | P |
| Strontium | ug/L | +/−20% | 58.8 | | 56.4 | | 4.05 | | P |
| Tin | ug/L | | 2.5 | U | 2.5 | U | | | P |
| Vanadium | ug/L | +/−5 | 5.58 | | 4.98 | J | 11.3 | | P |
| Zinc | ug/L | | 3.3 | U | 3.3 | U | | | P |

***Analytical Methods:**

**P SW846 3005/6010B**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−840 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CAMO−13−30594D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325649002 **Duplicate ID:** 1202883956 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Antimony | ug/L | | 1 | U | 1 | U | | | MS |
| Arsenic | ug/L | | 1.7 | U | 1.7 | U | | | MS |
| Cadmium | ug/L | | 0.11 | U | 0.11 | U | | | MS |
| Chromium | ug/L | +/−10 | 17.5 | | 16 | | 9.39 | | MS |
| Lead | ug/L | | 0.5 | U | 0.5 | U | | | MS |
| Molybdenum | ug/L | +/−.5 | 0.849 | | 0.877 | | 3.24 | | MS |
| Nickel | ug/L | +/−2 | 2.22 | | 1.9 | J | 15.5 | | MS |
| Selenium | ug/L | | 1.5 | U | 1.5 | U | | | MS |
| Silver | ug/L | | 0.2 | U | 0.2 | U | | | MS |
| Thallium | ug/L | | 0.45 | U | 0.45 | U | | | MS |
| Uranium | ug/L | +/−.2 | 0.429 | | 0.42 | | 2.12 | | MS |

***Analytical Methods:**

**MS SW846 3005/6020 DOE−AL**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−840

**Contract:** ESHL00210

**Aqueous LCS Source:** GEL **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202878710 | | | | | | | | |
| | Mercury | ug/L | 2 | 2.08 | | 104 | 85−115 | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−840

**Contract:** ESHL00210

**Aqueous LCS Source:** OS2I **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202883950 | | | | | | | | |
| | Zinc | ug/L | 500 | 493 | | 98.5 | 80−120 | P |
| | Vanadium | ug/L | 500 | 517 | | 103 | 80−120 | P |
| | Aluminum | ug/L | 5000 | 5200 | | 104 | 80−120 | P |
| | Barium | ug/L | 500 | 510 | | 102 | 80−120 | P |
| | Beryllium | ug/L | 500 | 508 | | 102 | 80−120 | P |
| | Boron | ug/L | 500 | 488 | | 97.7 | 80−120 | P |
| | Calcium | ug/L | 5000 | 5150 | | 103 | 80−120 | P |
| | Cobalt | ug/L | 500 | 508 | | 102 | 80−120 | P |
| | Copper | ug/L | 500 | 533 | | 107 | 80−120 | P |
| | Iron | ug/L | 5000 | 5300 | | 106 | 80−120 | P |
| | Magnesium | ug/L | 5000 | 5140 | | 103 | 80−120 | P |
| | Manganese | ug/L | 500 | 517 | | 103 | 80−120 | P |
| | Potassium | ug/L | 5000 | 5100 | | 102 | 80−120 | P |
| | Silica | ug/L | 10700 | 10800 | | 101 | 80−120 | P |
| | Sodium | ug/L | 5000 | 5040 | | 101 | 80−120 | P |
| | Strontium | ug/L | 500 | 527 | | 105 | 80−120 | P |
| | Tin | ug/L | 500 | 496 | | 99.2 | 80−120 | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−840

**Contract:** ESHL00210

**Aqueous LCS Source:** O2Si **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202883955 | | | | | | | | |
| | Antimony | ug/L | 50 | 55.6 | | 111 | 80−120 | MS |
| | Arsenic | ug/L | 50 | 51.7 | | 103 | 80−120 | MS |
| | Cadmium | ug/L | 50 | 54.4 | | 109 | 80−120 | MS |
| | Chromium | ug/L | 50 | 52.9 | | 106 | 80−120 | MS |
| | Lead | ug/L | 50 | 51.4 | | 103 | 80−120 | MS |
| | Molybdenum | ug/L | 50 | 50.2 | | 100 | 80−120 | MS |
| | Nickel | ug/L | 50 | 52.7 | | 105 | 80−120 | MS |
| | Selenium | ug/L | 50 | 59.7 | | 119 | 80−120 | MS |
| | Silver | ug/L | 50 | 53.8 | | 108 | 80−120 | MS |
| | Thallium | ug/L | 50 | 46.7 | | 93.5 | 80−120 | MS |
| | Uranium | ug/L | 50 | 49.6 | | 99.3 | 80−120 | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−840 **Client ID** CASA−13−30555L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325847002 **Serial Dilution ID:** 1202878707

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Mercury | .067 | U | .335 | U | | | | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−840 **Client ID** CAMO−13−30594L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325649002 **Serial Dilution ID:** 1202883953

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Aluminum | 68 | U | 340 | U | | | | P |
| Barium | 21.9 | | 25.2 | | 14.8 | | | P |
| Beryllium | 1 | U | 5 | U | | | | P |
| Boron | 15 | U | 75 | U | | | | P |
| Calcium | 13300 | | 13000 | | 2.28 | | 10 | P |
| Cobalt | 1 | U | 5 | U | | | | P |
| Copper | 3 | U | 15 | U | | | | P |
| Iron | 30 | U | 150 | U | | | | P |
| Magnesium | 3700 | | 3680 | | .612 | | | P |
| Manganese | 2 | U | 10 | U | | | | P |
| Potassium | 1210 | | 1320 | | 8.88 | | | P |
| Silica | 74900 | | 73100 | | 2.4 | | 10 | P |
| Sodium | 9930 | | 10500 | | 5.47 | | 10 | P |
| Strontium | 58.8 | | 56.9 | | 3.16 | | 10 | P |
| Tin | 2.5 | U | 12.5 | U | | | | P |
| Vanadium | 5.58 | | 6.2 | J | 11.1 | | | P |
| Zinc | 3.3 | U | 16.5 | U | | | | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−840 **Client ID** CAMO−13−30594L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325649002 **Serial Dilution ID:** 1202883958

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Antimony | 1 | U | 5 | U | | | | MS |
| Arsenic | 1.7 | U | 8.5 | U | | | | MS |
| Cadmium | .11 | U | .55 | U | | | | MS |
| Chromium | 17.5 | | 16.6 | J | 5.12 | | | MS |
| Lead | .5 | U | 2.5 | U | | | | MS |
| Molybdenum | .849 | | 1.15 | J | 35.5 | | | MS |
| Nickel | 2.22 | | 2.5 | U | 100 | | | MS |
| Selenium | 1.5 | U | 7.5 | U | | | | MS |
| Silver | .2 | U | 1 | U | | | | MS |
| Thallium | .45 | U | 2.25 | U | | | | MS |
| Uranium | .429 | | .53 | J | 23.5 | | | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

# General Chem Analysis

# Case Narrative

**General Chemistry Narrative**
**ARS International (ARSL)**
**SDG 2013-840**

## Method/Analysis Information

**Product:** **Carbon, Total Organic**

**Analytical Batch:** 1302095 **Method:** SW 9060 Total Organic Carbon

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9060:

| Sample ID | Client ID |
|---|---|
| 325736001 | CASA-13-30542 |
| 325736003 | CASA-13-30540 |
| 1202876780 | Method Blank (MB) |
| 1202876781 | 325479001(CAMO-13-30586) Sample Duplicate (DUP) |
| 1202876783 | 325479001(CAMO-13-30586) Post Spike (PS) |
| 1202876785 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-093 REV# 12.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Carbon analysis was performed on a O-I Analytical Model 1010 Total Organic Carbon Analyzer.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325479001 (CAMO-13-30586).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
A 15 mg/L Total Inorganic Carbon check standard is analyzed with each analytical run to prove that the instrument is effectively sparging away the inorganic carbon.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an

effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Specific Conductivity** | | |
| **Analytical Batch:** | 1305069 | **Method:** | EPA120.1 Specific Conductivity |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 120.1:

| Sample ID | Client ID |
|---|---|
| 325736002 | CASA-13-30550 |
| 325736004 | CASA-13-30541 |
| 1202884559 | Laboratory Control Sample (LCS) |
| 1202884560 | 325649002(CAMO-13-30594) Sample Duplicate (DUP) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-009 REV# 11.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Conductivity analysis was performed on a Orion 160 Conductivity Meter.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325649002 (CAMO-13-30594).

**Duplicate Relative Percent Difference (RPD) Statement**

The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

**Product:** **pH**

**Analytical Batch:** 1302797 **Method:** EPA 150.1 pH

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 150.1:

| Sample ID | Client ID |
|---|---|
| 325736002 | CASA-13-30550 |
| 325736004 | CASA-13-30541 |
| 1202878491 | 325736002(CASA-13-30550) Sample Duplicate (DUP) |
| 1202878493 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-008 REV# 21.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Electrode analysis was performed on a PerpHect pH Meter Orion 370.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325736002 (CASA-13-30550).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
The following samples from this sample group were received by the lab outside of the method specified holding time: 325736002 (CASA-13-30550) and 325736004 (CASA-13-30541).

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1188061 325736002 (CASA-13-30550) and 325736004 (CASA-13-30541).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Ion Chromatography** | | |
| **Analytical Batch:** | 1301913 | **Method:** | EPA 300.0 Anions Liquid 28 day |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

| Sample ID | Client ID |
|---|---|
| 325736002 | CASA-13-30550 |
| 325736004 | CASA-13-30541 |
| 1202876344 | Method Blank (MB) |
| 1202876345 | 325736002(CASA-13-30550) Sample Duplicate (DUP) |
| 1202876346 | 325736002(CASA-13-30550) Post Spike (PS) |
| 1202876347 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 21.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-3000 Ion Chromatograph.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325736002 (CASA-13-30550).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The spike recovery falls outside of the established acceptance limits due to matrix interference: 1202876346 (CASA-13-30550).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1191933 1202876346 (CASA-13-30550).

**Manual Integrations**
The following samples from this sample group had to be manually integrated due to errors in the instrument software peak integration: 1202876345 (CASA-13-30550), 1202876346 (CASA-13-30550), 325736002 (CASA-13-30550) and 325736004 (CASA-13-30541).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Ammonia Nitrogen** | | |
| **Analytical Batch:** | 1302059 | **Method:** | EPA 350.1 Nitrogen and Ammonia L |
| **Prep Batch :** | 1302058 | **Method:** | EEPA 350.2 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 350.1:

| Sample ID | Client ID |
|---|---|
| 325736002 | CASA-13-30550 |
| 325736004 | CASA-13-30541 |
| 1202876694 | Method Blank (MB) |
| 1202876695 | 325649002(CAMO-13-30594) Sample Duplicate (DUP) |
| 1202876696 | 325649004(CAMO-13-30595) Sample Duplicate (DUP) |
| 1202876697 | 325649002(CAMO-13-30594) Matrix Spike (MS) |
| 1202876698 | 325649004(CAMO-13-30595) Matrix Spike (MS) |
| 1202876699 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-106 REV# 9.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Continuing Calibration Blanks**

All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following samples were selected for QC analysis: 325649002 (CAMO-13-30594) and 325649004 (CAMO-13-30595).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recoveries for this sample set were within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Total Kjeldahl Nitrogen** | | |
| **Analytical Batch:** | 1302893 | **Method:** | Nitrogen and Total Kjeldahl (TKN) |
| **Prep Batch :** | 1302892 | **Method:** | EEPA 351.2 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 351.2:

| Sample ID | Client ID |
|---|---|
| 325736001 | CASA-13-30542 |
| 325736003 | CASA-13-30540 |
| 1202878782 | Method Blank (MB) |
| 1202878783 | 325733001(CAMO-13-31070) Sample Duplicate (DUP) |
| 1202878784 | 326427001(SWWS46-13-33497) Sample Duplicate (DUP) |
| 1202878785 | 325733001(CAMO-13-31070) Matrix Spike (MS) |
| 1202878786 | 326427001(SWWS46-13-33497) Matrix Spike (MS) |
| 1202878787 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-104 REV# 14.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following samples were selected for QC analysis: 325733001 (CAMO-13-31070) and 326427001 (SWWS46-13-33497).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The spike recovery falls outside of the GEL acceptance limits but within the client specified limits. 1202878786 (SWWS46-13-33497).

**Duplicate Relative Percent Difference (RPD) Statement**
The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample: 1202878783 (CAMO-13-31070).

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1190664 1202878783 (CAMO-13-31070) and 1202878786 (SWWS46-13-33497).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Nitrate Nitrite by Cadmium Reduction** | | |
| **Analytical Batch:** | 1302060 | **Method:** | EPA 353.2 Nitrogen and Nitrate/Nitrite |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 353.2:

| Sample ID | Client ID |
|---|---|
| 325736002 | CASA-13-30550 |
| 325736004 | CASA-13-30541 |
| 1202876700 | Method Blank (MB) |
| 1202876701 | 325649002(CAMO-13-30594) Sample Duplicate (DUP) |
| 1202876702 | 325649004(CAMO-13-30595) Sample Duplicate (DUP) |
| 1202876703 | 325649002(CAMO-13-30594) Post Spike (PS) |
| 1202876704 | 325649004(CAMO-13-30595) Post Spike (PS) |
| 1202876705 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-128 REV# 8.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8500 Series.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following samples were selected for QC analysis: 325649002 (CAMO-13-30594) and 325649004 (CAMO-13-30595).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recoveries for this sample set were within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The following samples in this sample group were diluted due to high concentration: 325736002 (CASA-13-30550) and 325736004 (CASA-13-30541).

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**

Additional comments were not required for this SDG.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Total Phosphorus** | | |
| **Analytical Batch:** | 1302885 | **Method:** | EPA 365.4 Phosphorus and Total in |
| **Prep Batch :** | 1302884 | **Method:** | EEPA 365.4 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 365.4:

| Sample ID | Client ID |
|---|---|
| 325736002 | CASA-13-30550 |
| 325736004 | CASA-13-30541 |
| 1202878748 | Method Blank (MB) |
| 1202878750 | 325736002(CASA-13-30550) Sample Duplicate (DUP) |
| 1202878752 | 325736002(CASA-13-30550) Matrix Spike (MS) |
| 1202878753 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-103 REV# 10.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**

The absolute value of the intercept is less than 3 times the MDL.

## Quality Control (QC) Information

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325736002 (CASA-13-30550).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202878750 (CASA-13-30550).

## Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

## Miscellaneous Information

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Solids, Total Dissolved** | | |
| **Analytical Batch:** | 1302093 | **Method:** | EPA 160.1 Solids and Dissolved-F |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 160.1:

| Sample ID | Client ID |
|---|---|
| 325736002 | CASA-13-30550 |
| 325736004 | CASA-13-30541 |
| 1202876773 | Method Blank (MB) |
| 1202876774 | 325736004(CASA-13-30541) Sample Duplicate (DUP) |
| 1202876775 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-001 REV# 13.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Solids analysis was performed on a Sartorius Balance BAL216. Solids lab

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

## Quality Control (QC) Information

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325736004 (CASA-13-30541).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Sample Aliquot**
A sufficient amount of sample was provided by the client for analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

**Product:** **Alkalinity**

**Analytical Batch:** 1303137 **Method:** EPA 310.1 Total Alkalinity

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 310.1:

| Sample ID | Client ID |
|---|---|
| 325736002 | CASA-13-30550 |
| 325736004 | CASA-13-30541 |
| 1202879523 | Laboratory Control Sample (LCS) |
| 1202879526 | 325643002(CAMO-13-30598) Sample Duplicate (DUP) |
| 1202879527 | 325643002(CAMO-13-30598) Matrix Spike (MS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-033 REV# 10.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Titration analysis was performed on a Manually operated buret.

**Initial Standardization**
The titrant was properly standardized

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325643002 (CAMO-13-30598).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

**Review Validation:**

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

**The following data validator verified the information presented in this case narrative:**

**Reviewer:**_____ **Date:**_____11Jun13_____

# Sample Data Summary

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-840  GEL Work Order: 325736

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

**  Analyte is a Tracer compound

**  Analyte is a surrogate compound

H  Analytical holding time was exceeded

J  Value is estimated

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: June 6, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-840

Client Sample ID: CASA-13-30542
Sample ID: 325736001
Matrix: W
Collect Date: 13-MAY-13 13:49
Receive Date: 15-MAY-13
Collector: Client
Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon Analysis | | | | | | | | | | | |
| SW 9060 Total Organic Carbon "As Received" | | | | | | | | | | | |
| Total Organic Carbon Average | J | 0.612 | 0.330 | 1.00 | mg/L | 1 | TSM | 05/16/13 | 2248 | 1302095 | 1 |
| Nutrient Analysis | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl (TKN) "As Received" | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | U | ND | 0.033 | 0.100 | mg/L | 1 | KLP1 | 05/30/13 | 1136 | 1302893 | 2 |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 351.2 Prep | EPA 351.2 Total Kjeldahl Nitrogen Prep | KLP1 | 05/29/13 | 1700 | 1302892 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | SW846 9060 | |
| 2 | EPA 351.2 | |

**Notes:**

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: June 6, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-840

Client Sample ID: CASA-13-30550
Sample ID: 325736002
Matrix: W
Collect Date: 13-MAY-13 13:49
Receive Date: 15-MAY-13
Collector: Client
Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Conductivity Analysis | | | | | | | | | | | |
| EPA120.1 Specific Conductivity "As Received" | | | | | | | | | | | |
| Conductivity | | 242 | 1.00 | 1.00 | umhos/cm | 1 | LXA1 | 05/31/13 | 1558 | 1305069 | 1 |
| Electrode Analysis | | | | | | | | | | | |
| EPA 150.1 pH "As Received" | | | | | | | | | | | |
| pH at Temp 8.90C | H | 7.98 | 0.010 | 0.100 | SU | 1 | LYG1 | 05/20/13 | 0849 | 1302797 | 2 |
| Ion Chromatography | | | | | | | | | | | |
| EPA 300.0 Anions Liquid 28 day "As Received" | | | | | | | | | | | |
| Bromide | J | 0.102 | 0.067 | 0.200 | mg/L | 1 | MAR1 | 06/04/13 | 0230 | 1301913 | 3 |
| Chloride | | 6.31 | 0.067 | 0.200 | mg/L | 1 | | | | | |
| Fluoride | | 0.418 | 0.033 | 0.100 | mg/L | 1 | | | | | |
| Sulfate | | 15.4 | 0.133 | 0.400 | mg/L | 1 | | | | | |
| Nutrient Analysis | | | | | | | | | | | |
| EPA 350.1 Nitrogen, Ammonia L "As Received" | | | | | | | | | | | |
| Nitrogen, Ammonia | J | 0.0198 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/28/13 | 1024 | 1302059 | 4 |
| EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received" | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | 5.15 | 0.085 | 0.250 | mg/L | 5 | KLP1 | 05/29/13 | 1631 | 1302060 | 5 |
| EPA 365.4 Phosphorus, Total in "As Received" | | | | | | | | | | | |
| Phosphorus, Total as P | J | 0.0492 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/30/13 | 1342 | 1302885 | 6 |
| Solids Analysis | | | | | | | | | | | |
| EPA 160.1 Solids, Dissolved-F "As Received" | | | | | | | | | | | |
| Total Dissolved Solids | | 177 | 3.40 | 14.3 | mg/L | | LYG1 | 05/16/13 | 0753 | 1302093 | 7 |
| Titration Analysis | | | | | | | | | | | |
| EPA 310.1 Total Alkalinity "As Received" | | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | 68.0 | 0.725 | 1.00 | mg/L | | LXA1 | 05/21/13 | 1540 | 1303137 | 8 |
| Carbonate alkalinity (CaCO3) | U | ND | 0.725 | 1.00 | mg/L | | | | | | |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 350.2 Prep | EPA 350.1 Ammonia Nitrogen Prep | KLP1 | 05/28/13 | 0800 | 1302058 |
| EPA 365.4 Prep | EPA 365.4 Phosphorus, Total in liquid PR | KLP1 | 05/29/13 | 1700 | 1302884 |

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## Certificate of Analysis

Report Date: June 6, 2013

| | | | |
|---|---|---|---|
| Company : | Los Alamos National Laboratory | | |
| Address : | PO Box 1663<br>TA-03, SM271, Drop Pt. 02U, Rm111<br>Los Alamos, New Mexico 87545 | | |
| Contact: | Keith Greene | Client SDG: | 2013-840 |
| Project: | LANL-WQH Water Samples | | |

| | | | |
|---|---|---|---|
| Client Sample ID: | CASA-13-30550 | Project: | ESHL00210 |
| Sample ID: | 325736002 | Client ID: | ARSL001 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | EPA 120.1 | |
| 2 | EPA 150.1 | |
| 3 | EPA 300.0 | |
| 4 | EPA 350.1 | |
| 5 | EPA 353.2 | |
| 6 | EPA 365.4 | |
| 7 | EPA 160.1 | |
| 8 | EPA 310.1 | |

**Notes:**

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## Certificate of Analysis

Report Date: June 6, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-840

Client Sample ID: CASA-13-30540
Sample ID: 325736003
Matrix: W
Collect Date: 13-MAY-13 13:49
Receive Date: 15-MAY-13
Collector: Client
Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon Analysis | | | | | | | | | | | |
| SW 9060 Total Organic Carbon "As Received" | | | | | | | | | | | |
| Total Organic Carbon Average | J | 0.681 | 0.330 | 1.00 | mg/L | 1 | TSM | 05/16/13 | 2322 | 1302095 | 1 |
| Nutrient Analysis | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl (TKN) "As Received" | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | U | ND | 0.033 | 0.100 | mg/L | 1 | KLP1 | 05/30/13 | 1137 | 1302893 | 2 |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 351.2 Prep | EPA 351.2 Total Kjeldahl Nitrogen Prep | KLP1 | 05/29/13 | 1700 | 1302892 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | SW846 9060 | |
| 2 | EPA 351.2 | |

**Notes:**

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## Certificate of Analysis

Report Date: June 6, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-840

Client Sample ID: CASA-13-30541
Sample ID: 325736004
Matrix: W
Collect Date: 13-MAY-13 13:49
Receive Date: 15-MAY-13
Collector: Client
Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Conductivity Analysis | | | | | | | | | | | |
| EPA120.1 Specific Conductivity "As Received" | | | | | | | | | | | |
| Conductivity | | 241 | 1.00 | 1.00 | umhos/cm | 1 | LXA1 | 05/31/13 | 1559 | 1305069 | 1 |
| Electrode Analysis | | | | | | | | | | | |
| EPA 150.1 pH "As Received" | | | | | | | | | | | |
| pH at Temp 9.20C | H | 7.98 | 0.010 | 0.100 | SU | 1 | LYG1 | 05/20/13 | 0853 | 1302797 | 2 |
| Ion Chromatography | | | | | | | | | | | |
| EPA 300.0 Anions Liquid 28 day "As Received" | | | | | | | | | | | |
| Bromide | J | 0.0967 | 0.067 | 0.200 | mg/L | 1 | MAR1 | 06/04/13 | 0400 | 1301913 | 3 |
| Chloride | | 6.59 | 0.067 | 0.200 | mg/L | 1 | | | | | |
| Fluoride | | 0.450 | 0.033 | 0.100 | mg/L | 1 | | | | | |
| Sulfate | | 15.2 | 0.133 | 0.400 | mg/L | 1 | | | | | |
| Nutrient Analysis | | | | | | | | | | | |
| EPA 350.1 Nitrogen, Ammonia L "As Received" | | | | | | | | | | | |
| Nitrogen, Ammonia | J | 0.0448 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/28/13 | 1025 | 1302059 | 4 |
| EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received" | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | 5.05 | 0.085 | 0.250 | mg/L | 5 | KLP1 | 05/29/13 | 1632 | 1302060 | 5 |
| EPA 365.4 Phosphorus, Total in "As Received" | | | | | | | | | | | |
| Phosphorus, Total as P | U | ND | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/30/13 | 1345 | 1302885 | 6 |
| Solids Analysis | | | | | | | | | | | |
| EPA 160.1 Solids, Dissolved-F "As Received" | | | | | | | | | | | |
| Total Dissolved Solids | | 204 | 3.40 | 14.3 | mg/L | | LYG1 | 05/16/13 | 0753 | 1302093 | 7 |
| Titration Analysis | | | | | | | | | | | |
| EPA 310.1 Total Alkalinity "As Received" | | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | 68.0 | 0.725 | 1.00 | mg/L | | LXA1 | 05/21/13 | 1551 | 1303137 | 8 |
| Carbonate alkalinity (CaCO3) | U | ND | 0.725 | 1.00 | mg/L | | | | | | |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 350.2 Prep | EPA 350.1 Ammonia Nitrogen Prep | KLP1 | 05/28/13 | 0800 | 1302058 |
| EPA 365.4 Prep | EPA 365.4 Phosphorus, Total in liquid PR | KLP1 | 05/29/13 | 1700 | 1302884 |

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## Certificate of Analysis

Report Date: June 6, 2013

| | | | |
|---|---|---|---|
| Company : | Los Alamos National Laboratory | | |
| Address : | PO Box 1663<br>TA-03, SM271, Drop Pt. 02U, Rm111<br>Los Alamos, New Mexico 87545 | | |
| Contact: | Keith Greene | Client SDG: | 2013-840 |
| Project: | LANL-WQH Water Samples | | |

| | | | |
|---|---|---|---|
| Client Sample ID: | CASA-13-30541 | Project: | ESHL00210 |
| Sample ID: | 325736004 | Client ID: | ARSL001 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | EPA 120.1 | |
| 2 | EPA 150.1 | |
| 3 | EPA 300.0 | |
| 4 | EPA 350.1 | |
| 5 | EPA 353.2 | |
| 6 | EPA 365.4 | |
| 7 | EPA 160.1 | |
| 8 | EPA 310.1 | |

**Notes:**

# Quality Control Summary

# GEL LABORATORIES LLC

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## QC Summary

**Report Date: June 6, 2013**


**Los Alamos National Laboratory**
**PO Box 1663**
**TA-03, SM271, Drop Pt. 02U, Rm111**
**Los Alamos, New Mexico**

**Contact:** **Keith Greene**

**Workorder:** **325736**

| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Carbon Analysis** | | | | | | | | | | | | |
| Batch 1302095 | | | | | | | | | | | | |
| QC1202876781 325479001 DUP | | | | | | | | | | | | |
| Total Organic Carbon Average | | J | 0.510 | J | 0.511 | mg/L | 0.196 | ^ | | (+/-1.00) | TSM | 05/16/13 16:57 |
| QC1202876785 LCS | | | | | | | | | | | | |
| Total Organic Carbon Average | 10.0 | | | | 9.70 | mg/L | | | 97 | (85%-115%) | | 05/16/13 16:15 |
| QC1202876780 MB | | | | | | | | | | | | |
| Total Organic Carbon Average | | | | U | ND | mg/L | | | | | | 05/16/13 16:06 |
| QC1202876783 325479001 PS | | | | | | | | | | | | |
| Total Organic Carbon Average | 10.0 | J | 0.510 | | 10.4 | mg/L | | | 99 | (65%-120%) | | 05/16/13 17:16 |
| **Conductivity Analysis** | | | | | | | | | | | | |
| Batch 1305069 | | | | | | | | | | | | |
| QC1202884560 325649002 DUP | | | | | | | | | | | | |
| Conductivity | | | 135 | | 137 | umhos/cm | 1.91 | | | (0%-10%) | LXA1 | 05/31/13 15:56 |
| QC1202884559 LCS | | | | | | | | | | | | |
| Conductivity | 1410 | | | | 1450 | umhos/cm | | | 102 | (95%-105%) | | 05/31/13 15:54 |
| **Electrode Analysis** | | | | | | | | | | | | |
| Batch 1302797 | | | | | | | | | | | | |
| QC1202878491 325736002 DUP | | | | | | | | | | | | |
| pH | | H | 7.98 | H | 8.01 | SU | 0.375 | | | (0%-10%) | LYG1 | 05/20/13 08:50 |
| QC1202878493 LCS | | | | | | | | | | | | |
| pH | 7.00 | | | | 6.96 | SU | | | 99.4 | (99%-101%) | | 05/20/13 08:39 |
| **Ion Chromatography** | | | | | | | | | | | | |
| Batch 1301913 | | | | | | | | | | | | |
| QC1202876345 325736002 DUP | | | | | | | | | | | | |
| Bromide | | J | 0.102 | J | 0.098 | mg/L | 4.20 | ^ | | (+/-0.200) | MAR1 | 06/04/13 03:00 |
| Chloride | | | 6.31 | | 6.65 | mg/L | 5.21 | | | (0%-20%) | | |
| Fluoride | | | 0.418 | | 0.446 | mg/L | 6.41 | ^ | | (+/-0.100) | | |
| Sulfate | | | 15.4 | | 15.8 | mg/L | 3.18 | | | (0%-20%) | | |
| QC1202876347 LCS | | | | | | | | | | | | |
| Bromide | 1.25 | | | | 1.30 | mg/L | | | 104 | (90%-110%) | | 06/04/13 01:31 |

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## QC Summary

**Workorder: 325736**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Ion Chromatography** | | | | | | | | | | | |
| Batch 1301913 | | | | | | | | | | | |
| Chloride | 5.00 | | | | 5.36 | mg/L | | 107 | (90%-110%) | MAR1 | 06/04/13 01:31 |
| Fluoride | 2.50 | | | | 2.66 | mg/L | | 106 | (90%-110%) | | |
| Sulfate | 10.0 | | | | 10.5 | mg/L | | 105 | (90%-110%) | | |
| QC1202876344 MB | | | | | | | | | | | |
| Bromide | | | | U | ND | mg/L | | | | | 06/04/13 01:01 |
| Chloride | | | | U | ND | mg/L | | | | | |
| Fluoride | | | | U | ND | mg/L | | | | | |
| Sulfate | | | | U | ND | mg/L | | | | | |
| QC1202876346 325736002 PS | | | | | | | | | | | |
| Bromide | 1.25 | J | 0.102 | | 1.36 | mg/L | | 101 | (90%-110%) | | 06/04/13 03:30 |
| Chloride | 5.00 | | 6.31 | | 12.0 | mg/L | | 113* | (90%-110%) | | |
| Fluoride | 2.50 | | 0.418 | | 3.01 | mg/L | | 104 | (90%-110%) | | |
| Sulfate | 10.0 | | 15.4 | | 26.8 | mg/L | | 114* | (90%-110%) | | |
| **Nutrient Analysis** | | | | | | | | | | | |
| Batch 1302059 | | | | | | | | | | | |
| QC1202876695 325649002 DUP | | | | | | | | | | | |
| Nitrogen, Ammonia | | | 0.0529 | J | 0.0472 | mg/L | 11.4 ^ | | (+/-0.050) | KLP1 | 05/28/13 10:12 |
| QC1202876696 325649004 DUP | | | | | | | | | | | |
| Nitrogen, Ammonia | | J | 0.0394 | J | 0.0394 | mg/L | 0.00 ^ | | (+/-0.050) | | 05/28/13 10:14 |
| QC1202876699 LCS | | | | | | | | | | | |
| Nitrogen, Ammonia | 1.00 | | | | 1.07 | mg/L | | 107 | (90%-110%) | | 05/28/13 10:01 |
| QC1202876694 MB | | | | | | | | | | | |
| Nitrogen, Ammonia | | | | J | 0.0186 | mg/L | | | | | 05/28/13 10:00 |
| QC1202876697 325649002 MS | | | | | | | | | | | |
| Nitrogen, Ammonia | 1.00 | | 0.0529 | | 1.06 | mg/L | | 101 | (90%-110%) | | 05/28/13 10:12 |
| QC1202876698 325649004 MS | | | | | | | | | | | |
| Nitrogen, Ammonia | 1.00 | J | 0.0394 | | 1.11 | mg/L | | 107 | (90%-110%) | | 05/28/13 10:15 |

## QC Summary

**Workorder: 325736**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Nutrient Analysis** | | | | | | | | | | | |
| Batch 1302060 | | | | | | | | | | | |
| QC1202876701 325649002 DUP | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | | 0.986 | | 0.986 | mg/L | 0.00 | | (0%-20%) | KLP1 | 05/29/13 15:53 |
| QC1202876702 325649004 DUP | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | | 0.565 | | 0.564 | mg/L | 0.177 | | (0%-20%) | | 05/29/13 15:56 |
| QC1202876705 LCS | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | 1.00 | | | | 0.975 | mg/L | | 97.5 | (90%-110%) | | 05/29/13 15:43 |
| QC1202876700 MB | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | | | U | ND | mg/L | | | | | 05/29/13 15:42 |
| QC1202876703 325649002 PS | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | 1.00 | | 0.986 | | 1.92 | mg/L | | 93.4 | (90%-110%) | | 05/29/13 15:54 |
| QC1202876704 325649004 PS | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | 1.00 | | 0.565 | | 1.49 | mg/L | | 92.5 | (90%-110%) | | 05/29/13 15:58 |
| Batch 1302885 | | | | | | | | | | | |
| QC1202878750 325736002 DUP | | | | | | | | | | | |
| Phosphorus, Total as P | | J | 0.0492 | J | 0.0253 | mg/L | 64.2 ^ | | (+/-0.050) | KLP1 | 05/30/13 13:43 |
| QC1202878753 LCS | | | | | | | | | | | |
| Phosphorus, Total as P | 1.00 | | | | 0.995 | mg/L | | 99.5 | (76%-120%) | | 05/30/13 13:42 |
| QC1202878748 MB | | | | | | | | | | | |
| Phosphorus, Total as P | | | | U | ND | mg/L | | | | | 05/30/13 13:41 |
| QC1202878752 325736002 MS | | | | | | | | | | | |
| Phosphorus, Total as P | 1.00 | J | 0.0492 | | 1.19 | mg/L | | 114 | (62%-139%) | | 05/30/13 13:44 |
| Batch 1302893 | | | | | | | | | | | |
| QC1202878783 325733001 DUP | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | | 0.183 | J | 0.081 | mg/L | 77.3*^ | | (+/-0.100) | KLP1 | 05/30/13 11:35 |
| QC1202878784 326427001 DUP | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | | 0.388 | | 0.373 | mg/L | 3.94 ^ | | (+/-0.100) | | 05/30/13 11:51 |
| QC1202878787 LCS | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | | | | 0.967 | mg/L | | 96.7 | (90%-110%) | | 05/30/13 11:33 |
| QC1202878782 MB | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | | | U | ND | mg/L | | | | | 05/30/13 11:32 |
| QC1202878785 325733001 MS | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | | 0.183 | | 1.17 | mg/L | | 98.7 | (90%-110%) | | 05/30/13 11:35 |
| QC1202878786 326427001 MS | | | | | | | | | | | |

## QC Summary

**Workorder: 325736**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Nutrient Analysis** | | | | | | | | | | |
| Batch 1302893 | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | 0.388 | | 1.54 | mg/L | | 115* | (90%-110%) | | 05/30/13 11:52 |
| **Solids Analysis** | | | | | | | | | | |
| Batch 1302093 | | | | | | | | | | |
| QC1202876774 325736004 DUP | | | | | | | | | | |
| Total Dissolved Solids | | 204 | | 206 | mg/L | 0.697 | | (0%-10%) | LYG1 | 05/16/13 07:53 |
| QC1202876775 LCS | | | | | | | | | | |
| Total Dissolved Solids | 300 | | | 291 | mg/L | | 97.1 | (95%-105%) | | 05/16/13 07:53 |
| QC1202876773 MB | | | | | | | | | | |
| Total Dissolved Solids | | | U | ND | mg/L | | | | | 05/16/13 07:53 |
| **Titration Analysis** | | | | | | | | | | |
| Batch 1303137 | | | | | | | | | | |
| QC1202879526 325643002 DUP | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | 59.9 | | 59.4 | mg/L | 0.851 | | (0%-20%) | LXA1 | 05/21/13 14:55 |
| Carbonate alkalinity (CaCO3) | U | ND | U | ND | mg/L | N/A | | | | |
| QC1202879523 LCS | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | 50.0 | | | 51.8 | mg/L | | 104 | (90%-110%) | | 05/21/13 12:19 |
| QC1202879527 325643002 MS | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | 50.0 | 59.9 | | 109 | mg/L | | 98.5 | (80%-120%) | | 05/21/13 14:58 |

**Notes:**

| | |
|---|---|
| ** | Analyte is a surrogate compound |
| < | Result is less than value reported |
| > | Result is greater than value reported |
| A | The TIC is a suspected aldol-condensation product |
| B | The target analyte was detected in the associated blank. |
| C | Analyte has been confirmed by GC/MS analysis |
| D | Results are reported from a diluted aliquot of the sample |
| E | %difference of sample and SD is >10%. Sample concentration must meet flagging criteria |
| E | Concentration of the target analyte exceeds the instrument calibration range |
| E | General Chemistry--Concentration of the target analyte exceeds the instrument calibration range |
| FB | Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies |
| H | Analytical holding time was exceeded |
| J | Value is estimated |

## QC Summary

**Workorder:** **325736**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|

| | |
|---|---|
| JNX | Non Calibrated Compound |
| N | Metals--The Matrix spike sample recovery is not within specified control limits |
| N | Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N | Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N/A | RPD or %Recovery limits do not apply. |
| N1 | See case narrative |
| ND | Analyte concentration is not detected above the detection limit |
| NJ | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| P | Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70% |
| Q | One or more quality control criteria have not been met. Refer to the applicable narrative or DER. |
| R | Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes. |
| R | Sample results are rejected |
| U | Analyte was analyzed for, but not detected above the MDL, MDA, or LOD. |
| UJ | Compound cannot be extracted |
| X | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| Y | Other specific qualifiers were required to properly define the results. Consult case narrative. |
| Y | QC Samples were not spiked with this compound |
| Z | Paint Filter Test--Particulates passed through the filter, however no free liquids were observed. |
| ^ | RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry. |
| d | 5-day BOD--The 2:1 depletion requirement was not met for this sample |
| h | Preparation or preservation holding time was exceeded |

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

# Miscellaneous

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 21-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| ELECTRODE | EPA 150.1 | Liquid | BETT, ESHL, GELC, UCOR |
| **Batch ID:** | **Sample Numbers:** | | |
| 1302797 | See below. | | |

**Potentially affected work order(s)(SDG):** **325724,325736(2013-840),325739(2013-841),325752,325759,325847(2013-847),325922(2013-855),325923(2013-856),326018(2013-865),326020(2013-866)**

**Application Issues:**

Sample received out of holding

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Sample received out of holding:<br>325724 001,002<br>325736 002,004<br>325739 002<br>325752 002,006,010<br>325759 007,013,019,025,031<br>325847 002<br>325922 002<br>325923 002<br>326018 002<br>326020 002 | 1. Samples were received out of holding. |

**Originator's Name:**
Lisa Gregory 22-MAY-13

**Data Validator/Group Leader:**
Julia Hamilton 29-MAY-13

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 30-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| LACHAT Flow Injection Analyzer | EPA 351.2 | Liquid | BETT, ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1302893 | See below. | | |

**Potentially affected work order(s)(SDG):** **325733(2013-838),325736(2013-840),325739(2013-841),325752,325847(2013-847),325922(2013-855),325923(2013-856),326018(2013-865),326056(2013-868),326427(2013-887)**

**Application Issues:**

Failed Recovery for MS/PS

Failed RPD for DUP

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed Recovery for MS:<br>QC 1202878786MS<br>2. Failed RPD for DUP:<br>QC 1202878783DUP | 1. The spike recovery falls outside of the GEL acceptance limits but within the client specified limits.<br>2. The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample. |

**Originator's Name:**

Kristen Parson 30-MAY-13

**Data Validator/Group Leader:**

Julia Hamilton 30-MAY-13

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 04-JUN-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| IC | EPA 300.0 | Liquid | ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1301913 | See Below | | |

**Potentially affected work order(s)(SDG): 325733(2013-838),325736(2013-840),325739(2013-841)**

**Application Issues:**

Failed Recovery for MS/PS

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed Recovery for MS/PS:<br><br>QC 1202876346PS | 1. The MS/PS mixture contains seven anions of interest. Of those, all requested anions except chloride and sulfate met normal acceptance criteria for recovery (90 - 110%). This failure is attributed to the matrix of the sample because the successful recovery of the other compounds indicate that the laboratory process was in control. This variance is judged to have no negative impact on the data. The deviation is noted in the Case Narrative and DER, and the data has been reported. |

**Originator's Name:**

Mary Sherwood 05-JUN-13

**Data Validator/Group Leader:**

Virginia Wininger 05-JUN-13

General Engineering Laboratories, Inc., Charleston, SC.
2040 Savage Rd
Charleston SC 29407

# Chain of Custody/Analysis Request

COC/Lab Request #: 2013-832



**Client Contact:**

**Lab Agreement # :** 126310011

**Project Number :**

**Analysis Turnaround Time:**

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

**Site Name:** Los Alamos National Laboratory

**Rad Screening Info:** Yes, Below Background

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | WSP-CL04 | WSP-GENINORG | WSP-Met+B+SN+SR+U | WSP-NH3+NO3/NO2+PO4 | WSP-TKN+TOC | Special Instructions: |
|---|---|---|---|---|---|---|---|---|---|
| CAMO-13-30582 | May 10 2013 | 12:05 | W | | | | | 1 | |
| CAMO-13-30598 | May 10 2013 | 12:05 | W | 1 | 1 | 1 | 1 | | |

Special Instructions:

| Relinquished by: | | Date/Time: 5/13/13 3:00 | Received by: | |
|---|---|---|---|---|
| Relinquished by: | | Date/Time: | Received by: | |
| Relinquished by: | | Date/Time: | Received by: | |

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30582

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | 05/10/2013 | FIELD MATRIX: WG | | OK |
| TIME COLLECTED (HH:MM): | | 1205 | MEDIA: UA | | OK |
| PRS ID: | | OK | SAMPLE TECH CODE: UA | | GSP |
| LOCATION ID: R-50 S1 | | | FIELD PREP: UF | | OK |
| LOCATION TYPE: MON | | | FIELD QC TYPE: REG | | |
| PORT: P1A | | | SAMPLE USAGE: INV | | |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-LL-H-3 | 1 LITER POLY | 1 | NONE | Y | NA |
| NA | WSP-TKN+TOC | 500 ML AMBER GLASS | 1 | H2SO4 | Y | NA |

**SAMPLE COMMENTS:** Samples taken within 75 feet of a running diesel generator

**LOCATION COMMENTS:** None

**FIELD PARAMETERS:**

Dissolved Oxygen 5.48 mg/L  Oxidation-Reduction Potential 248.8 MV  pH 7.66 SU

Specific Conductance 192 uS/cm  Temperature 20.81 deg C  Turbidity 0.7 NTU

**COLLECTED BY (PRINT)** A Stocker

| RELINQUISHED BY | Date/Time | RECEIVED BY | Date/Time |
|---|---|---|---|
| (Printed Name) D Woody<br>(Signature) David Woody | 05/10/13<br>1310 | (Printed Name) K. Grace<br>(Signature) | 05/10/13<br>1310 |
| RELINQUISHED BY<br>(Printed Name)<br>(Signature) | Date/Time | RECEIVED BY<br>(Printed Name)<br>(Signature) | Date/Time |

Report Date 04/30/2013

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30598

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | 05/10/2013 | FIELD MATRIX: | WG | OK |
| TIME COLLECTED (HH:MM): | | 1205 | MEDIA: | UA | OK |
| PRS ID: | | OK | SAMPLE TECH CODE: | UA | GSP |
| LOCATION ID: | R-50 S1 | | FIELD PREP: | F | OK |
| LOCATION TYPE: | MON | | FIELD QC TYPE: | REG | |
| PORT: | P1A | | SAMPLE USAGE: | INV | |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-CL04 | 250 ML POLY | 1 | ICE | Y | NA |
| | WSP-GENINORG | 1 LITER POLY | 1 | ICE | | |
| | WSP-Met+B+SN+SR+U | 1 LITER POLY | 1 | HNO3 | | |
| | WSP-NH3+NO3/NO2+PO4 | 500 ML AMBER GLASS | 1 | H2SO4 | | |

**SAMPLE COMMENTS:** Samples taken within 75 feet of a running diesel generator.

**LOCATION COMMENTS:** None

**FIELD PARAMETERS:**

Dissolved Oxygen 5.48 mg/L  Oxidation-Reduction Potential 248.8 MV  pH 7.66 SU

Specific Conductance 192 uS/cm  Temperature 20.81 deg C  Turbidity 0.7 NTU

**COLLECTED BY (PRINT)** A Stocker

| RELINQUISHED BY (Printed Name) (Signature) | Date/Time | RECEIVED BY (Printed Name) (Signature) | Date/Time |
|---|---|---|---|
| D Woody David Woody | 05/10/13 1310 | K. Greene | 05/10/13 1310 |
| RELINQUISHED BY (Printed Name) (Signature) | Date/Time | RECEIVED BY (Printed Name) (Signature) | Date/Time |

Report Date 04/30/2013

Data Validation Report

Chain Of Custody No. 2013-832

**1. Distribution Of Samples In EDD.**

| SDG | Analytical Method | Regular Samples | Field Duplicates | Trip Blanks | Field Blanks | Equipment Blanks |
|---|---|---|---|---|---|---|
| 325643 | EPA:120.1 | 1 | | | | |
| 325643 | EPA:150.1 | 1 | | | | |
| 325643 | EPA:160.1 | 1 | | | | |
| 325643 | EPA:245.2 | 1 | | | | |
| 325643 | EPA:300.0 | 1 | | | | |
| 325643 | EPA:310.1 | 1 | | | | |
| 325643 | EPA:350.1 | 1 | | | | |
| 325643 | EPA:351.2 | 1 | | | | |
| 325643 | EPA:353.2 | 1 | | | | |
| 325643 | EPA:365.4 | 1 | | | | |
| 325643 | SM:A2340B | 1 | | | | |
| 325643 | SW-846:6010B | 1 | | | | |
| 325643 | SW-846:6020 | 1 | | | | |
| 325643 | SW-846:6850 | 1 | | | | |
| 325643 | SW-846:9060 | 1 | | | | |

| SDG | Analytical Method | Analysis Lot ID | Prep Lot ID | Regular Samples | Field Duplicates | Trip Blanks | Field Blanks | Equipment Blanks | Method Blanks | Matrix Spikes | Matrix Spike Dups |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 325643 | EPA:120.1 | 1305069 | 1305069 | 1 | | | | | | | |
| 325643 | EPA:150.1 | 1301818 | 1301818 | 1 | | | | | | | |
| 325643 | EPA:160.1 | 1301819 | 1301819 | 1 | | | | | 1 | | |
| 325643 | EPA:245.2 | 1302856 | 1302851 | 1 | | | | | 1 | 2 | |
| 325643 | EPA:300.0 | 1300945 | 1300945 | 1 | | | | | 1 | | |
| 325643 | EPA:310.1 | 1303137 | 1303137 | 1 | | | | | 2 | 1 | |
| 325643 | EPA:350.1 | 1301250 | 1301248 | 1 | | | | | 1 | 1 | |
| 325643 | EPA:351.2 | 1301771 | 1301770 | 1 | | | | | 1 | 2 | |
| 325643 | EPA:353.2 | 1302060 | 1302060 | 1 | | | | | 1 | | |
| 325643 | EPA:365.4 | 1301773 | 1301772 | 1 | | | | | 1 | 2 | |
| 325643 | SM:A2340B | 1306882 | 1306882 | 1 | | | | | | | |
| 325643 | SW-846:6010B | 1304837 | 1304836 | 1 | | | | | 1 | 1 | |
| 325643 | SW-846:6020 | 1304840 | 1304838 | 1 | | | | | 1 | 1 | |
| 325643 | SW-846:6850 | 1301785 | 1301783 | 1 | | | | | 1 | 1 | 1 |
| 325643 | SW-846:9060 | 1302095 | 1302095 | 1 | | | | | 1 | | |

**2. Distribution Of Analytes In EDD.**

| Analytical Method | Method Category | Field Sample ID | Lab Sample ID | Sample Purpose | Target Analytes | Surrogates | Spikes | TICS |
|---|---|---|---|---|---|---|---|---|
| EPA:120.1 | GENERAL CHEMISTRY | CAMO-13-30594 | 1202884560 | DUP | 1 | 0 | 0 | 0 |
| EPA:120.1 | GENERAL CHEMISTRY | CAMO-13-30598 | 325643002 | REG | 1 | 0 | 0 | 0 |
| EPA:120.1 | GENERAL CHEMISTRY | LCS | 1202884559 | LCS | 0 | 0 | 1 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | CAMO-13-30594 | 1202876117 | DUP | 1 | 0 | 0 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | CAMO-13-30598 | 325643002 | REG | 1 | 0 | 0 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | LCS | 1202876118 | LCS | 0 | 0 | 1 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | CAMO-13-30597 | 1202876120 | DUP | 1 | 0 | 0 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | CAMO-13-30598 | 325643002 | REG | 1 | 0 | 0 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | LCS | 1202876121 | LCS | 0 | 0 | 1 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | MB | 1202876119 | MB | 1 | 0 | 0 | 0 |

Data Validation Report for: Chain Of Custody No. 2013-832

| Analytical Spikes | Post-Digestion Spikes | Lab Control Samples | Lab Control Sample Dups | Blank Spikes | Blank Spike Dups | Lab Duplicates | Storage Blanks | Preparation Blanks | Reagent Blanks |
|---|---|---|---|---|---|---|---|---|---|
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 2 | | | |
| | | 1 | | | | 1 | | | |
| | | 2 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 2 | | | |
| | | 1 | | | | 2 | | | |
| | | 1 | | | | 2 | | | |
| | | | | | | | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | | | | |
| | | 1 | | | | 1 | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| EPA:245.2 | INORGANIC | CAMO-13-30598 | 1202878661 | DUP | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30598 | 1202878665 | MS | 0 | 0 | 1 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30598 | 325643002 | REG | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30602 | 1202878662 | DUP | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30602 | 1202878666 | MS | 0 | 0 | 1 | 0 |
| EPA:245.2 | INORGANIC | LCS | 1202878667 | LCS | 0 | 0 | 1 | 0 |
| EPA:245.2 | INORGANIC | MB | 1202878660 | MB | 1 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | CAMO-13-30598 | 325643002 | REG | 4 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | CAMO-13-30602 | 1202873936 | DUP | 4 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | LCS | 1202873938 | LCS | 0 | 0 | 4 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | MB | 1202873935 | MB | 4 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CAMO-13-30598 | 1202879526 | DUP | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CAMO-13-30598 | 1202879527 | MS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CAMO-13-30598 | 325643002 | REG | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | LCS | 1202879523 | LCS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | LCS | 1202880029 | LCS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | MB | 1202879522 | MB | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | MB | 1202880028 | MB | 2 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30598 | 325643002 | REG | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30602 | 1202874617 | DUP | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30602 | 1202874619 | MS | 0 | 0 | 1 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | LCS | 1202874620 | LCS | 0 | 0 | 1 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | MB | 1202874615 | MB | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30578 | 1202876002 | DUP | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30578 | 1202876004 | MS | 0 | 0 | 1 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30579 | 1202876003 | DUP | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30579 | 1202876005 | MS | 0 | 0 | 1 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30582 | 325643001 | REG | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | LCS | 1202876006 | LCS | 0 | 0 | 1 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | MB | 1202876001 | MB | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CAMO-13-30594 | 1202876701 | DUP | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CAMO-13-30595 | 1202876702 | DUP | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CAMO-13-30598 | 325643002 | REG | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | LCS | 1202876705 | LCS | 0 | 0 | 1 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | MB | 1202876700 | MB | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CAMO-13-30564 | 1202876009 | DUP | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CAMO-13-30564 | 1202876011 | MS | 0 | 0 | 1 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CAMO-13-30598 | 325643002 | REG | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CAMO-13-30602 | 1202876008 | DUP | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CAMO-13-30602 | 1202876010 | MS | 0 | 0 | 1 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | LCS | 1202876012 | LCS | 0 | 0 | 1 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | MB | 1202876007 | MB | 1 | 0 | 0 | 0 |
| SM:A2340B | INORGANIC | CAMO-13-30598 | 325643002 | REG | 1 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30594 | 1202883951 | DUP | 17 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30594 | 1202883952 | MS | 0 | 0 | 17 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30598 | 325643002 | REG | 17 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | LCS | 1202883950 | LCS | 0 | 0 | 17 | 0 |
| SW-846:6010B | INORGANIC | MB | 1202883949 | MB | 17 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30594 | 1202883956 | DUP | 11 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30594 | 1202883957 | MS | 0 | 0 | 11 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30598 | 325643002 | REG | 11 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | LCS | 1202883955 | LCS | 0 | 0 | 11 | 0 |
| SW-846:6020 | INORGANIC | MB | 1202883954 | MB | 11 | 0 | 0 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | CAMO-13-30592 | 1202876022 | MS | 0 | 0 | 1 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | CAMO-13-30592 | 1202876023 | MSD | 0 | 0 | 1 | 0 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| SW-846:6850 | LCMS/MS PERCHLORATE | CAMO-13-30598 | 325643002 | REG | 1 | 0 | 0 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | LCS | 1202876021 | LCS | 0 | 0 | 1 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | MB | 1202876020 | MB | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | CAMO-13-30582 | 325643001 | REG | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | CAMO-13-30586 | 1202876781 | DUP | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | LCS | 1202876785 | LCS | 0 | 0 | 1 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | MB | 1202876780 | MB | 1 | 0 | 0 | 0 |

**3. Are any analytes missing?**

No.

**4. Were any holding times exceeded?**

No.

**5. Any contaminants in blanks?**

| Field Sample ID | Lab Sample ID | Type Of Blank | Analytical Method | Sample Matrix | Parameter Name | Lab Result | Lab Qualifier | Units | Lab Detection Limit |
|---|---|---|---|---|---|---|---|---|---|
| MB | 1202874615 | METHOD BLANK | EPA:350.1 | W | Ammonia as Nitrogen | 0.0235 | J | mg/L | 0.05 |
| MB | 1202876007 | METHOD BLANK | EPA:365.4 | W | Total Phosphate as Phosphorus | 0.0287 | J | mg/L | 0.05 |
| MB | 1202878660 | METHOD BLANK | EPA:245.2 | W | Mercury | -0.074 | J | ug/L | 0.2 |

**Any samples affected by the presence of contaminants in blanks?**

| Field Sample ID | Blank Field Sample ID | Blank Lab Sample ID | Blank Type | Analytical Method | Parameter Name | Units | Blank Result | Sample Result | Lab Qualifier | Detect Limit | Detected |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAMO-13-30598 | MB | 1202878660 | METHOD BLANK | EPA:245.2 | Mercury | ug/L | -0.074 | 0.2 | U | 0.2 | N |
| CAMO-13-30598 | MB | 1202874615 | METHOD BLANK | EPA:350.1 | Ammonia as Nitrogen | mg/L | 0.0235 | 0.0516 | | 0.05 | Y |
| CAMO-13-30598 | MB | 1202876007 | METHOD BLANK | EPA:365.4 | Total Phosphate as Phosphorus | mg/L | 0.0287 | 0.0406 | J | 0.05 | Y |

**6. Any surrogate recoveries outside the control limits?**

No.

**7. Any MS/MSD recoveries or RPDs outside the control limits?**

| Field Sample ID | Matrix Spike ID | Matrix Spike Dup ID | Analytical Method | Parameter Name | Analysis Lot ID | Analysis Date | Sample Matrix | MS % Recvry | MSD % Recvry | Upper Limit | Lower Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAMO-13-30579 | 1202876005 | | EPA:351.2 | Total Kjeldahl Nitrogen | 1301770 | 5/16/2013 | W | 112 | | 110 | 90 |
| CAMO-13-30594 | 1202883952 | | SW-846:6010B | Silicon Dioxide | 1304836 | 6/6/2013 | W | 62.8 | | 125 | 75 |

**8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?**

No.

**9. Any Field Duplicate RPDs outside the desired limits?**

Data Validation Report for:

Chain Of Custody No. 2013-832

| Correction Factor (ND) | Correction Factor (J) | Use Factors |
|---|---|---|
| 5 | | Y |
| 5 | | Y |
| 5 | | Y |

| Rejection Limit | RPD | RPD Limit |
|---|---|---|
| 10 | | |
| 10 | | |

No.

**10. Any Lab Duplicate RPDs outside the desired limits?**

No.

**11. Any required reporting limits exceeded?**

No.

**12. Additional Validator's Coments.**

None.

**13. Display Flagged Data.**

| Location ID | Chain Of Custody No | Field Sample ID | Sample Purpose | Analysis Type Code | Analytical Suite | Analytical Method | Parameter Name | Lab Qualifier | Validation Qualifier | Validation Reason Codes | Detected |
|---|---|---|---|---|---|---|---|---|---|---|---|
| R-50 S1 | 2013-832 | CAMO-13-30598 | REG | INIT | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | | U | I4 | N |
| R-50 S1 | 2013-832 | CAMO-13-30598 | REG | INIT | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | J | U | I4 | N |

| **Reason Code** | Description |
|---|---|
| I4 | the sample result is =<5x the concentration of related analyte in the method blank. |
| J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL |
| NQ | The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample. |
| U_LAB | The analytical laboratory qualified the analyte as not detected. |

**14. Useable Result Count.**

| Field Sample ID | Location ID | Sample Purpose | Analytical Method | No. Unuseable Records | Total No. Of Records |
|---|---|---|---|---|---|
| CAMO-13-30582 | R-50 S1 | REG | EPA:351.2 | 0 | 1 |
| CAMO-13-30582 | R-50 S1 | REG | SW-846:9060 | 0 | 1 |
| CAMO-13-30598 | R-50 S1 | REG | EPA:120.1 | 0 | 1 |
| CAMO-13-30598 | R-50 S1 | REG | EPA:150.1 | 0 | 1 |
| CAMO-13-30598 | R-50 S1 | REG | EPA:160.1 | 0 | 1 |
| CAMO-13-30598 | R-50 S1 | REG | EPA:245.2 | 0 | 1 |
| CAMO-13-30598 | R-50 S1 | REG | EPA:300.0 | 0 | 4 |
| CAMO-13-30598 | R-50 S1 | REG | EPA:310.1 | 0 | 2 |
| CAMO-13-30598 | R-50 S1 | REG | EPA:350.1 | 0 | 1 |
| CAMO-13-30598 | R-50 S1 | REG | EPA:353.2 | 0 | 1 |
| CAMO-13-30598 | R-50 S1 | REG | EPA:365.4 | 0 | 1 |
| CAMO-13-30598 | R-50 S1 | REG | SM:A2340B | 0 | 1 |
| CAMO-13-30598 | R-50 S1 | REG | SW-846:6010B | 0 | 17 |
| CAMO-13-30598 | R-50 S1 | REG | SW-846:6020 | 0 | 11 |
| CAMO-13-30598 | R-50 S1 | REG | SW-846:6850 | 0 | 1 |

| Lab Result | Lab Units | Report Result | Report Units | Report MDA | Report Uncertainty | Lab Matrix | Sample Date | Percent Moisture | Analysis Lot ID | Validation Status Code | Use Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0516 | mg/L | 0.0516 | mg/L | | | W | 5/10/2013 | | 1301250 | VAL | Y |
| 0.0406 | mg/L | 0.0406 | mg/L | | | W | 5/10/2013 | | 1301773 | VAL | Y |

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178
www.gel.com

June 10, 2013

Keith Greene
Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Re: LANL-WQH Water Samples
Work Order: 325643
SDG: 2013-832

Dear Keith Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on May 14, 2013, and analyzed for General Chemistry, Metals and Perchlorates by LCMSMS. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,

Hope Taylor for
Valerie Davis
Project Manager

Purchase Order: 63641-10
Chain of Custody: 2013-832
Enclosures

**ARS International (63641-10)**
**LANL-WQH Water Samples**
**Work Order #: 325643**
**SDG: 2013-832**

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# Case Narrative

**Case Narrative for**
**ARS International (63641-10)**
**LANL-WQH Water Samples**
**Workorder #: 325643**
**SDG # : 2013-832**

**June 10, 2013**

**Laboratory Identification:**

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

**Summary**

**Sample receipt** The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on May 14, 2013 for analysis. The samples were delivered with proper chain of custody documentation and signatures. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. Containers were checked for pH, where appropriate, and matched the preservative as documented on the accompanying chain of custody. Shipping container temperature was within specification (0 - 6C). Shipping container temperatures were checked, documented, and within specifications. There are no additional comments concerning sample receipt.

**Sample Identification** The laboratory received the following samples:

| Laboratory ID | Client ID |
|---|---|
| 325643001 | CAMO-13-30582 |
| 325643002 | CAMO-13-30598 |

**Case Narrative**

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

**Data Package**

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: General Chemistry, Metals and Perchlorates by LCMSMS.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.

Hope Taylor for
Valerie Davis
Project Manager

**List of current GEL Certifications as of 10 June 2013**

| State | Certification |
|---|---|
| Alaska | UST−110 |
| Arkansas | 88−0651 |
| CLIA | 42D0904046 |
| California NELAP | 01151CA |
| Colorado | SC00012 |
| Connecticut | PH−0169 |
| Delaware | SC00012 |
| DoD ELAP A2LA ISO 17025 | 2567.01 |
| Florida NELAP | E87156 |
| Foreign Soils Permit | P330−12−00283, P330−12−00284 |
| Georgia | SC00012 |
| Georgia SDWA | 967 |
| Hawaii | SC00012 |
| Idaho | SC00012 |
| Illinois NELAP | 200029 |
| Indiana | C−SC−01 |
| Kansas NELAP | E−10332 |
| Kentucky | 90129 |
| Louisiana NELAP | 03046 (AI33904) |
| Louisiana SDWA | LA130005 |
| Maryland | 270 |
| Massachusetts | M−SC012 |
| Nevada | SC000122011−1 |
| New Hampshire NELAP | 2054 |
| New Jersey NELAP | SC002 |
| New Mexico | SC00012 |
| New York NELAP | 11501 |
| North Carolina | 233 |
| North Carolina SDWA | 45709 |
| Oklahoma | 9904 |
| Pennsylvania NELAP | 68−00485 |
| Plant Material Permit | PDEP−12−00260 |
| South Carolina Chemistry | 10120001 |
| South Carolina Radiochemi | 10120002 |
| Tennessee | TN 02934 |
| Texas NELAP | T104704235−13−8 |
| Utah NELAP | SC000122013−8 |
| Vermont | VT87156 |
| Virginia NELAP | 460202 |
| Washington | C780−12 |
| Wisconsin | 999887790 |

# Chain of Custody and Supporting Documentation

General Engineering Laboratories, Inc., Charleston, SC.
2040 Savage Rd
Charleston SC 29407

# Chain of Custody/Analysis Request

325643

COC/Lab Request #: 2013-832

Page 1 of 1

Client Contact:

Lab Agreement # : 126310011

Project Number :

Analysis Turnaround Time:
24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Special Instructions:

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | WSP-CL04 | WSP-GENINORG | WSP-Met+B+SN+SR+U | WSP-NH3+NO3/NO2+PO4 | WSP-TKN+TOC |
|---|---|---|---|---|---|---|---|---|
| CAMO-13-30582 | May 10 2013 | 12:05 | W | | | | | 1 |
| CAMO-13-30598 | May 10 2013 | 12:05 | W | 1 | 1 | 1 | 1 | |

Special Instructions:

| | | | | |
|---|---|---|---|---|
| Relinquished by: Melissa Montoya | | Date/Time: 5/13/13 3:00 | Received by: P. Nlent | 5-14-13 0850 |
| Relinquished by: | | Date/Time: | Received by: | |
| Relinquished by: | | Date/Time: | Received by: | |

GEL Laboratories LLC

# SAMPLE RECEIPT & REVIEW FORM

| | |
|---|---|
| **Client: LANL** | **SDG/AR/COC/Work Order: 2013-832** |
| **Received By: Patricia Dent** | **Date Received: May 14, 2013** |

| **Suspected Hazard Information** | **Yes** | **No** | *If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation. |
|---|---|---|---|
| COC/Samples marked as radioactive? | | X | Maximum Net Counts Observed* (Observed Counts - Area Background Counts): **0 CPM** |
| Classified Radioactive II or III by RSO? | | X | If yes, Were swipes taken of sample contatiners < action levels? |
| COC/Samples marked containing PCBs? | | X | |
| Package, COC, and/or Samples marked as beryllium or asbestos containing? | | X | If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group. |
| Shipped as a DOT Hazardous? | | X | Hazard Class Shipped: UN#: |
| Samples identified as Foreign Soil? | | X | |

| | **Sample Receipt Criteria** | **Yes** | **NA** | **No** | **Comments/Qualifiers (Required for Non-Conforming Items)** |
|---|---|---|---|---|---|
| 1 | Shipping containers received intact and sealed? | X | | | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 2 | Samples requiring cold preservation within (0 ≤ 6 deg. C)?* | X | | | Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius **3,4C** |
| 2a | Daily check performed and passed on IR temperature gun? | X | | | Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable):**61524649** |
| 3 | Chain of custody documents included with shipment? | X | | | |
| 4 | Sample containers intact and sealed? | X | | | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 5 | Samples requiring chemical preservation at proper pH? | X | | | Sample ID's, containers affected and observed Ph If Preservation added, Lot# |
| 6 | VOA vials free of headspace (defined as < 6mm bubble)? | | X | | Sample ID's and containers affected: |
| 7 | Are Encore containers present? | | | X | (If yes, immediately deliver to Volatiles laboratory) |
| 8 | Samples received within holding time? | X | | | ID's and tests affected: |
| 9 | Sample ID's on COC match ID's on bottles? | X | | | Sample ID's and containers affected: |
| 10 | Date & time on COC match date & time on bottles? | X | | | Sample ID's affected: |
| 11 | Number of containers received match number indicated on COC? | X | | | Sample ID's affected: |
| 12 | Are sample containers identifiable as GEL provided? | | | X | **Client** |
| 13 | COC form is properly signed in relinquished/received sections? | X | | | |
| 14 | Carrier and tracking number. | X | | | Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other **5462 9833 0078 3C 5462 9833 0067 4C** |

5.15-13

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 13MAY13
ACTWGT: 48.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWK0

3c

5ADC1/9983/18BC

FedEx Express

J111311060060125

2 of 2

MPS# 0263 5462 9833 0078
Mstr# 5462 9833 0067

TUE - 14 MAY 10:30A
PRIORITY OVERNIGHT
0201

XX CHSA

29407
SC-US CHS

Part # 156148-436 RIT2 08/10 ©

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 13MAY13
ACTWGT: 40.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWKO

4c

50DC1/9983/108C

FedEx Express

J11131106060125

1 of 2

TRK# 0201 5462 9833 0067

TUE - 14 MAY 10:30A
PRIORITY OVERNIGHT

## MASTER ##

XX CHSA

29407
SC-US CHS

Part # 156148-434 RITP 0610 ©

# Data Review Qualifier Flag Definition Sheet

## Data Review Qualifier Definitions

| Qualifier | Explanation |
|---|---|
| * | A quality control analyte recovery is outside of specified acceptance criteria |
| ** | Analyte is a surrogate compound |
| < | Result is less than value reported |
| > | Result is greater than value reported |
| ^ | RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL |
| A | The TIC is a suspected aldol-condensation product |
| B | Target analyte was detected in the associated blank |
| B | Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL |
| BD | Results are either below the MDC or tracer recovery is low |
| C | Analyte has been confirmed by GC/MS analysis |
| D | Results are reported from a diluted aliquot of the sample |
| d | 5-day BOD-The 2:1 depletion requirement was not met for this sample |
| E | Organics-Concentration of the target analyte exceeds the instrument calibration range |
| E | Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria |
| H | Analytical holding time was exceeded |
| h | Preparation or preservation holding time was exceeded |
| J | Value is estimated |
| N | Metals-The Matrix spike sample recovery is not within specified control limits |
| N | Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N/A | Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more |
| ND | Analyte concentration is not detected above the reporting limit |
| UI | Gamma Spectroscopy-Uncertain identification |
| X | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| Y | QC Samples were not spiked with this compound |
| Z | Paint Filter Test-Particulates passed through the filter, however no free liquids were observed. |

# Perchlorates by LCMSMS Analysis

# Case Narrative

## Method/Analysis Information

| | |
|---|---|
| **Procedure:** | **Definitive Low Level Perchlorate Analysis Utilizing Liquid Chromatography/Mass Spectrometry/Mass Spectrometry (LC/MS/MS) by EPA Method 6850 Modified (6850M)** |
| Analytical Method: | SW846 6850 Modified |
| Prep Method: | SW846 6850 Modified |
| Analytical Batch Number: | 1301785 |
| Prep Batch Number: | 1301783 |

## Sample Analysis

| Sample ID | Client ID |
|---|---|
| 325643002 | CAMO-13-30598 |
| 1202876024 | Interference Check Sample (ICS) |
| 1202876020 | Method Blank (MB) |
| 1202876021 | Laboratory Control Sample (LCS) |
| 1202876022 | 325284004(CAMO-13-30592) Matrix Spike (MS) |
| 1202876023 | 325284004(CAMO-13-30592) Matrix Spike Duplicate (MSD) |

The samples in this SDG were analyzed on an "as received" basis.

## Preparation/Analytical Method Verification

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-067 REV# 10.

## Calibration Information

**Initial Calibration**
All initial calibration requirements have been met for this SDG. Due to software constraints, all Initial Calibration Blanks must be designated as IPB001.

**ICV Requirements**
All associated initial calibration verification standard(s) (ICV) met the acceptance criteria.

**CCB Requirements**
All continuing calibration blanks (CCB) bracketing the analyses associated with this batch were within acceptance criteria.

**CCV Requirements**
All continuing calibration checks (CCV) requirements were met by all bracketing CCV standards.

**Low Level Standard (CRI) Requirements**
All low level calibration verification (CRI) requirements were met by all bracketing CRI standards.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Interference Check Sample (ICS)**
The ICS met all recovery acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recoveries met the acceptance limits.

**QC Sample Designation**
Client sample 325284004 (CAMO-13-30592) was chosen for matrix spike and matrix spike duplicate analysis.

**Matrix Spike (MS) Recovery Statement**
The MS recoveries were within the established acceptance limits.

**Matrix Spike Duplicate (MSD) Recovery Statement**
The MSD recoveries were within the established acceptance limits.

**MS/MSD Relative Percent Difference (RPD) Statement**
The RPD(s) between the MS and MSD met the acceptance limits.

**Retention Time Standard Area Acceptance**
The retention time standard areas were within the required acceptance criteria for all samples and QC.

**Retention Time**
During the analysis of Perchlorate by LC/MS/MS, retention time shifts are commonly observed. These retention time shifts, which are caused by fouling of the column by the sample matrices, are problematic when the retention time is used as one of the criterion for confirmation. To overcome this problem, a known amount of O(18) labeled Perchlorate was added to each sample as a retention time standard. The presence of Perchlorate was confirmed by the relative retention time (RRT) of the Perchlorate peak and the O(18) standard. A RRT window of 0.98 to 1.02, as required by Method 332.0, has been used. In addition to the isotopic ratio, the presence of Perchlorate in the samples associated with this data package have been confirmed using the relative retention criteria stated above, not the absolute retention time.

**Technical Information**

**Holding Time Specifications**
All samples in this SDG in this analytical batch met the specified holding time. GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

**Preparation/Analytical Method Verification**
All procedures were performed as stated in the SOP.

**Sample Dilutions**
Samples 1202876022 (CAMO-13-30592) and 1202876023 (CAMO-13-30592) were diluted to bring the over range concentrations within the calibration range.

**Sample Re-extraction/Re-analysis**
The initial analysis of sample 325643002 (CAMO-13-30598) required re-analysis on the following day due to a poor injection.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Manual Integrations**
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations.

**Method Comments**
The samples in this SDG were not originally analyzed using EPA Method 314.0.

**Additional Comments**
The Perchlorate Isotope Ratio on the Form I may differ slightly from the ratio on the corresponding raw data due to rounding rules and/or significant figures or due to software limitations when there are manual integrations, dilutions or other factors. The ratio value of the Form I is the correct value. The retention time marker, Perchlorate-O (18), is added to all samples, instrument blanks, and standards prior to injection. It is used to verify the retention time of Perchlorate and Perchlorate-101 and to insure an accurate injection occurred. Due to various anions affecting the recovery of Perchlorate-O (18) and not Perchlorate and Perchlorate-101, the calibration curves of Perchlorate and Perchlorate-101 are not internally corrected for using Perchlorate-O (18). They are external calibrations.

**Perchlorate Isotope Ratio**
The Perchlorate isotope ratio met acceptance criteria for all samples and QC samples. Please see the isotope ratio criteria in the Miscellaneous Section.

**System Configuration**

The laboratory utilizes a Waters LC 2795 liquid chromatography instrument for Perchlorate analysis. It is coupled with either a Micromass Quattro Micro Mass Spectrometer/ Mass Spectrometer, or a Micromass Quattro Ultima Mass Spectrometer/ Mass Spectrometer. Each being designated as LCMSMS #1 and LCMSMS #2, respectively. It is fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis. The laboratory may also utilize an Agilent 1100 liquid chromatography instrument for Perchlorate analysis. It is coupled with an Applied Biosystems 4000 Mass Spectrometer/ Mass Spectrometer, designated as LCMSMS #3 or LCMSMS #4. It is also fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Chromatographic Columns**

Chromatographic separation of Perchlorate is accomplished through analysis on the following anion column:

Dionex: IonPac AG-16 2 x 50 mm.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-832  GEL Work Order: 325643

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

**  Analyte is a surrogate compound

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL  Indicates that sample is diluted.
RA  Indicates that sample is re-analyzed without re-extraction.
RE  Indicates that sample is re-extracted.

**Review/Validation**

GEL requires all analytical data to be verified by a qualified data reviewer.  In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

**Signature:** Pat Steele  **Name: Patricia Steele**

**Date: 29 MAY 2013**  **Title: Data Validator**

# Sample Data Summary

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1301783

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CAMO-13-30598

**Date Received:** 14-MAY-13

**GEL Job No (SDG):** 2013-832

**GEL Sample ID:** 325643002

**Date Filtered:** 15-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.556 | ug/L | | 1 | 21-MAY-13 13:59 | per0521012a |
| | Perchlorate Isotope Ratio | | | 3.17 | | | 1 | 21-MAY-13 13:59 | per0521012a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.548 | ug/L | | 1 | 21-MAY-13 13:59 | per0521012a |
| | Perchlorate-O(18) | | | 0.520 | ug/L | | 1 | 21-MAY-13 13:59 | per0521012a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Quality Control Summary

## Perchlorate Laboratory Control Sample

**Lab Name:** General Engineering Laboratories

**Lab Code:** GEL

**GEL Job No. (SDG):** 2013-832

**Extract Batch Code:** 1301783

**Date Filtered:** 15-MAY-13

**Matrix:** WATER

**Sample ID:** 1202876021

| Analyte^ | True | Found | Units | %Rec | Q | Control Limits |
|---|---|---|---|---|---|---|
| Perchlorate | 0.200 | .203 | ug/L | 102 | | 85 - 115 |
| Perchlorate Isotope Ratio | | 3 | | | | - |
| Perchlorate-101 | 0.200 | .21 | ug/L | 105 | | 85 - 115 |
| Perchlorate-O(18) | | .505 | ug/L | | | - |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

## Perchlorate Spike/Spike Duplicate Summary

**Lab Name:** General Engineering Laboratories

**Lab Code:** GEL

**GEL Job No (SDG):** 2013-832

**Extract Batch Code:** 1301783

**Date Extracted:** 15-MAY-13

**GEL MS/PS ID:** 1202876022

**Client ID:** CAMO-13-30592

**GEL MSD/PSD ID:** 1202876023

**QC Type:** MS

| Compound^ | Spike Added | Sample Conc | Units | MS Conc | MS Rec # | MSD Conc | MSD Rec # | RPD # | RPD Limit | Recovery Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| Perchlorate | 0.200 | 0.931 | ug/L | 1.11 | 90 | 1.16 | 114 | 4.19 | 30 | 75 - 125 |
| Perchlorate Isotope Ratio | 0 | 3.07 | | 3.13 | | 3.05 | | 2.52 | | - |
| Perchlorate-101 | 0.200 | 0.944 | ug/L | 1.10 | 80.5 | 1.18 | 119 | 6.71 | 30 | 75 - 125 |
| Perchlorate-O(18) | 0 | 0.994 | ug/L | 0.985 | | 1.02 | | 3.41 | | - |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

# Quality Control Data

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** EPA 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1301783

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
MB

**Date Received:** 15-MAY-13

**GEL Job No (SDG):** 2013-832

**GEL Sample ID:** 1202876020

**Date Filtered:** 15-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.050 | ug/L | U | 1 | 20-MAY-13 15:52 | per0520021a |
| | Perchlorate Isotope Ratio | | | | | | 1 | 20-MAY-13 15:52 | per0520021a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.050 | ug/L | U | 1 | 20-MAY-13 15:52 | per0520021a |
| | Perchlorate-O(18) | | | 0.496 | ug/L | | 1 | 20-MAY-13 15:52 | per0520021a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** EPA 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1301783

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
LCS

**Date Received:** 15-MAY-13

**GEL Job No (SDG):** 2013-832

**GEL Sample ID:** 1202876021

**Date Filtered:** 15-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.203 | ug/L | | 1 | 20-MAY-13 16:00 | per0520022a |
| | Perchlorate Isotope Ratio | | | 3 | | | 1 | 20-MAY-13 16:00 | per0520022a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.210 | ug/L | | 1 | 20-MAY-13 16:00 | per0520022a |
| | Perchlorate-O(18) | | | 0.505 | ug/L | | 1 | 20-MAY-13 16:00 | per0520022a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1301783

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
ICS

**Date Received:**

**GEL Job No (SDG):** 2013-832

**GEL Sample ID:** 1202876024

**Date Filtered:** 15-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.209 | ug/L | | 1 | 20-MAY-13 16:08 | per0520023a |
| | Perchlorate Isotope Ratio | | | 3.07 | | | 1 | 20-MAY-13 16:08 | per0520023a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.212 | ug/L | | 1 | 20-MAY-13 16:08 | per0520023a |
| | Perchlorate-O(18) | | | 0.506 | ug/L | | 1 | 20-MAY-13 16:08 | per0520023a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1301783

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CAMO-13-30592MS

**Date Received:** 08-MAY-13

**GEL Job No (SDG):** 2013-832

**GEL Sample ID:** 1202876022

**Date Filtered:** 15-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .1 | .4 | 1.11 | ug/L | | 2 | 20-MAY-13 19:29 | per0520048a |
| | Perchlorate Isotope Ratio | | | 3.13 | | | 2 | 20-MAY-13 19:29 | per0520048a |
| 14797-73-0 | Perchlorate-101 | .1 | .4 | 1.10 | ug/L | | 2 | 20-MAY-13 19:29 | per0520048a |
| | Perchlorate-O(18) | | | 0.985 | ug/L | | 2 | 20-MAY-13 19:29 | per0520048a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1301783

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CAMO-13-30592MSD

**Date Received:** 08-MAY-13

**GEL Job No (SDG):** 2013-832

**GEL Sample ID:** 1202876023

**Date Filtered:** 15-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .1 | .4 | 1.16 | ug/L | | 2 | 20-MAY-13 19:37 | per0520049a |
| | Perchlorate Isotope Ratio | | | 3.05 | | | 2 | 20-MAY-13 19:37 | per0520049a |
| 14797-73-0 | Perchlorate-101 | .1 | .4 | 1.18 | ug/L | | 2 | 20-MAY-13 19:37 | per0520049a |
| | Perchlorate-O(18) | | | 1.02 | ug/L | | 2 | 20-MAY-13 19:37 | per0520049a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Metals Analysis

# Case Narrative

**Metals Fractional Narrative**
**ARS International (ARSL)**
**SDG 2013-832**

**Sample Analysis**

| Sample ID | Client ID |
|---|---|
| 325643002 | CAMO-13-30598 |
| 1202883949 | Method Blank (MB) **ICP** |
| 1202883950 | Laboratory Control Sample (LCS) |
| 1202883953 | 325649002(CAMO-13-30594L) Serial Dilution (SD) |
| 1202883951 | 325649002(CAMO-13-30594D) Sample Duplicate (DUP) |
| 1202883952 | 325649002(CAMO-13-30594S) Matrix Spike (MS) |
| 1202883954 | Method Blank (MB) **ICP-MS** |
| 1202883955 | Laboratory Control Sample (LCS) |
| 1202883958 | 325649002(CAMO-13-30594L) Serial Dilution (SD) |
| 1202883956 | 325649002(CAMO-13-30594D) Sample Duplicate (DUP) |
| 1202883957 | 325649002(CAMO-13-30594S) Matrix Spike (MS) |
| 1202878660 | Method Blank (MB) **CVAA** |
| 1202878667 | Laboratory Control Sample (LCS) |
| 1202878663 | 325643002(CAMO-13-30598L) Serial Dilution (SD) |
| 1202878661 | 325643002(CAMO-13-30598D) Sample Duplicate (DUP) |
| 1202878665 | 325643002(CAMO-13-30598S) Matrix Spike (MS) |

**Method/Analysis Information**

| | |
|---|---|
| **Analytical Batch:** | 1304837, 1304840, 1302856 and 1306882 |
| **Prep Batch :** | 1304836, 1304838 and 1302851 |
| **Standard Operating Procedures:** | GL-MA-E-013 REV# 22, GL-MA-E-006 REV# 9, GL-MA-E-014 REV# 25, GL-MA-E-010 REV# 26 and GL-GC-E-107 REV# 8 |
| **Analytical Method:** | SW846 3005/6010B, SW846 3005/6020 DOE-AL, EPA 245.1/245.2 and SM 2340 B |
| **Prep Method :** | SW846 3005A and EPA 245.1/245.2 Prep |

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

**System Configuration**

The Hardness as CaCO3 is calculated from Calcium and Magnesium results.

The Metals analysis-ICP was performed on a P E 5300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis-ICP was performed on a PE 7300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN 9000 inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadrupole mass spectrometer, and dual mode electron multiplier detector. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum. Operating conditions are set at 1400W power and combined argon pressures of 360+/-7 kPa for the plasma and auxiliary gases, and 0.85 L/min carrier gas flow, and an initial lens voltage of 5.2.

The Metals analysis-Mercury was performed on a Perkin-Elmer Flow Injection Mercury System (FIMS-100) automated mercury analyzer. The instrument consists of a cold vapor atomic absorption spectrometer set to detect mercury at a wavelength of 253.7 nm. Sample introduction through the flow injection system is performed via a peristaltic pump at 9 mL/min and nitrogen carrier gas rate of 80 mL/min.

**Calibration Information**

**Instrument Calibration**
All initial calibration requirements have been met for this sample delivery group (SDG).

**CRDL Requirements**
All CRDL standard(s) met the referenced advisory control limits.

**ICSA/ICSAB Statement**

All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

**Continuing Calibration Blank (CCB) Requirements**
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

**Continuing Calibration Verification (CCV) Requirements**
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MBs analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recoveries met the acceptance limits.

**Quality Control (QC) Sample Statement**
The following samples were selected as the quality control (QC) samples for this SDG: 325649002 (CAMO-13-30594)-ICP and ICP-MS and 325643002 (CAMO-13-30598)-CVAA.

**Matrix Spike (MS) Recovery Statement**
The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. All applicable elements met the acceptance criteria.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. All applicable analytes met these requirements.

**Serial Dilution % Difference Statement**
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations that are 25X the IDL/MDL for CVAA, 50X the IDL/MDL for ICP, and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the acceptance criteria of less than 10% difference (%D).

**Technical Information**

**Holding Time Specifications**
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

**Preparation/Analytical Method Verification**
All procedures were performed as stated in the SOP.

**Sample Dilutions**
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. The samples in this SDG did not require dilutions.

**Preparation Information**

The samples in this SDG were prepared exactly according to the cited SOP.

**Miscellaneous Information**

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Total Hardness by Calculation is determined using the results of Total Calcium (Ca) and Total Magnesium (Mg) determined by ICP or ICP-MS.
Hardness = 2.497 (Ca) + 4.118 (Mg)
Please refer to the Total Ca and Total Mg data to validate results appearing on the Hardness Summary sheet. Both results are in the Inorganic/metals section of the package. There is no Batch QC for calculated results, and thus no QC Summary for the Hardness by Calculation Batch. The MDLs and PQLs are calculated using the higher of the two calculated values of Ca or Mg.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

**Review Validation:**

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

**The following data validator verified the information presented in this case narrative:**

**Reviewer:_____ Date:_____**

# Sample Data Summary

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-832  GEL Work Order: 325643

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

J  Value is estimated

N  Metals--The Matrix spike sample recovery is not within specified control limits

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−832 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

**SAMPLE ID:** 325643002 **BASIS:** As Received **DATE COLLECTED** 10−MAY−13

**CLIENT ID:** CAMO−13−30598 **LEVEL:** Low **DATE RECEIVED** 14−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7439−97−6 | Mercury | 0.20 | ug/L | U | 0.067 | 0.2 | 0.2 | 1 | AV | NOR1 | 05/21/13 12:44 | 052113W1−6 | 1302856 |

# METALS
## −1−
## INORGANICS ANALYSIS DATA PACKAGE

**SDG No:** 2013−832 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

**SAMPLE ID:** 325643002 **BASIS:** As Received **DATE COLLECTED** 10−MAY−13

**CLIENT ID:** CAMO−13−30598 **LEVEL:** Low **DATE RECEIVED** 14−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7429−90−5 | Aluminum | 200 | ug/L | U | 68 | 200 | 200 | 1 | P | HSC | 06/06/13 14:54 | 060613−1 | 1304837 |
| 7440−36−0 | Antimony | 3 | ug/L | U | 1 | 3 | 3 | 1 | MS | PRB | 06/08/13 04:29 | 130607−5 | 1304840 |
| 7440−38−2 | Arsenic | 5 | ug/L | U | 1.7 | 5 | 5 | 1 | MS | BAJ | 06/07/13 06:00 | 130606−3 | 1304840 |
| 7440−39−3 | Barium | 18.7 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 14:54 | 060613−1 | 1304837 |
| 7440−41−7 | Beryllium | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 14:54 | 060613−1 | 1304837 |
| 7440−42−8 | Boron | 50 | ug/L | U | 15 | 50 | 50 | 1 | P | HSC | 06/06/13 14:54 | 060613−1 | 1304837 |
| 7440−43−9 | Cadmium | 1 | ug/L | U | 0.11 | 1 | 1 | 1 | MS | BAJ | 06/07/13 06:00 | 130606−3 | 1304840 |
| 7440−70−2 | Calcium | 16900 | ug/L | | 50 | 200 | 200 | 1 | P | HSC | 06/06/13 14:54 | 060613−1 | 1304837 |
| 7440−47−3 | Chromium | 103 | ug/L | | 2 | 10 | 10 | 1 | MS | BAJ | 06/07/13 06:00 | 130606−3 | 1304840 |
| 7440−48−4 | Cobalt | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 14:54 | 060613−1 | 1304837 |
| 7440−50−8 | Copper | 10 | ug/L | U | 3 | 10 | 10 | 1 | P | HSC | 06/06/13 14:54 | 060613−1 | 1304837 |
| 7439−89−6 | Iron | 100 | ug/L | U | 30 | 100 | 100 | 1 | P | HSC | 06/06/13 14:54 | 060613−1 | 1304837 |
| 7439−92−1 | Lead | 2 | ug/L | U | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/07/13 06:00 | 130606−3 | 1304840 |
| 7439−95−4 | Magnesium | 5080 | ug/L | | 110 | 300 | 300 | 1 | P | HSC | 06/07/13 10:07 | 060713B−2 | 1304837 |
| 7439−96−5 | Manganese | 10 | ug/L | U | 2 | 10 | 10 | 1 | P | HSC | 06/06/13 14:54 | 060613−1 | 1304837 |
| 7439−98−7 | Molybdenum | 1.18 | ug/L | | 0.165 | 0.5 | 0.5 | 1 | MS | BAJ | 06/07/13 15:34 | 130607−4 | 1304840 |
| 7440−02−0 | Nickel | 7.2 | ug/L | | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/07/13 06:00 | 130606−3 | 1304840 |
| 7440−09−7 | Potassium | 1530 | ug/L | | 50 | 150 | 150 | 1 | P | HSC | 06/06/13 14:54 | 060613−1 | 1304837 |
| 7782−49−2 | Selenium | 5 | ug/L | U | 1.5 | 5 | 5 | 1 | MS | BAJ | 06/07/13 06:00 | 130606−3 | 1304840 |
| 7631−86−9 | Silica | 73800 | ug/L | | 53 | 213 | 213 | 1 | P | HSC | 06/06/13 14:54 | 060613−1 | 1304837 |
| 7440−22−4 | Silver | 1 | ug/L | U | 0.2 | 1 | 1 | 1 | MS | BAJ | 06/07/13 06:00 | 130606−3 | 1304840 |
| 7440−23−5 | Sodium | 13800 | ug/L | | 100 | 300 | 300 | 1 | P | HSC | 06/07/13 10:07 | 060713B−2 | 1304837 |
| 7440−24−6 | Strontium | 70.6 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 14:54 | 060613−1 | 1304837 |
| 7440−28−0 | Thallium | 2 | ug/L | U | 0.45 | 2 | 2 | 1 | MS | BAJ | 06/07/13 06:00 | 130606−3 | 1304840 |
| 7440−31−5 | Tin | 10 | ug/L | U | 2.5 | 10 | 10 | 1 | P | HSC | 06/07/13 10:07 | 060713B−2 | 1304837 |
| 7440−61−1 | Uranium | 0.555 | ug/L | | 0.067 | 0.2 | 0.2 | 1 | MS | BAJ | 06/07/13 15:34 | 130607−4 | 1304840 |
| 7440−62−2 | Vanadium | 5.15 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 14:54 | 060613−1 | 1304837 |
| 7440−66−6 | Zinc | 7.59 | ug/L | J | 3.3 | 10 | 10 | 1 | P | HSC | 06/06/13 14:54 | 060613−1 | 1304837 |

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−832 **CONTRACT:** ESHL00210 **METHOD TYPE:**

**SAMPLE ID:** 325643002 **BASIS:** As Received **DATE COLLECTED** 10−MAY−13

**CLIENT ID:** CAMO−13−30598 **LEVEL:** Low **DATE RECEIVED** 14−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Hardness as CaCO3 | 64.1 | mg/L | | 0.453 | 1.24 | 1.24 | 1 | | JJ2 | 06/10/13 11:06 | | 1306882 |

**Prep Information:**

| Analytical Batch | Prep Batch | Prep Method | Initial wt./vol. | Units | Final wt./vol. | Units | Date | Analyst |
|---|---|---|---|---|---|---|---|---|
| 1302856 | 1302851 | EPA 245.1/245.2 Prep | 20 | mL | 20 | mL | 05/20/13 | AXS5 |
| 1304837 | 1304836 | SW846 3005A | 50 | mL | 50 | mL | 06/06/13 | AXG2 |
| 1304840 | 1304838 | SW846 3005A | 50 | mL | 50 | mL | 06/06/13 | AXG2 |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**
**P** **SW846 3005/6010B**
**AV** **EPA 245.1/245.2**

# Quality Control Summary

**METALS**
**−3b−**
**PREPARATION BLANK SUMMARY**

**SDG NO.** 2013−832

**Contract:** ESHL00210

**Matrix:** W

| Sample ID | Analyte | Result | Units | Acceptance Window | Conc Qual | M* | MDL | RDL |
|---|---|---|---|---|---|---|---|---|
| 1202878660 | | | | | | | | |
| | Mercury | −0.074 | ug/L | +/−0.2 | J | AV | 0.067 | 0.2 |
| 1202883949 | | | | | | | | |
| | Aluminum | 68 | ug/L | +/−200 | U | P | 68 | 200 |
| | Barium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Beryllium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Boron | 15 | ug/L | +/−50 | U | P | 15 | 50 |
| | Calcium | 50 | ug/L | +/−200 | U | P | 50 | 200 |
| | Cobalt | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Copper | 3 | ug/L | +/−10 | U | P | 3 | 10 |
| | Iron | 30 | ug/L | +/−100 | U | P | 30 | 100 |
| | Magnesium | 110 | ug/L | +/−300 | U | P | 110 | 300 |
| | Manganese | 2 | ug/L | +/−10 | U | P | 2 | 10 |
| | Potassium | 50 | ug/L | +/−150 | U | P | 50 | 150 |
| | Silica | 53 | ug/L | +/−213 | U | P | 53 | 213 |
| | Strontium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Tin | 2.5 | ug/L | +/−10 | U | P | 2.5 | 10 |
| | Vanadium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Zinc | 3.3 | ug/L | +/−10 | U | P | 3.3 | 10 |
| | Sodium | 100 | ug/L | +/−300 | U | P | 100 | 300 |
| 1202883954 | | | | | | | | |
| | Antimony | 1 | ug/L | +/−3 | U | MS | 1 | 3 |
| | Arsenic | 1.7 | ug/L | +/−5 | U | MS | 1.7 | 5 |
| | Cadmium | 0.11 | ug/L | +/−1 | U | MS | 0.11 | 1 |
| | Chromium | 2 | ug/L | +/−10 | U | MS | 2 | 10 |
| | Lead | 0.5 | ug/L | +/−2 | U | MS | 0.5 | 2 |
| | Molybdenum | 0.165 | ug/L | +/−0.5 | U | MS | 0.165 | 0.5 |
| | Nickel | 0.5 | ug/L | +/−2 | U | MS | 0.5 | 2 |
| | Selenium | 1.5 | ug/L | +/−5 | U | MS | 1.5 | 5 |
| | Silver | 0.2 | ug/L | +/−1 | U | MS | 0.2 | 1 |
| | Thallium | 0.45 | ug/L | +/−2 | U | MS | 0.45 | 2 |
| | Uranium | 0.067 | ug/L | +/−0.2 | U | MS | 0.067 | 0.2 |

***Analytical Methods:**

| | |
|---|---|
| **MS** | **SW846 3005/6020 DOE−AL** |
| **P** | **SW846 3005/6010B** |
| **AV** | **EPA 245.1/245.2** |

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−832 **Client ID:** CAMO−13−30598S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 325643002 **Spike ID:** 1202878665

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | ug/L | 75−125 | 1.95 | | 0.067 | U | 2 | 97.7 | | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−832 **Client ID** CAMO−13−30594S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 325649002 **Spike ID:** 1202883952

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | ug/L | 75−125 | 5060 | | 68 | U | 5000 | 101 | | P |
| Barium | ug/L | 75−125 | 513 | | 21.9 | | 500 | 98.3 | | P |
| Beryllium | ug/L | 75−125 | 498 | | 1 | U | 500 | 99.5 | | P |
| Boron | ug/L | 75−125 | 491 | | 15 | U | 500 | 97.5 | | P |
| Calcium | ug/L | 75−125 | 17600 | | 13300 | | 5000 | 86.2 | | P |
| Cobalt | ug/L | 75−125 | 496 | | 1 | U | 500 | 99.2 | | P |
| Copper | ug/L | 75−125 | 532 | | 3 | U | 500 | 106 | | P |
| Iron | ug/L | 75−125 | 5140 | | 30 | U | 5000 | 103 | | P |
| Magnesium | ug/L | 75−125 | 8390 | | 3700 | | 5000 | 93.7 | | P |
| Manganese | ug/L | 75−125 | 492 | | 2 | U | 500 | 98.3 | | P |
| Potassium | ug/L | 75−125 | 5990 | | 1210 | | 5000 | 95.6 | | P |
| Silica | ug/L | | 81700 | | 74900 | | 10700 | 62.8 | N/A | P |
| Sodium | ug/L | 75−125 | 14200 | | 9930 | | 5000 | 85.2 | | P |
| Strontium | ug/L | 75−125 | 560 | | 58.8 | | 500 | 100 | | P |
| Tin | ug/L | 75−125 | 470 | | 2.5 | U | 500 | 94 | | P |
| Vanadium | ug/L | 75−125 | 507 | | 5.58 | | 500 | 100 | | P |
| Zinc | ug/L | 75−125 | 490 | | 3.3 | U | 500 | 97.4 | | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−832 **Client ID** CAMO−13−30594S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 325649002 **Spike ID:** 1202883957

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ug/L | 75−125 | 55 | | 1 | U | 50 | 110 | | MS |
| Arsenic | ug/L | 75−125 | 52.4 | | 1.7 | U | 50 | 102 | | MS |
| Cadmium | ug/L | 75−125 | 54.8 | | 0.11 | U | 50 | 110 | | MS |
| Chromium | ug/L | 75−125 | 68.1 | | 17.5 | | 50 | 101 | | MS |
| Lead | ug/L | 75−125 | 51.2 | | 0.5 | U | 50 | 102 | | MS |
| Molybdenum | ug/L | 75−125 | 51.8 | | 0.849 | | 50 | 102 | | MS |
| Nickel | ug/L | 75−125 | 53.4 | | 2.22 | | 50 | 102 | | MS |
| Selenium | ug/L | 75−125 | 59.2 | | 1.5 | U | 50 | 116 | | MS |
| Silver | ug/L | 75−125 | 54 | | 0.2 | U | 50 | 108 | | MS |
| Thallium | ug/L | 75−125 | 47.3 | | 0.45 | U | 50 | 94.6 | | MS |
| Uranium | ug/L | 75−125 | 51.9 | | 0.429 | | 50 | 103 | | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−832 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CAMO−13−30598D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325643002 **Duplicate ID:** 1202878661 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | ug/L | | 0.067 | U | 0.067 | U | | | AV |

***Analytical Methods:**

**AV EPA 245.1/245.2**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−832 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CAMO−13−30594D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325649002 **Duplicate ID:** 1202883951 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | ug/L | | 68 | U | 68 | U | | | P |
| Barium | ug/L | +/−5 | 21.9 | | 20.8 | | 5.14 | | P |
| Beryllium | ug/L | | 1 | U | 1 | U | | | P |
| Boron | ug/L | | 15 | U | 15 | U | | | P |
| Calcium | ug/L | +/−20% | 13300 | | 12900 | | 3.27 | | P |
| Cobalt | ug/L | | 1 | U | 1 | U | | | P |
| Copper | ug/L | | 3 | U | 3 | U | | | P |
| Iron | ug/L | | 30 | U | 30 | U | | | P |
| Magnesium | ug/L | +/−20% | 3700 | | 3510 | | 5.41 | | P |
| Manganese | ug/L | | 2 | U | 2 | U | | | P |
| Potassium | ug/L | +/−20% | 1210 | | 1170 | | 3.01 | | P |
| Silica | ug/L | +/−20% | 74900 | | 72500 | | 3.29 | | P |
| Sodium | ug/L | +/−20% | 9930 | | 9590 | | 3.45 | | P |
| Strontium | ug/L | +/−20% | 58.8 | | 56.4 | | 4.05 | | P |
| Tin | ug/L | | 2.5 | U | 2.5 | U | | | P |
| Vanadium | ug/L | +/−5 | 5.58 | | 4.98 | J | 11.3 | | P |
| Zinc | ug/L | | 3.3 | U | 3.3 | U | | | P |

***Analytical Methods:**

**P SW846 3005/6010B**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−832 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CAMO−13−30594D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325649002 **Duplicate ID:** 1202883956 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Antimony | ug/L | | 1 | U | 1 | U | | | MS |
| Arsenic | ug/L | | 1.7 | U | 1.7 | U | | | MS |
| Cadmium | ug/L | | 0.11 | U | 0.11 | U | | | MS |
| Chromium | ug/L | +/−10 | 17.5 | | 16 | | 9.39 | | MS |
| Lead | ug/L | | 0.5 | U | 0.5 | U | | | MS |
| Molybdenum | ug/L | +/−.5 | 0.849 | | 0.877 | | 3.24 | | MS |
| Nickel | ug/L | +/−2 | 2.22 | | 1.9 | J | 15.5 | | MS |
| Selenium | ug/L | | 1.5 | U | 1.5 | U | | | MS |
| Silver | ug/L | | 0.2 | U | 0.2 | U | | | MS |
| Thallium | ug/L | | 0.45 | U | 0.45 | U | | | MS |
| Uranium | ug/L | +/−.2 | 0.429 | | 0.42 | | 2.12 | | MS |

***Analytical Methods:**

**MS SW846 3005/6020 DOE−AL**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−832

**Contract:** ESHL00210

**Aqueous LCS Source:** GEL **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202878667 | | | | | | | | |
| | Mercury | ug/L | 2 | 1.99 | | 99.5 | 85−115 | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−832

**Contract:** ESHL00210

**Aqueous LCS Source:** OS2I **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202883950 | | | | | | | | |
| | Aluminum | ug/L | 5000 | 5200 | | 104 | 80−120 | P |
| | Barium | ug/L | 500 | 510 | | 102 | 80−120 | P |
| | Beryllium | ug/L | 500 | 508 | | 102 | 80−120 | P |
| | Boron | ug/L | 500 | 488 | | 97.7 | 80−120 | P |
| | Calcium | ug/L | 5000 | 5150 | | 103 | 80−120 | P |
| | Cobalt | ug/L | 500 | 508 | | 102 | 80−120 | P |
| | Copper | ug/L | 500 | 533 | | 107 | 80−120 | P |
| | Iron | ug/L | 5000 | 5300 | | 106 | 80−120 | P |
| | Magnesium | ug/L | 5000 | 5140 | | 103 | 80−120 | P |
| | Manganese | ug/L | 500 | 517 | | 103 | 80−120 | P |
| | Potassium | ug/L | 5000 | 5100 | | 102 | 80−120 | P |
| | Silica | ug/L | 10700 | 10800 | | 101 | 80−120 | P |
| | Sodium | ug/L | 5000 | 5040 | | 101 | 80−120 | P |
| | Strontium | ug/L | 500 | 527 | | 105 | 80−120 | P |
| | Tin | ug/L | 500 | 496 | | 99.2 | 80−120 | P |
| | Vanadium | ug/L | 500 | 517 | | 103 | 80−120 | P |
| | Zinc | ug/L | 500 | 493 | | 98.5 | 80−120 | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−832

**Contract:** ESHL00210

**Aqueous LCS Source:** O2Si **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202883955 | | | | | | | | |
| | Silver | ug/L | 50 | 53.8 | | 108 | 80−120 | MS |
| | Thallium | ug/L | 50 | 46.7 | | 93.5 | 80−120 | MS |
| | Uranium | ug/L | 50 | 49.6 | | 99.3 | 80−120 | MS |
| | Antimony | ug/L | 50 | 55.6 | | 111 | 80−120 | MS |
| | Arsenic | ug/L | 50 | 51.7 | | 103 | 80−120 | MS |
| | Cadmium | ug/L | 50 | 54.4 | | 109 | 80−120 | MS |
| | Chromium | ug/L | 50 | 52.9 | | 106 | 80−120 | MS |
| | Lead | ug/L | 50 | 51.4 | | 103 | 80−120 | MS |
| | Molybdenum | ug/L | 50 | 50.2 | | 100 | 80−120 | MS |
| | Nickel | ug/L | 50 | 52.7 | | 105 | 80−120 | MS |
| | Selenium | ug/L | 50 | 59.7 | | 119 | 80−120 | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−832 **Client ID** CAMO−13−30598L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325643002 **Serial Dilution ID:** 1202878663

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Mercury | .067 | U | .335 | U | | | | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−832 **Client ID** CAMO−13−30594L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325649002 **Serial Dilution ID:** 1202883953

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Aluminum | 68 | U | 340 | U | | | | P |
| Barium | 21.9 | | 25.2 | | 14.8 | | | P |
| Beryllium | 1 | U | 5 | U | | | | P |
| Boron | 15 | U | 75 | U | | | | P |
| Calcium | 13300 | | 13000 | | 2.28 | | 10 | P |
| Cobalt | 1 | U | 5 | U | | | | P |
| Copper | 3 | U | 15 | U | | | | P |
| Iron | 30 | U | 150 | U | | | | P |
| Magnesium | 3700 | | 3680 | | .612 | | | P |
| Manganese | 2 | U | 10 | U | | | | P |
| Potassium | 1210 | | 1320 | | 8.88 | | | P |
| Silica | 74900 | | 73100 | | 2.4 | | 10 | P |
| Sodium | 9930 | | 10500 | | 5.47 | | 10 | P |
| Strontium | 58.8 | | 56.9 | | 3.16 | | 10 | P |
| Tin | 2.5 | U | 12.5 | U | | | | P |
| Vanadium | 5.58 | | 6.2 | J | 11.1 | | | P |
| Zinc | 3.3 | U | 16.5 | U | | | | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−832 **Client ID** CAMO−13−30594L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325649002 **Serial Dilution ID:** 1202883958

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Antimony | 1 | U | 5 | U | | | | MS |
| Arsenic | 1.7 | U | 8.5 | U | | | | MS |
| Cadmium | .11 | U | .55 | U | | | | MS |
| Chromium | 17.5 | | 16.6 | J | 5.12 | | | MS |
| Lead | .5 | U | 2.5 | U | | | | MS |
| Molybdenum | .849 | | 1.15 | J | 35.5 | | | MS |
| Nickel | 2.22 | | 2.5 | U | 100 | | | MS |
| Selenium | 1.5 | U | 7.5 | U | | | | MS |
| Silver | .2 | U | 1 | U | | | | MS |
| Thallium | .45 | U | 2.25 | U | | | | MS |
| Uranium | .429 | | .53 | J | 23.5 | | | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

# General Chem Analysis

# Case Narrative

**General Chemistry Narrative**
**ARS International (ARSL)**
**SDG 2013-832**

## Method/Analysis Information

**Product:** **Carbon, Total Organic**

**Analytical Batch:** 1302095 **Method:** SW 9060 Total Organic Carbon

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9060:

| Sample ID | Client ID |
|---|---|
| 325643001 | CAMO-13-30582 |
| 1202876780 | Method Blank (MB) |
| 1202876781 | 325479001(CAMO-13-30586) Sample Duplicate (DUP) |
| 1202876783 | 325479001(CAMO-13-30586) Post Spike (PS) |
| 1202876785 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-093 REV# 12.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Carbon analysis was performed on a O-I Analytical Model 1010 Total Organic Carbon Analyzer.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

## Quality Control (QC) Information

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325479001 (CAMO-13-30586).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

## Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

## Miscellaneous Information

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
A 15 mg/L Total Inorganic Carbon check standard is analyzed with each analytical run to prove that the instrument is effectively sparging away the inorganic carbon.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages

electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Specific Conductivity** | | |
| **Analytical Batch:** | 1305069 | **Method:** | EPA120.1 Specific Conductivity |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 120.1:

| Sample ID | Client ID |
|---|---|
| 325643002 | CAMO-13-30598 |
| 1202884559 | Laboratory Control Sample (LCS) |
| 1202884560 | 325649002(CAMO-13-30594) Sample Duplicate (DUP) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-009 REV# 11.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Conductivity analysis was performed on a Orion 160 Conductivity Meter.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325649002 (CAMO-13-30594).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

## Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

## Miscellaneous Information

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

**Product:** **pH**

**Analytical Batch:** 1301818 **Method:** EPA 150.1 pH

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 150.1:

| Sample ID | Client ID |
|---|---|
| 325643002 | CAMO-13-30598 |
| 1202876117 | 325649002(CAMO-13-30594) Sample Duplicate (DUP) |
| 1202876118 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-008 REV# 21.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Electrode analysis was performed on a PerpHect pH Meter Orion 370.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**

The following sample was selected for QC analysis: 325649002 (CAMO-13-30594).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
The following sample from this sample group was received by the lab outside of the method specified holding time: 325643002 (CAMO-13-30598).

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1189891 325643002 (CAMO-13-30598).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Ion Chromatography** | | |
| **Analytical Batch:** | 1300945 | **Method:** | EPA 300.0 Anions Liquid 28 day |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

| Sample ID | Client ID |
|---|---|
| 325643002 | CAMO-13-30598 |
| 1202873935 | Method Blank (MB) |
| 1202873936 | 325479002(CAMO-13-30602) Sample Duplicate (DUP) |
| 1202873937 | 325479002(CAMO-13-30602) Post Spike (PS) |
| 1202873938 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 21.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-5000 Ion Chromatograph.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325479002 (CAMO-13-30602).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The spike recovery falls outside of the established acceptance limits due to matrix interference: 1202873937 (CAMO-13-30602).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1191934 1202873937 (CAMO-13-30602).

**Manual Integrations**
The following samples from this sample group had to be manually integrated due to errors in the instrument software peak integration: 1202873936 (CAMO-13-30602), 1202873937 (CAMO-13-30602) and 325643002 (CAMO-13-30598).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an

effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Ammonia Nitrogen** | | |
| **Analytical Batch:** | 1301250 | **Method:** | EPA 350.1 Nitrogen and Ammonia L |
| **Prep Batch :** | 1301248 | **Method:** | EEPA 350.2 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 350.1:

| Sample ID | Client ID |
|---|---|
| 325643002 | CAMO-13-30598 |
| 1202874615 | Method Blank (MB) |
| 1202874617 | 325479002(CAMO-13-30602) Sample Duplicate (DUP) |
| 1202874619 | 325479002(CAMO-13-30602) Matrix Spike (MS) |
| 1202874620 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-106 REV# 9.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325479002 (CAMO-13-30602).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample: 1202874617 (CAMO-13-30602).

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1187647 1202874617 (CAMO-13-30602).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Total Kjeldahl Nitrogen** | | |
| **Analytical Batch:** | 1301771 | **Method:** | Nitrogen and Total Kjeldahl (TKN) |
| **Prep Batch :** | 1301770 | **Method:** | EEPA 351.2 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 351.2:

| Sample ID | Client ID |
|---|---|
| 325643001 | CAMO-13-30582 |
| 1202876001 | Method Blank (MB) |
| 1202876002 | 325649001(CAMO-13-30578) Sample Duplicate (DUP) |
| 1202876003 | 325649003(CAMO-13-30579) Sample Duplicate (DUP) |
| 1202876004 | 325649001(CAMO-13-30578) Matrix Spike (MS) |
| 1202876005 | 325649003(CAMO-13-30579) Matrix Spike (MS) |
| 1202876006 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-104 REV# 14.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following samples were selected for QC analysis: 325649001 (CAMO-13-30578) and 325649003 (CAMO-13-30579).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The spike recovery falls outside of the established acceptance limits due to matrix interference: 1202876005 (CAMO-13-30579).

**Duplicate Relative Percent Difference (RPD) Statement**
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202876002 (CAMO-13-30578) and 1202876003 (CAMO-13-30579).

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1186861 1202876005 (CAMO-13-30579).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Nitrate Nitrite by Cadmium Reduction** | | |
| **Analytical Batch:** | 1302060 | **Method:** | EPA 353.2 Nitrogen and Nitrate/Nitrite |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 353.2:

| Sample ID | Client ID |
|---|---|
| 325643002 | CAMO-13-30598 |
| 1202876700 | Method Blank (MB) |
| 1202876701 | 325649002(CAMO-13-30594) Sample Duplicate (DUP) |
| 1202876702 | 325649004(CAMO-13-30595) Sample Duplicate (DUP) |
| 1202876703 | 325649002(CAMO-13-30594) Post Spike (PS) |
| 1202876704 | 325649004(CAMO-13-30595) Post Spike (PS) |
| 1202876705 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-128 REV# 8.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8500 Series.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following samples were selected for QC analysis: 325649002 (CAMO-13-30594) and 325649004 (CAMO-13-30595).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recoveries for this sample set were within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Method/Analysis Information**

| | | | |
|---|---|---|---|
| **Product:** | **Total Phosphorus** | | |
| **Analytical Batch:** | 1301773 | **Method:** | EPA 365.4 Phosphorus and Total in |
| **Prep Batch :** | 1301772 | **Method:** | EEPA 365.4 Prep |

**Sample Analysis**

The following samples were analyzed using the analytical protocol as established in EPA 365.4:

| Sample ID | Client ID |
|---|---|
| 325643002 | CAMO-13-30598 |
| 1202876007 | Method Blank (MB) |
| 1202876008 | 325479002(CAMO-13-30602) Sample Duplicate (DUP) |
| 1202876009 | 325479005(CAMO-13-30564) Sample Duplicate (DUP) |
| 1202876010 | 325479002(CAMO-13-30602) Matrix Spike (MS) |
| 1202876011 | 325479005(CAMO-13-30564) Matrix Spike (MS) |
| 1202876012 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-103 REV# 10.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

**Calibration Information**

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following samples were selected for QC analysis: 325479002 (CAMO-13-30602) and 325479005 (CAMO-13-30564).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recoveries for this sample set were within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The following sample was re-analyzed due to instrument failure: 1202876012 (LCS).

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages

electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Solids, Total Dissolved** | | |
| **Analytical Batch:** | 1301819 | **Method:** | EPA 160.1 Solids and Dissolved-F |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 160.1:

| Sample ID | Client ID |
|---|---|
| 325643002 | CAMO-13-30598 |
| 1202876119 | Method Blank (MB) |
| 1202876120 | 325649008(CAMO-13-30597) Sample Duplicate (DUP) |
| 1202876121 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-001 REV# 13.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Solids analysis was performed on a Sartorius Balance BAL216. Solids lab

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

## Quality Control (QC) Information

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**

The following sample was selected for QC analysis: 325649008 (CAMO-13-30597).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Sample Aliquot**
A sufficient amount of sample was provided by the client for analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

**Product:** **Alkalinity**

**Analytical Batch:** 1303137 **Method:** EPA 310.1 Total Alkalinity

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 310.1:

| Sample ID | Client ID |
|---|---|
| 325643002 | CAMO-13-30598 |
| 1202879523 | Laboratory Control Sample (LCS) |
| 1202879526 | 325643002(CAMO-13-30598) Sample Duplicate (DUP) |
| 1202879527 | 325643002(CAMO-13-30598) Matrix Spike (MS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-033 REV# 10.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Titration analysis was performed on a Manually operated buret.

**Initial Standardization**
The titrant was properly standardized

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325643002 (CAMO-13-30598).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**

The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

**Review Validation:**

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

**The following data validator verified the information presented in this case narrative:**

**Reviewer:**_____ **Date:**_____10Jun13_____

# Sample Data Summary

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-832  GEL Work Order: 325643

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

**  Analyte is a Tracer compound

**  Analyte is a surrogate compound

H  Analytical holding time was exceeded

J  Value is estimated

N  Metals--The Matrix spike sample recovery is not within specified control limits

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: June 10, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-832

Client Sample ID: CAMO-13-30582
Sample ID: 325643001
Matrix: W
Collect Date: 10-MAY-13 12:05
Receive Date: 14-MAY-13
Collector: Client
Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon Analysis | | | | | | | | | | | |
| SW 9060 Total Organic Carbon "As Received" | | | | | | | | | | | |
| Total Organic Carbon Average | | 1.28 | 0.330 | 1.00 | mg/L | 1 | TSM | 05/16/13 | 1832 | 1302095 | 1 |
| Nutrient Analysis | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl (TKN) "As Received" | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | J | 0.0794 | 0.033 | 0.100 | mg/L | 1 | KLP1 | 05/16/13 | 1523 | 1301771 | 2 |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 351.2 Prep | EPA 351.2 Total Kjeldahl Nitrogen Prep | KLP1 | 05/16/13 | 1445 | 1301770 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | SW846 9060 | |
| 2 | EPA 351.2 | |

**Notes:**

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: June 10, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-832

Client Sample ID: CAMO-13-30598
Sample ID: 325643002
Matrix: W
Collect Date: 10-MAY-13 12:05
Receive Date: 14-MAY-13
Collector: Client
Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Conductivity Analysis | | | | | | | | | | | |
| EPA120.1 Specific Conductivity "As Received" | | | | | | | | | | | |
| Conductivity | | 190 | 1.00 | 1.00 | umhos/cm | 1 | LXA1 | 05/31/13 | 1554 | 1305069 | 1 |
| Electrode Analysis | | | | | | | | | | | |
| EPA 150.1 pH "As Received" | | | | | | | | | | | |
| pH at Temp 9.40C | H | 7.99 | 0.010 | 0.100 | SU | 1 | LYG1 | 05/15/13 | 0759 | 1301818 | 2 |
| Ion Chromatography | | | | | | | | | | | |
| EPA 300.0 Anions Liquid 28 day "As Received" | | | | | | | | | | | |
| Bromide | J | 0.0953 | 0.067 | 0.200 | mg/L | 1 | MAR1 | 06/01/13 | 1133 | 1300945 | 3 |
| Chloride | | 8.34 | 0.067 | 0.200 | mg/L | 1 | | | | | |
| Fluoride | | 0.282 | 0.033 | 0.100 | mg/L | 1 | | | | | |
| Sulfate | | 12.3 | 0.133 | 0.400 | mg/L | 1 | | | | | |
| Nutrient Analysis | | | | | | | | | | | |
| EPA 350.1 Nitrogen, Ammonia L "As Received" | | | | | | | | | | | |
| Nitrogen, Ammonia | | 0.0516 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/20/13 | 1612 | 1301250 | 4 |
| EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received" | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | 1.45 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/29/13 | 1545 | 1302060 | 5 |
| EPA 365.4 Phosphorus, Total in "As Received" | | | | | | | | | | | |
| Phosphorus, Total as P | J | 0.0406 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/21/13 | 1211 | 1301773 | 6 |
| Solids Analysis | | | | | | | | | | | |
| EPA 160.1 Solids, Dissolved-F "As Received" | | | | | | | | | | | |
| Total Dissolved Solids | | 153 | 3.40 | 14.3 | mg/L | | LYG1 | 05/15/13 | 0947 | 1301819 | 7 |
| Titration Analysis | | | | | | | | | | | |
| EPA 310.1 Total Alkalinity "As Received" | | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | 59.9 | 0.725 | 1.00 | mg/L | | LXA1 | 05/21/13 | 1450 | 1303137 | 8 |
| Carbonate alkalinity (CaCO3) | U | ND | 0.725 | 1.00 | mg/L | | | | | | |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 350.2 Prep | EPA 350.1 Ammonia Nitrogen Prep | KLP1 | 05/20/13 | 1320 | 1301248 |
| EPA 365.4 Prep | EPA 365.4 Phosphorus, Total in liquid PR | KLP1 | 05/20/13 | 1630 | 1301772 |

# GEL LABORATORIES LLC

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## Certificate of Analysis

Report Date: June 10, 2013

| | | | |
|---|---|---|---|
| Company : | Los Alamos National Laboratory | | |
| Address : | PO Box 1663<br>TA-03, SM271, Drop Pt. 02U, Rm111<br>Los Alamos, New Mexico 87545 | | |
| Contact: | Keith Greene | Client SDG: | 2013-832 |
| Project: | LANL-WQH Water Samples | | |

| | | | |
|---|---|---|---|
| Client Sample ID: | CAMO-13-30598 | Project: | ESHL00210 |
| Sample ID: | 325643002 | Client ID: | ARSL001 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | EPA 120.1 | |
| 2 | EPA 150.1 | |
| 3 | EPA 300.0 | |
| 4 | EPA 350.1 | |
| 5 | EPA 353.2 | |
| 6 | EPA 365.4 | |
| 7 | EPA 160.1 | |
| 8 | EPA 310.1 | |

**Notes:**

# Quality Control Summary

# GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

## QC Summary

**Report Date: June 10, 2013**


**Los Alamos National Laboratory**
**PO Box 1663**
**TA-03, SM271, Drop Pt. 02U, Rm111**
**Los Alamos, New Mexico**

**Contact:** **Keith Greene**

**Workorder:** **325643**

| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Carbon Analysis** | | | | | | | | | | | | |
| Batch 1302095 | | | | | | | | | | | | |
| QC1202876781 325479001 DUP | | | | | | | | | | | | |
| Total Organic Carbon Average | | J | 0.510 | J | 0.511 | mg/L | 0.196 | ^ | | (+/-1.00) | TSM | 05/16/13 16:57 |
| QC1202876785 LCS | | | | | | | | | | | | |
| Total Organic Carbon Average | 10.0 | | | | 9.70 | mg/L | | | 97 | (85%-115%) | | 05/16/13 16:15 |
| QC1202876780 MB | | | | | | | | | | | | |
| Total Organic Carbon Average | | | | U | ND | mg/L | | | | | | 05/16/13 16:06 |
| QC1202876783 325479001 PS | | | | | | | | | | | | |
| Total Organic Carbon Average | 10.0 | J | 0.510 | | 10.4 | mg/L | | | 99 | (65%-120%) | | 05/16/13 17:16 |
| **Conductivity Analysis** | | | | | | | | | | | | |
| Batch 1305069 | | | | | | | | | | | | |
| QC1202884560 325649002 DUP | | | | | | | | | | | | |
| Conductivity | | | 135 | | 137 | umhos/cm | 1.91 | | | (0%-10%) | LXA1 | 05/31/13 15:56 |
| QC1202884559 LCS | | | | | | | | | | | | |
| Conductivity | 1410 | | | | 1450 | umhos/cm | | | 102 | (95%-105%) | | 05/31/13 15:54 |
| **Electrode Analysis** | | | | | | | | | | | | |
| Batch 1301818 | | | | | | | | | | | | |
| QC1202876117 325649002 DUP | | | | | | | | | | | | |
| pH | | H | 7.91 | H | 7.92 | SU | 0.126 | | | (0%-10%) | LYG1 | 05/15/13 08:02 |
| QC1202876118 LCS | | | | | | | | | | | | |
| pH | 7.00 | | | | 7.00 | SU | | | 100 | (99%-101%) | | 05/15/13 07:56 |
| **Ion Chromatography** | | | | | | | | | | | | |
| Batch 1300945 | | | | | | | | | | | | |
| QC1202873936 325479002 DUP | | | | | | | | | | | | |
| Bromide | | J | 0.0717 | J | 0.0726 | mg/L | 1.25 | ^ | | (+/-0.200) | MAR1 | 06/01/13 09:27 |
| Chloride | | | 7.71 | | 7.64 | mg/L | 0.958 | | | (0%-20%) | | |
| Fluoride | | | 0.181 | | 0.182 | mg/L | 0.937 | ^ | | (+/-0.100) | | |
| Sulfate | | | 13.1 | | 13.3 | mg/L | 1.31 | | | (0%-20%) | | |
| QC1202873938 LCS | | | | | | | | | | | | |
| Bromide | 1.25 | | | | 1.28 | mg/L | | | 102 | (90%-110%) | | 06/01/13 08:24 |

## QC Summary

**Workorder: 325643**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Ion Chromatography** | | | | | | | | | | | |
| Batch 1300945 | | | | | | | | | | | |
| Chloride | 5.00 | | | | 4.66 | mg/L | | 93.3 | (90%-110%) | MAR1 | 06/01/13 08:24 |
| Fluoride | 2.50 | | | | 2.37 | mg/L | | 94.9 | (90%-110%) | | |
| Sulfate | 10.0 | | | | 9.94 | mg/L | | 99.4 | (90%-110%) | | |
| QC1202873935 MB | | | | | | | | | | | |
| Bromide | | | | U | ND | mg/L | | | | | 06/01/13 07:53 |
| Chloride | | | | U | ND | mg/L | | | | | |
| Fluoride | | | | U | ND | mg/L | | | | | |
| Sulfate | | | | U | ND | mg/L | | | | | |
| QC1202873937 325479002 PS | | | | | | | | | | | |
| Bromide | 1.25 | J | 0.0717 | | 1.30 | mg/L | | 98.3 | (90%-110%) | | 06/01/13 09:59 |
| Chloride | 5.00 | | 7.71 | | 13.3 | mg/L | | 111* | (90%-110%) | | |
| Fluoride | 2.50 | | 0.181 | | 2.49 | mg/L | | 92.2 | (90%-110%) | | |
| Sulfate | 10.0 | | 13.1 | | 23.5 | mg/L | | 104 | (90%-110%) | | |
| **Nutrient Analysis** | | | | | | | | | | | |
| Batch 1301250 | | | | | | | | | | | |
| QC1202874617 325479002 DUP | | | | | | | | | | | |
| Nitrogen, Ammonia | | | 0.0937 | J | 0.0255 | mg/L | 114*^ | | (+/-0.050) | KLP1 | 05/20/13 15:59 |
| QC1202874620 LCS | | | | | | | | | | | |
| Nitrogen, Ammonia | 1.00 | | | | 1.04 | mg/L | | 104 | (90%-110%) | | 05/20/13 15:48 |
| QC1202874615 MB | | | | | | | | | | | |
| Nitrogen, Ammonia | | | | J | 0.0235 | mg/L | | | | | 05/20/13 15:48 |
| QC1202874619 325479002 MS | | | | | | | | | | | |
| Nitrogen, Ammonia | 1.00 | | 0.0937 | | 1.05 | mg/L | | 95.6 | (90%-110%) | | 05/20/13 16:00 |
| Batch 1301771 | | | | | | | | | | | |
| QC1202876002 325649001 DUP | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | U | ND | U | ND | mg/L | N/A | | | KLP1 | 05/16/13 15:26 |
| QC1202876003 325649003 DUP | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | U | ND | U | ND | mg/L | N/A | | | | 05/16/13 15:32 |

## QC Summary

**Workorder: 325643**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Nutrient Analysis** | | | | | | | | | | | | |
| Batch 1301771 | | | | | | | | | | | | |
| QC1202876006 LCS | | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | | | | 1.03 | mg/L | | | 103 | (90%-110%) | KLP1 | 05/16/13 15:21 |
| QC1202876001 MB | | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | | | U | ND | mg/L | | | | | | 05/16/13 15:20 |
| QC1202876004 325649001 MS | | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | U | ND | | 1.02 | mg/L | | | 102 | (90%-110%) | | 05/16/13 15:27 |
| QC1202876005 325649003 MS | | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | U | ND | | 1.12 | mg/L | | | 112* | (90%-110%) | | 05/16/13 15:33 |
| Batch 1301773 | | | | | | | | | | | | |
| QC1202876008 325479002 DUP | | | | | | | | | | | | |
| Phosphorus, Total as P | | J | 0.0458 | J | 0.0491 | mg/L | 6.95 | ^ | | (+/-0.050) | KLP1 | 05/21/13 12:07 |
| QC1202876009 325479005 DUP | | | | | | | | | | | | |
| Phosphorus, Total as P | | J | 0.0426 | J | 0.0436 | mg/L | 2.32 | ^ | | (+/-0.050) | | 05/21/13 12:10 |
| QC1202876012 LCS | | | | | | | | | | | | |
| Phosphorus, Total as P | 1.00 | | | | 1.04 | mg/L | | | 104 | (76%-120%) | | 05/21/13 12:17 |
| QC1202876007 MB | | | | | | | | | | | | |
| Phosphorus, Total as P | | | | J | 0.0287 | mg/L | | | | | | 05/21/13 12:05 |
| QC1202876010 325479002 MS | | | | | | | | | | | | |
| Phosphorus, Total as P | 1.00 | J | 0.0458 | | 0.786 | mg/L | | | 74 | (62%-139%) | | 05/21/13 12:08 |
| QC1202876011 325479005 MS | | | | | | | | | | | | |
| Phosphorus, Total as P | 1.00 | J | 0.0426 | | 0.978 | mg/L | | | 93.5 | (62%-139%) | | 05/21/13 12:11 |
| Batch 1302060 | | | | | | | | | | | | |
| QC1202876701 325649002 DUP | | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | | 0.986 | | 0.986 | mg/L | 0.00 | | | (0%-20%) | KLP1 | 05/29/13 15:53 |
| QC1202876702 325649004 DUP | | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | | 0.565 | | 0.564 | mg/L | 0.177 | | | (0%-20%) | | 05/29/13 15:56 |
| QC1202876705 LCS | | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | 1.00 | | | | 0.975 | mg/L | | | 97.5 | (90%-110%) | | 05/29/13 15:43 |
| QC1202876700 MB | | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | | | U | ND | mg/L | | | | | | 05/29/13 15:42 |
| QC1202876703 325649002 PS | | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | 1.00 | | 0.986 | | 1.92 | mg/L | | | 93.4 | (90%-110%) | | 05/29/13 15:54 |

## QC Summary

**Workorder: 325643**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Nutrient Analysis** | | | | | | | | | | |
| Batch 1302060 | | | | | | | | | | |
| QC1202876704 325649004 PS | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | 1.00 | 0.565 | | 1.49 | mg/L | | 92.5 | (90%-110%) | KLP1 | 05/29/13 15:58 |
| **Solids Analysis** | | | | | | | | | | |
| Batch 1301819 | | | | | | | | | | |
| QC1202876120 325649008 DUP | | | | | | | | | | |
| Total Dissolved Solids | | 141 | | 140 | mg/L | 1.02 | | (0%-10%) | LYG1 | 05/15/13 09:47 |
| QC1202876121 LCS | | | | | | | | | | |
| Total Dissolved Solids | 300 | | | 293 | mg/L | | 97.6 | (95%-105%) | | 05/15/13 09:47 |
| QC1202876119 MB | | | | | | | | | | |
| Total Dissolved Solids | | | U | ND | mg/L | | | | | 05/15/13 09:47 |
| **Titration Analysis** | | | | | | | | | | |
| Batch 1303137 | | | | | | | | | | |
| QC1202879526 325643002 DUP | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | 59.9 | | 59.4 | mg/L | 0.851 | | (0%-20%) | LXA1 | 05/21/13 14:55 |
| Carbonate alkalinity (CaCO3) | U | ND | U | ND | mg/L | N/A | | | | |
| QC1202879523 LCS | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | 50.0 | | | 51.8 | mg/L | | 104 | (90%-110%) | | 05/21/13 12:19 |
| QC1202879527 325643002 MS | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | 50.0 | 59.9 | | 109 | mg/L | | 98.5 | (80%-120%) | | 05/21/13 14:58 |

**Notes:**

| | |
|---|---|
| ** | Analyte is a surrogate compound |
| < | Result is less than value reported |
| > | Result is greater than value reported |
| A | The TIC is a suspected aldol-condensation product |
| B | The target analyte was detected in the associated blank. |
| C | Analyte has been confirmed by GC/MS analysis |
| D | Results are reported from a diluted aliquot of the sample |
| E | %difference of sample and SD is >10%. Sample concentration must meet flagging criteria |
| E | Concentration of the target analyte exceeds the instrument calibration range |
| E | General Chemistry--Concentration of the target analyte exceeds the instrument calibration range |
| FB | Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed |

## QC Summary

**Workorder:** **325643**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|

| | |
|---|---|
| | invalid for reporting to regulatory agencies |
| H | Analytical holding time was exceeded |
| J | Value is estimated |
| JNX | Non Calibrated Compound |
| N | Metals--The Matrix spike sample recovery is not within specified control limits |
| N | Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N | Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N/A | RPD or %Recovery limits do not apply. |
| N1 | See case narrative |
| ND | Analyte concentration is not detected above the detection limit |
| NJ | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| P | Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70% |
| Q | One or more quality control criteria have not been met. Refer to the applicable narrative or DER. |
| R | Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes. |
| R | Sample results are rejected |
| U | Analyte was analyzed for, but not detected above the MDL, MDA, or LOD. |
| UJ | Compound cannot be extracted |
| X | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| Y | Other specific qualifiers were required to properly define the results. Consult case narrative. |
| Y | QC Samples were not spiked with this compound |
| Z | Paint Filter Test--Particulates passed through the filter, however no free liquids were observed. |
| ^ | RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry. |
| d | 5-day BOD--The 2:1 depletion requirement was not met for this sample |
| h | Preparation or preservation holding time was exceeded |

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

# Miscellaneous

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 16-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| LACHAT Flow Injection Analyzer | EPA 351.2 | Liquid | ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1301771 | See below. | | |

**Potentially affected work order(s)(SDG): 325007,325009,325643(2013-832),325647(2013-831),325649(2013-830),325658,325667,325669,325672**

**Application Issues:**

Failed Recovery for MS/PS

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed Recovery for MS:<br><br>QC 1202876005MS | 1. The spike recovery falls outside of the established acceptance limits due to matrix interference: |

**Originator's Name:**

Kristen Parson 16-MAY-13

**Data Validator/Group Leader:**

Julia Hamilton 16-MAY-13

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 20-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| LACHAT Flow Injection Analyzer | EPA 350.1 | Liquid | ALBR, ECWS, ESHL, GSTL, |
| **Batch ID:** | **Sample Numbers:** | | |
| 1301250 | See Below | | |

**Potentially affected work order(s)(SDG):** **325415,325433,325456,325465,325479(2013-822),325480(2013-823),325596,325598,325643(2013-832),325647(2013-831),325657,325730**

**Application Issues:**

Failed RPD for DUP

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed RPD for DUP:<br><br>QC 1202874617DUP | 1. The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample. |

**Originator's Name:**

Kristen Parson 20-MAY-13

**Data Validator/Group Leader:**

Thomas Lewis 21-MAY-13

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 28-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| ELECTRODE | EPA 150.1 | Liquid | ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1301818 | See below. | | |

**Potentially affected work order(s)(SDG): 325643(2013-832),325647(2013-831),325649(2013-830)**

**Application Issues:**

Sample received out of holding

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Sample received out of holding:<br><br>325643002, 325647002, 325649002, 325649004, 325649006, and 325649008 | 1. Samples were received out of holding. |

**Originator's Name:**

Lisa Gregory 28-MAY-13

**Data Validator/Group Leader:**

Julia Hamilton 28-MAY-13

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 04-JUN-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| IC | EPA 300.0 | Liquid | ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1300945 | See Below | | |

**Potentially affected work order(s)(SDG): 325479(2013-822),325480(2013-823),325643(2013-832),325647(2013-831),325649(2013-830)**

**Application Issues:**

Failed Recovery for MS/PS

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed Recovery for MS/PS:<br><br>QC 1202873937PS | 1. The MS/PS mixture contains seven anions of interest. Of those, all requested anions except chloride met normal acceptance criteria for recovery (90 - 110%). This failure is attributed to the matrix of the sample because the successful recovery of the other compounds indicate that the laboratory process was in control. This variance is judged to have no negative impact on the data. The deviation is noted in the Case Narrative and DER, and the data has been reported. |

**Originator's Name:**

Mary Sherwood 05-JUN-13

**Data Validator/Group Leader:**

Virginia Wininger 06-JUN-13

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

# Chain of Custody/Analysis Request

COC/Lab Request #: 2013-831



**Client Contact:**

**Lab Agreement # :** 126310011

**Project Number :**

**Analysis Turnaround Time:**

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

**Site Name:** Los Alamos National Laboratory

**Rad Screening Info:** Yes, Below Background

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | WSP-GENINORG | WSP-Met+B+SN+SR+U | WSP-NH3+NO3/NO2+PO4 | WSP-TKN+TOC | Special Instructions: |
|---|---|---|---|---|---|---|---|---|
| CASA-13-30544 | May 10 2013 | 11:47 | W | | | | 1 | |
| CASA-13-30552 | May 10 2013 | 11:47 | W | 1 | 1 | 1 | | |

Special Instructions:

| | | | |
|---|---|---|---|
| Relinquished by: Melissa Montoya | | Date/Time: 5/3/13 3:00 | Received by: |
| Relinquished by: | | Date/Time: | Received by: |
| Relinquished by: | | Date/Time: | Received by: |

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4194

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_SANDIA

**SAMPLE ID:** CASA-13-30544

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| **DATE COLLECTED (MM/DD/YYYY):** | | 5/10/2013 | **FIELD MATRIX:** | WG | OK |
| **TIME COLLECTED (HH:MM):** | | 1147 | **MEDIA:** | UA | |
| **PRS ID:** | | OK | **SAMPLE TECH CODE:** | UA | AS 5/10/13 AC GSP |
| **LOCATION ID:** | R-35b | | **FIELD PREP:** | UF | OK |
| **LOCATION TYPE:** | MON | | **FIELD QC TYPE:** | REG | |
| **PORT:** | SINGLE COMPLETION | | **SAMPLE USAGE:** | INV | |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-TKN+TOC | 500 ML AMBER GLASS | 1 | H2SO4 | Y | NA |

**SAMPLE COMMENTS:** Diesel Generator running while sampling

**LOCATION COMMENTS:** NA

**FIELD PARAMETERS:**

Dissolved Oxygen 5.85 mg/L  Oxidation-Reduction Potential 238.2 MV  pH 7.48 SU

Specific Conductance 172 uS/cm  Temperature 21.33 deg C  Turbidity 0.44 NTU

**COLLECTED BY (PRINT)**

| | | | |
|---|---|---|---|
| **RELINQUISHED BY (Printed Name)** W. Ingersham **(Signature)** | **Date/Time** 5/10/13 1225 | **RECEIVED BY (Printed Name)** K. Green **(Signature)** | **Date/Time** 5/10/13 12:35 |
| **RELINQUISHED BY (Printed Name) (Signature)** | **Date/Time** | **RECEIVED BY (Printed Name) (Signature)** | **Date/Time** |

Report Date 04/30/2013

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4194

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_SANDIA

**SAMPLE ID:** CASA-13-30552

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | 5/10/2013 | FIELD MATRIX: | WG | OK |
| TIME COLLECTED (HH:MM): | | 1147 | MEDIA: | UA | |
| PRS ID: | | OK | SAMPLE TECH CODE: | UA | GSP |
| LOCATION ID: | R-35b | | FIELD PREP: | F | OK |
| LOCATION TYPE: | MON | | FIELD QC TYPE: | REG | |
| PORT: | SINGLE COMPLETION | | SAMPLE USAGE: | INV | |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| N/A | WSP-GENINORG | 1 LITER POLY | 1 | ICE | Y | N/A |
| | WSP-Met+B+SN+SR+U | 1 LITER POLY | 1 | HNO3 | | |
| | WSP-NH3+NO3/NO2+PO4 | 500 ML AMBER GLASS | 1 | H2SO4 | | |

**SAMPLE COMMENTS:** N/A

**LOCATION COMMENTS:** N/A

**FIELD PARAMETERS:**

Dissolved Oxygen N/A mg/L  Oxidation-Reduction Potential N/A MV  pH N/A SU

Specific Conductance N/A uS/cm  Temperature N/A deg C  Turbidity N/A NTU

**COLLECTED BY (PRINT)** M. Shando

| RELINQUISHED BY | Date/Time | RECEIVED BY | Date/Time |
|---|---|---|---|
| (Printed Name) William Shaw<br>(Signature) | 5/10/13 1235 | (Printed Name) K. Greene<br>(Signature) | 5/10/13 1235 |
| RELINQUISHED BY<br>(Printed Name)<br>(Signature) | Date/Time | RECEIVED BY<br>(Printed Name)<br>(Signature) | Date/Time |

Report Date 04/30/2013

Data Validation Report

Chain Of Custody No. 2013-831

**1. Distribution Of Samples In EDD.**

| SDG | Analytical Method | Regular Samples | Field Duplicates | Trip Blanks | Field Blanks | Equipment Blanks |
|---|---|---|---|---|---|---|
| 325647 | EPA:120.1 | 1 | | | | |
| 325647 | EPA:150.1 | 1 | | | | |
| 325647 | EPA:160.1 | 1 | | | | |
| 325647 | EPA:245.2 | 1 | | | | |
| 325647 | EPA:300.0 | 1 | | | | |
| 325647 | EPA:310.1 | 1 | | | | |
| 325647 | EPA:350.1 | 1 | | | | |
| 325647 | EPA:351.2 | 1 | | | | |
| 325647 | EPA:353.2 | 1 | | | | |
| 325647 | EPA:365.4 | 1 | | | | |
| 325647 | SM:A2340B | 1 | | | | |
| 325647 | SW-846:6010B | 1 | | | | |
| 325647 | SW-846:6020 | 1 | | | | |
| 325647 | SW-846:9060 | 1 | | | | |

| SDG | Analytical Method | Analysis Lot ID | Prep Lot ID | Regular Samples | Field Duplicates | Trip Blanks | Field Blanks | Equipment Blanks | Method Blanks | Matrix Spikes | Matrix Spike Dups |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 325647 | EPA:120.1 | 1305069 | 1305069 | 1 | | | | | | | |
| 325647 | EPA:150.1 | 1301818 | 1301818 | 1 | | | | | | | |
| 325647 | EPA:160.1 | 1301819 | 1301819 | 1 | | | | | 1 | | |
| 325647 | EPA:245.2 | 1302856 | 1302851 | 1 | | | | | 1 | 2 | |
| 325647 | EPA:300.0 | 1300945 | 1300945 | 1 | | | | | 1 | | |
| 325647 | EPA:310.1 | 1303137 | 1303137 | 1 | | | | | 2 | 1 | |
| 325647 | EPA:350.1 | 1301250 | 1301248 | 1 | | | | | 1 | 1 | |
| 325647 | EPA:351.2 | 1301771 | 1301770 | 1 | | | | | 1 | 2 | |
| 325647 | EPA:353.2 | 1302060 | 1302060 | 1 | | | | | 1 | | |
| 325647 | EPA:365.4 | 1301773 | 1301772 | 1 | | | | | 1 | 2 | |
| 325647 | SM:A2340B | 1306882 | 1306882 | 1 | | | | | | | |
| 325647 | SW-846:6010B | 1304837 | 1304836 | 1 | | | | | 1 | 1 | |
| 325647 | SW-846:6020 | 1304840 | 1304838 | 1 | | | | | 1 | 1 | |
| 325647 | SW-846:9060 | 1302095 | 1302095 | 1 | | | | | 1 | | |

**2. Distribution Of Analytes In EDD.**

| Analytical Method | Method Category | Field Sample ID | Lab Sample ID | Sample Purpose | Target Analytes | Surrogates | Spikes | TICS |
|---|---|---|---|---|---|---|---|---|
| EPA:120.1 | GENERAL CHEMISTRY | CAMO-13-30594 | 1202884560 | DUP | 1 | 0 | 0 | 0 |
| EPA:120.1 | GENERAL CHEMISTRY | CASA-13-30552 | 325647002 | REG | 1 | 0 | 0 | 0 |
| EPA:120.1 | GENERAL CHEMISTRY | LCS | 1202884559 | LCS | 0 | 0 | 1 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | CAMO-13-30594 | 1202876117 | DUP | 1 | 0 | 0 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | CASA-13-30552 | 325647002 | REG | 1 | 0 | 0 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | LCS | 1202876118 | LCS | 0 | 0 | 1 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | CAMO-13-30597 | 1202876120 | DUP | 1 | 0 | 0 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | CASA-13-30552 | 325647002 | REG | 1 | 0 | 0 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | LCS | 1202876121 | LCS | 0 | 0 | 1 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | MB | 1202876119 | MB | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30598 | 1202878661 | DUP | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30598 | 1202878665 | MS | 0 | 0 | 1 | 0 |

Data Validation Report for:

Chain Of Custody No. 2013-831

| Analytical Spikes | Post-Digestion Spikes | Lab Control Samples | Lab Control Sample Dups | Blank Spikes | Blank Spike Dups | Lab Duplicates | Storage Blanks | Preparation Blanks | Reagent Blanks |
|---|---|---|---|---|---|---|---|---|---|
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 2 | | | |
| | | 1 | | | | 1 | | | |
| | | 2 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 2 | | | |
| | | 1 | | | | 2 | | | |
| | | 1 | | | | 2 | | | |
| | | | | | | | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| EPA:245.2 | INORGANIC | CAMO-13-30602 | 1202878662 | DUP | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30602 | 1202878666 | MS | 0 | 0 | 1 | 0 |
| EPA:245.2 | INORGANIC | CASA-13-30552 | 325647002 | REG | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | LCS | 1202878667 | LCS | 0 | 0 | 1 | 0 |
| EPA:245.2 | INORGANIC | MB | 1202878660 | MB | 1 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | CAMO-13-30602 | 1202873936 | DUP | 4 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | CASA-13-30552 | 325647002 | REG | 4 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | LCS | 1202873938 | LCS | 0 | 0 | 4 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | MB | 1202873935 | MB | 4 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CAMO-13-30598 | 1202879526 | DUP | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CAMO-13-30598 | 1202879527 | MS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CASA-13-30552 | 325647002 | REG | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | LCS | 1202879523 | LCS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | LCS | 1202880029 | LCS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | MB | 1202879522 | MB | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | MB | 1202880028 | MB | 2 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30602 | 1202874617 | DUP | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30602 | 1202874619 | MS | 0 | 0 | 1 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CASA-13-30552 | 325647002 | REG | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | LCS | 1202874620 | LCS | 0 | 0 | 1 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | MB | 1202874615 | MB | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30578 | 1202876002 | DUP | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30578 | 1202876004 | MS | 0 | 0 | 1 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30579 | 1202876003 | DUP | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30579 | 1202876005 | MS | 0 | 0 | 1 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CASA-13-30544 | 325647001 | REG | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | LCS | 1202876006 | LCS | 0 | 0 | 1 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | MB | 1202876001 | MB | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CAMO-13-30594 | 1202876701 | DUP | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CAMO-13-30595 | 1202876702 | DUP | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CASA-13-30552 | 325647002 | REG | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | LCS | 1202876705 | LCS | 0 | 0 | 1 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | MB | 1202876700 | MB | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CAMO-13-30564 | 1202876009 | DUP | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CAMO-13-30564 | 1202876011 | MS | 0 | 0 | 1 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CAMO-13-30602 | 1202876008 | DUP | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CAMO-13-30602 | 1202876010 | MS | 0 | 0 | 1 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CASA-13-30552 | 325647002 | REG | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | LCS | 1202876012 | LCS | 0 | 0 | 1 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | MB | 1202876007 | MB | 1 | 0 | 0 | 0 |
| SM:A2340B | INORGANIC | CASA-13-30552 | 325647002 | REG | 1 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30594 | 1202883951 | DUP | 17 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30594 | 1202883952 | MS | 0 | 0 | 17 | 0 |
| SW-846:6010B | INORGANIC | CASA-13-30552 | 325647002 | REG | 17 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | LCS | 1202883950 | LCS | 0 | 0 | 17 | 0 |
| SW-846:6010B | INORGANIC | MB | 1202883949 | MB | 17 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30594 | 1202883956 | DUP | 11 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30594 | 1202883957 | MS | 0 | 0 | 11 | 0 |
| SW-846:6020 | INORGANIC | CASA-13-30552 | 325647002 | REG | 11 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | LCS | 1202883955 | LCS | 0 | 0 | 11 | 0 |
| SW-846:6020 | INORGANIC | MB | 1202883954 | MB | 11 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | CAMO-13-30586 | 1202876781 | DUP | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | CASA-13-30544 | 325647001 | REG | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | LCS | 1202876785 | LCS | 0 | 0 | 1 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | MB | 1202876780 | MB | 1 | 0 | 0 | 0 |

**3. Are any analytes missing?**

No.

**4. Were any holding times exceeded?**

No.

**5. Any contaminants in blanks?**

| Field Sample ID | Lab Sample ID | Type Of Blank | Analytical Method | Sample Matrix | Parameter Name | Lab Result | Lab Qualifier | Units | Lab Detection Limit |
|---|---|---|---|---|---|---|---|---|---|
| MB | 1202874615 | METHOD BLANK | EPA:350.1 | W | Ammonia as Nitrogen | 0.0235 | J | mg/L | 0.05 |
| MB | 1202878660 | METHOD BLANK | EPA:245.2 | W | Mercury | -0.074 | J | ug/L | 0.2 |

**Any samples affected by the presence of contaminants in blanks?**

| Field Sample ID | Blank Field Sample ID | Blank Lab Sample ID | Blank Type | Analytical Method | Parameter Name | Units | Blank Result | Sample Result | Lab Qualifier | Detect Limit | Detected |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CASA-13-30552 | MB | 1202878660 | METHOD BLANK | EPA:245.2 | Mercury | ug/L | -0.074 | 0.2 | U | 0.2 | N |
| CASA-13-30552 | MB | 1202874615 | METHOD BLANK | EPA:350.1 | Ammonia as Nitrogen | mg/L | 0.0235 | 0.0479 | J | 0.05 | Y |

**6. Any surrogate recoveries outside the control limits?**

No.

**7. Any MS/MSD recoveries or RPDs outside the control limits?**

| Field Sample ID | Matrix Spike ID | Matrix Spike Dup ID | Analytical Method | Parameter Name | Analysis Lot ID | Analysis Date | Sample Matrix | MS % Recvry | MSD % Recvry | Upper Limit | Lower Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAMO-13-30579 | 1202876005 | | EPA:351.2 | Total Kjeldahl Nitrogen | 1301770 | 5/16/2013 | W | 112 | | 110 | 90 |
| CAMO-13-30594 | 1202883952 | | SW-846:6010B | Silicon Dioxide | 1304836 | 6/6/2013 | W | 62.8 | | 125 | 75 |

**8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?**

No.

**9. Any Field Duplicate RPDs outside the desired limits?**

No.

**10. Any Lab Duplicate RPDs outside the desired limits?**

No.

**11. Any required reporting limits exceeded?**

No.

**12. Additional Validator's Coments.**

None.

**13. Display Flagged Data.**

Data Validation Report for:

Chain Of Custody No. 2013-831

| Correction Factor (ND) | Correction Factor (J) | Use Factors |
|---|---|---|
| 5 | | Y |
| 5 | | Y |

| Rejection Limit | RPD | RPD Limit |
|---|---|---|
| 10 | | |
| 10 | | |

Data Validation Report for: Chain Of Custody No. 2013-831

| Location ID | Chain Of Custody No | Field Sample ID | Sample Purpose | Analysis Type Code | Analytical Suite | Analytical Method | Parameter Name | Lab Qualifier | Validation Qualifier | Validation Reason Codes | Detected |
|---|---|---|---|---|---|---|---|---|---|---|---|
| R-35b | 2013-831 | CASA-13-30552 | REG | INIT | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | J | U | I4 | N |

| **Reason Code** | Description |
|---|---|
| I4 | the sample result is =<5x the concentration of related analyte in the method blank. |
| J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL |
| NQ | The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample. |
| U_LAB | The analytical laboratory qualified the analyte as not detected. |

**14. Useable Result Count.**

| Field Sample ID | Location ID | Sample Purpose | Analytical Method | No. Unuseable Records | Total No. Of Records |
|---|---|---|---|---|---|
| CASA-13-30544 | R-35b | REG | EPA:351.2 | 0 | 1 |
| CASA-13-30544 | R-35b | REG | SW-846:9060 | 0 | 1 |
| CASA-13-30552 | R-35b | REG | EPA:120.1 | 0 | 1 |
| CASA-13-30552 | R-35b | REG | EPA:150.1 | 0 | 1 |
| CASA-13-30552 | R-35b | REG | EPA:160.1 | 0 | 1 |
| CASA-13-30552 | R-35b | REG | EPA:245.2 | 0 | 1 |
| CASA-13-30552 | R-35b | REG | EPA:300.0 | 0 | 4 |
| CASA-13-30552 | R-35b | REG | EPA:310.1 | 0 | 2 |
| CASA-13-30552 | R-35b | REG | EPA:350.1 | 0 | 1 |
| CASA-13-30552 | R-35b | REG | EPA:353.2 | 0 | 1 |
| CASA-13-30552 | R-35b | REG | EPA:365.4 | 0 | 1 |
| CASA-13-30552 | R-35b | REG | SM:A2340B | 0 | 1 |
| CASA-13-30552 | R-35b | REG | SW-846:6010B | 0 | 17 |
| CASA-13-30552 | R-35b | REG | SW-846:6020 | 0 | 11 |

Data Validation Report for:

Chain Of Custody No. 2013-831

| Lab Result | Lab Units | Report Result | Report Units | Report MDA | Report Uncertainty | Lab Matrix | Sample Date | Percent Moisture | Analysis Lot ID | Validation Status Code | Use Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0479 | mg/L | 0.0479 | mg/L | | | W | 5/10/2013 | | 1301250 | VAL | Y |

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178
www.gel.com

June 10, 2013

Keith Greene
Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Re: LANL-WQH Water Samples
Work Order: 325647
SDG: 2013-831

Dear Keith Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on May 14, 2013, and analyzed for General Chemistry and Metals. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,

Hope Taylor for
Valerie Davis
Project Manager

Purchase Order: 63641-10
Chain of Custody: 2013-831
Enclosures

**ARS International (63641-10)**
**LANL-WQH Water Samples**
**Work Order #: 325647**
**SDG: 2013-831**

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# Case Narrative

**Case Narrative for**
**ARS International (63641-10)**
**LANL-WQH Water Samples**
**Workorder #: 325647**
**SDG # : 2013-831**

**June 10, 2013**

**Laboratory Identification:**

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

**Summary**

**Sample receipt** The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on May 14, 2013 for analysis. The samples were delivered with proper chain of custody documentation and signatures. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. Containers were checked for pH, where appropriate, and matched the preservative as documented on the accompanying chain of custody. Shipping container temperature was within specification (0 - 6C). Shipping container temperatures were checked, documented, and within specifications. There are no additional comments concerning sample receipt.

**Sample Identification** The laboratory received the following samples:

| Laboratory ID | Client ID |
|---|---|
| 325647001 | CASA-13-30544 |
| 325647002 | CASA-13-30552 |

**Case Narrative**

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

**Data Package**

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: General Chemistry and Metals.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.

Hope Taylor for
Valerie Davis
Project Manager

**List of current GEL Certifications as of 10 June 2013**

| State | Certification |
|---|---|
| Alaska | UST−110 |
| Arkansas | 88−0651 |
| CLIA | 42D0904046 |
| California NELAP | 01151CA |
| Colorado | SC00012 |
| Connecticut | PH−0169 |
| Delaware | SC00012 |
| DoD ELAP A2LA ISO 17025 | 2567.01 |
| Florida NELAP | E87156 |
| Foreign Soils Permit | P330−12−00283, P330−12−00284 |
| Georgia | SC00012 |
| Georgia SDWA | 967 |
| Hawaii | SC00012 |
| Idaho | SC00012 |
| Illinois NELAP | 200029 |
| Indiana | C−SC−01 |
| Kansas NELAP | E−10332 |
| Kentucky | 90129 |
| Louisiana NELAP | 03046 (AI33904) |
| Louisiana SDWA | LA130005 |
| Maryland | 270 |
| Massachusetts | M−SC012 |
| Nevada | SC000122011−1 |
| New Hampshire NELAP | 2054 |
| New Jersey NELAP | SC002 |
| New Mexico | SC00012 |
| New York NELAP | 11501 |
| North Carolina | 233 |
| North Carolina SDWA | 45709 |
| Oklahoma | 9904 |
| Pennsylvania NELAP | 68−00485 |
| Plant Material Permit | PDEP−12−00260 |
| South Carolina Chemistry | 10120001 |
| South Carolina Radiochemi | 10120002 |
| Tennessee | TN 02934 |
| Texas NELAP | T104704235−13−8 |
| Utah NELAP | SC000122013−8 |
| Vermont | VT87156 |
| Virginia NELAP | 460202 |
| Washington | C780−12 |
| Wisconsin | 999887790 |

# Chain of Custody and Supporting Documentation

General Engineering Laboratories, Inc., Charleston, SC.
2040 Savage Rd
Charleston SC 29407

# Chain of Custody/Analysis Request

325647

**COC/Lab Request #:** 2013-831

Page 1 of 1

**Client Contact:**

**Lab Agreement # :** 126310011

**Project Number :**

**Site Name:** Los Alamos National Laboratory

**Analysis Turnaround Time:**

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

**Rad Screening Info:** Yes, Below Background

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | WSP-GENINORG | WSP-Met+B+SN+SR+U | WSP-NH3+NO3/NO2+PO4 | WSP-TKN+TOC |
|---|---|---|---|---|---|---|---|
| CASA-13-30544 | May 10 2013 | 11:47 | W | | | | 1 |
| CASA-13-30552 | May 10 2013 | 11:47 | W | 1 | 1 | 1 | |

**Special Instructions:**

Special Instructions:

| | | | | |
|---|---|---|---|---|
| Relinquished by: Melissa Montoya | | Date/Time: 5/2/13 3:00 | Received by: P. Nlent | 5.14.13 08:50 |
| Relinquished by: | | Date/Time: | Received by: | |
| Relinquished by: | | Date/Time: | Received by: | |

GEL Laboratories LLC

# SAMPLE RECEIPT & REVIEW FORM

| | |
|---|---|
| **Client: LANL** | **SDG/AR/COC/Work Order: 2013-831** |
| **Received By: Patricia Dent** | **Date Received: May 14, 2013** |

| **Suspected Hazard Information** | **Yes** | **No** | *If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation. |
|---|---|---|---|
| COC/Samples marked as radioactive? | | X | Maximum Net Counts Observed* (Observed Counts - Area Background Counts): **0 CPM** |
| Classified Radioactive II or III by RSO? | | X | If yes, Were swipes taken of sample contatiners < action levels? |
| COC/Samples marked containing PCBs? | | X | |
| Package, COC, and/or Samples marked as beryllium or asbestos containing? | | X | If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group. |
| Shipped as a DOT Hazardous? | | X | Hazard Class Shipped: UN#: |
| Samples identified as Foreign Soil? | | X | |

| | **Sample Receipt Criteria** | **Yes** | **NA** | **No** | **Comments/Qualifiers (Required for Non-Conforming Items)** |
|---|---|---|---|---|---|
| 1 | Shipping containers received intact and sealed? | X | | | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 2 | Samples requiring cold preservation within (0 ≤ 6 deg. C)?* | X | | | Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius **3,4C** |
| 2a | Daily check performed and passed on IR temperature gun? | X | | | Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable):**61524649** |
| 3 | Chain of custody documents included with shipment? | X | | | |
| 4 | Sample containers intact and sealed? | X | | | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 5 | Samples requiring chemical preservation at proper pH? | X | | | Sample ID's, containers affected and observed Ph If Preservation added, Lot# |
| 6 | VOA vials free of headspace (defined as < 6mm bubble)? | | X | | Sample ID's and containers affected: |
| 7 | Are Encore containers present? | | | X | (If yes, immediately deliver to Volatiles laboratory) |
| 8 | Samples received within holding time? | X | | | ID's and tests affected: |
| 9 | Sample ID's on COC match ID's on bottles? | X | | | Sample ID's and containers affected: |
| 10 | Date & time on COC match date & time on bottles? | X | | | Sample ID's affected: |
| 11 | Number of containers received match number indicated on COC? | X | | | Sample ID's affected: |
| 12 | Are sample containers identifiable as GEL provided? | | | X | **Client** |
| 13 | COC form is properly signed in relinquished/received sections? | X | | | |
| 14 | Carrier and tracking number. | X | | | Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other **5462 9833 0078 3C 5462 9833 0067 4C** |

PD 5-16-13

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 13MAY13
ACTWGT: 48.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWKO

3C

58DC1/9983/10BC

FedEx Express

J111311060601 25

2 of 2

MPS# 0263 5462 9833 0078
Mstr# 5462 9833 0067

TUE - 14 MAY 10:30A
PRIORITY OVERNIGHT
0201

XX CHSA

29407
SC-US CHS

Part # 159148-434 RIT2 08/10 ©

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 13MAY13
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BILL SENDER

TO VALERIE DAVIS
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CHARLESTON SC 29407
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REF: MR1A015AGWKO

4C

50DC1/9983/108C

FedEx Express

J111311060601 25

1 of 2

TRK# 0201 5462 9833 0067

TUE - 14 MAY 10:30A
PRIORITY OVERNIGHT

## MASTER ##

XX CHSA

29407
SC-US CHS

Part # 165148-434 RITR 08/10

# Data Review Qualifier Flag Definition Sheet

## Data Review Qualifier Definitions

| Qualifier | Explanation |
|---|---|
| * | A quality control analyte recovery is outside of specified acceptance criteria |
| ** | Analyte is a surrogate compound |
| < | Result is less than value reported |
| > | Result is greater than value reported |
| ^ | RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL |
| A | The TIC is a suspected aldol-condensation product |
| B | Target analyte was detected in the associated blank |
| B | Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL |
| BD | Results are either below the MDC or tracer recovery is low |
| C | Analyte has been confirmed by GC/MS analysis |
| D | Results are reported from a diluted aliquot of the sample |
| d | 5-day BOD-The 2:1 depletion requirement was not met for this sample |
| E | Organics-Concentration of the target analyte exceeds the instrument calibration range |
| E | Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria |
| H | Analytical holding time was exceeded |
| h | Preparation or preservation holding time was exceeded |
| J | Value is estimated |
| N | Metals-The Matrix spike sample recovery is not within specified control limits |
| N | Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N/A | Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more |
| ND | Analyte concentration is not detected above the reporting limit |
| UI | Gamma Spectroscopy-Uncertain identification |
| X | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| Y | QC Samples were not spiked with this compound |
| Z | Paint Filter Test-Particulates passed through the filter, however no free liquids were observed. |

# Metals Analysis

# Case Narrative

**Metals Fractional Narrative**
**ARS International (ARSL)**
**SDG 2013-831**

## Sample Analysis

| Sample ID | Client ID |
|---|---|
| 325647002 | CASA-13-30552 |
| 1202883949 | Method Blank (MB) **ICP** |
| 1202883950 | Laboratory Control Sample (LCS) |
| 1202883953 | 325649002(CAMO-13-30594L) Serial Dilution (SD) |
| 1202883951 | 325649002(CAMO-13-30594D) Sample Duplicate (DUP) |
| 1202883952 | 325649002(CAMO-13-30594S) Matrix Spike (MS) |
| 1202883954 | Method Blank (MB) **ICP-MS** |
| 1202883955 | Laboratory Control Sample (LCS) |
| 1202883958 | 325649002(CAMO-13-30594L) Serial Dilution (SD) |
| 1202883956 | 325649002(CAMO-13-30594D) Sample Duplicate (DUP) |
| 1202883957 | 325649002(CAMO-13-30594S) Matrix Spike (MS) |
| 1202878660 | Method Blank (MB) **CVAA** |
| 1202878667 | Laboratory Control Sample (LCS) |
| 1202878663 | 325643002(CAMO-13-30598L) Serial Dilution (SD) |
| 1202878661 | 325643002(CAMO-13-30598D) Sample Duplicate (DUP) |
| 1202878665 | 325643002(CAMO-13-30598S) Matrix Spike (MS) |

## Method/Analysis Information

| | |
|---|---|
| **Analytical Batch:** | 1304837, 1304840, 1302856 and 1306882 |
| **Prep Batch :** | 1304836, 1304838 and 1302851 |
| **Standard Operating Procedures:** | GL-MA-E-013 REV# 22, GL-MA-E-006 REV# 9, GL-MA-E-014 REV# 25, GL-MA-E-010 REV# 26 and GL-GC-E-107 REV# 8 |
| **Analytical Method:** | SW846 3005/6010B, SW846 3005/6020 DOE-AL, EPA 245.1/245.2 and SM 2340 B |
| **Prep Method :** | SW846 3005A and EPA 245.1/245.2 Prep |

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

**System Configuration**

The Hardness as CaCO3 is calculated from Calcium and Magnesium results.

The Metals analysis-ICP was performed on a P E 5300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis-ICP was performed on a PE 7300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN 9000 inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadrupole mass spectrometer, and dual mode electron multiplier detector. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum. Operating conditions are set at 1400W power and combined argon pressures of 360+/-7 kPa for the plasma and auxiliary gases, and 0.85 L/min carrier gas flow, and an initial lens voltage of 5.2.

The Metals analysis-Mercury was performed on a Perkin-Elmer Flow Injection Mercury System (FIMS-100) automated mercury analyzer. The instrument consists of a cold vapor atomic absorption spectrometer set to detect mercury at a wavelength of 253.7 nm. Sample introduction through the flow injection system is performed via a peristaltic pump at 9 mL/min and nitrogen carrier gas rate of 80 mL/min.

**Calibration Information**

**Instrument Calibration**
All initial calibration requirements have been met for this sample delivery group (SDG).

**CRDL Requirements**
All CRDL standard(s) met the referenced advisory control limits.

**ICSA/ICSAB Statement**
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

**Continuing Calibration Blank (CCB) Requirements**
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

**Continuing Calibration Verification (CCV) Requirements**
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

## Quality Control (QC) Information

**Method Blank (MB) Statement**
The MBs analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recoveries met the acceptance limits.

**Quality Control (QC) Sample Statement**
The following samples were selected as the quality control (QC) samples for this SDG: 325649002 (CAMO-13-30594)-ICP and ICP-MS and 325643002 (CAMO-13-30598)-CVAA.

**Matrix Spike (MS) Recovery Statement**
The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. All applicable elements met the acceptance criteria.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. All applicable analytes met these requirements.

**Serial Dilution % Difference Statement**
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations that are 25X the IDL/MDL for CVAA, 50X the IDL/MDL for ICP, and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the acceptance criteria of less than 10% difference (%D).

## Technical Information

**Holding Time Specifications**
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight

on the day of expiration. All samples in this SDG met the specified holding time.

**Preparation/Analytical Method Verification**
All procedures were performed as stated in the SOP.

**Sample Dilutions**
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. The samples in this SDG did not require dilutions.

**Preparation Information**
The samples in this SDG were prepared exactly according to the cited SOP.

## Miscellaneous Information

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.
Total Hardness by Calculation is determined using the results of Total Calcium (Ca) and Total Magnesium (Mg) determined by ICP or ICP-MS.

Hardness = 2.497 (Ca) + 4.118 (Mg)

Please refer to the Total Ca and Total Mg data to validate results appearing on the Hardness Summary sheet. Both results are in the Inorganic/metals section of the package. There is no Batch QC for calculated results, and thus no QC Summary for the Hardness by Calculation Batch. The MDLs and PQLs are calculated using the higher of the two calculated values of Ca or Mg.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

**Review Validation:**

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

**The following data validator verified the information presented in this case narrative:**

**Reviewer:**_____ **Date:** 06.10.13

# Sample Data Summary

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-831  GEL Work Order: 325647

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

J  Value is estimated

N  Metals--The Matrix spike sample recovery is not within specified control limits

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____ 06·10·13

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−831 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

**SAMPLE ID:** 325647002 **BASIS:** As Received **DATE COLLECTED** 10−MAY−13

**CLIENT ID:** CASA−13−30552 **LEVEL:** Low **DATE RECEIVED** 14−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7439−97−6 | Mercury | 0.20 | ug/L | U | 0.067 | 0.2 | 0.2 | 1 | AV | NOR1 | 05/21/13 12:51 | 052113W1−6 | 1302856 |

# METALS
## −1−
## INORGANICS ANALYSIS DATA PACKAGE

**SDG No:** 2013−831 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

**SAMPLE ID:** 325647002 **BASIS:** As Received **DATE COLLECTED** 10−MAY−13

**CLIENT ID:** CASA−13−30552 **LEVEL:** Low **DATE RECEIVED** 14−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7429−90−5 | Aluminum | 200 | ug/L | U | 68 | 200 | 200 | 1 | P | HSC | 06/06/13 14:57 | 060613−1 | 1304837 |
| 7440−36−0 | Antimony | 3 | ug/L | U | 1 | 3 | 3 | 1 | MS | PRB | 06/08/13 04:32 | 130607−5 | 1304840 |
| 7440−38−2 | Arsenic | 1.86 | ug/L | J | 1.7 | 5 | 5 | 1 | MS | BAJ | 06/07/13 06:07 | 130606−3 | 1304840 |
| 7440−39−3 | Barium | 41.9 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 14:57 | 060613−1 | 1304837 |
| 7440−41−7 | Beryllium | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 14:57 | 060613−1 | 1304837 |
| 7440−42−8 | Boron | 50 | ug/L | U | 15 | 50 | 50 | 1 | P | HSC | 06/06/13 14:57 | 060613−1 | 1304837 |
| 7440−43−9 | Cadmium | 1 | ug/L | U | 0.11 | 1 | 1 | 1 | MS | BAJ | 06/07/13 06:07 | 130606−3 | 1304840 |
| 7440−70−2 | Calcium | 16500 | ug/L | | 50 | 200 | 200 | 1 | P | HSC | 06/06/13 14:57 | 060613−1 | 1304837 |
| 7440−47−3 | Chromium | 5.31 | ug/L | J | 2 | 10 | 10 | 1 | MS | BAJ | 06/07/13 06:07 | 130606−3 | 1304840 |
| 7440−48−4 | Cobalt | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 14:57 | 060613−1 | 1304837 |
| 7440−50−8 | Copper | 10 | ug/L | U | 3 | 10 | 10 | 1 | P | HSC | 06/06/13 14:57 | 060613−1 | 1304837 |
| 7439−89−6 | Iron | 100 | ug/L | U | 30 | 100 | 100 | 1 | P | HSC | 06/06/13 14:57 | 060613−1 | 1304837 |
| 7439−92−1 | Lead | 2 | ug/L | U | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/07/13 06:07 | 130606−3 | 1304840 |
| 7439−95−4 | Magnesium | 5290 | ug/L | | 110 | 300 | 300 | 1 | P | HSC | 06/07/13 10:10 | 060713B−2 | 1304837 |
| 7439−96−5 | Manganese | 10 | ug/L | U | 2 | 10 | 10 | 1 | P | HSC | 06/06/13 14:57 | 060613−1 | 1304837 |
| 7439−98−7 | Molybdenum | 1.3 | ug/L | | 0.165 | 0.5 | 0.5 | 1 | MS | BAJ | 06/07/13 15:38 | 130607−4 | 1304840 |
| 7440−02−0 | Nickel | 2.05 | ug/L | | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/07/13 06:07 | 130606−3 | 1304840 |
| 7440−09−7 | Potassium | 2150 | ug/L | | 50 | 150 | 150 | 1 | P | HSC | 06/06/13 14:57 | 060613−1 | 1304837 |
| 7782−49−2 | Selenium | 5 | ug/L | U | 1.5 | 5 | 5 | 1 | MS | BAJ | 06/07/13 06:07 | 130606−3 | 1304840 |
| 7631−86−9 | Silica | 83100 | ug/L | | 53 | 213 | 213 | 1 | P | HSC | 06/06/13 14:57 | 060613−1 | 1304837 |
| 7440−22−4 | Silver | 1 | ug/L | U | 0.2 | 1 | 1 | 1 | MS | BAJ | 06/07/13 06:07 | 130606−3 | 1304840 |
| 7440−23−5 | Sodium | 11700 | ug/L | | 100 | 300 | 300 | 1 | P | HSC | 06/07/13 10:10 | 060713B−2 | 1304837 |
| 7440−24−6 | Strontium | 70.9 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 14:57 | 060613−1 | 1304837 |
| 7440−28−0 | Thallium | 2 | ug/L | U | 0.45 | 2 | 2 | 1 | MS | BAJ | 06/07/13 06:07 | 130606−3 | 1304840 |
| 7440−31−5 | Tin | 10 | ug/L | U | 2.5 | 10 | 10 | 1 | P | HSC | 06/07/13 10:10 | 060713B−2 | 1304837 |
| 7440−61−1 | Uranium | 0.277 | ug/L | | 0.067 | 0.2 | 0.2 | 1 | MS | BAJ | 06/07/13 15:38 | 130607−4 | 1304840 |
| 7440−62−2 | Vanadium | 14.9 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 14:57 | 060613−1 | 1304837 |
| 7440−66−6 | Zinc | 31.4 | ug/L | | 3.3 | 10 | 10 | 1 | P | HSC | 06/06/13 14:57 | 060613−1 | 1304837 |

# METALS
## −1−
## INORGANICS ANALYSIS DATA PACKAGE

**SDG No:** 2013−831 **CONTRACT:** ESHL00210 **METHOD TYPE:**

**SAMPLE ID:** 325647002 **BASIS:** As Received **DATE COLLECTED** 10−MAY−13

**CLIENT ID:** CASA−13−30552 **LEVEL:** Low **DATE RECEIVED** 14−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Hardness as CaCO3 | 64.3 | mg/L | | 0.453 | 1.24 | 1.24 | 1 | | JJ2 | 06/10/13 11:06 | | 1306882 |

**Prep Information:**

| Analytical Batch | Prep Batch | Prep Method | Initial wt./vol. | Units | Final wt./vol. | Units | Date | Analyst |
|---|---|---|---|---|---|---|---|---|
| 1302856 | 1302851 | EPA 245.1/245.2 Prep | 20 | mL | 20 | mL | 05/20/13 | AXS5 |
| 1304837 | 1304836 | SW846 3005A | 50 | mL | 50 | mL | 06/06/13 | AXG2 |
| 1304840 | 1304838 | SW846 3005A | 50 | mL | 50 | mL | 06/06/13 | AXG2 |

***Analytical Methods:**

| | |
|---|---|
| **MS** | **SW846 3005/6020 DOE−AL** |
| **P** | **SW846 3005/6010B** |
| **AV** | **EPA 245.1/245.2** |

# Quality Control Summary

**METALS**
**−3b−**
**PREPARATION BLANK SUMMARY**

**SDG NO.** 2013−831

**Contract:** ESHL00210

**Matrix:** W

| Sample ID | Analyte | Result | Units | Acceptance Window | Conc Qual | M* | MDL | RDL |
|---|---|---|---|---|---|---|---|---|
| 1202878660 | | | | | | | | |
| | Mercury | −0.074 | ug/L | +/−0.2 | J | AV | 0.067 | 0.2 |
| 1202883949 | | | | | | | | |
| | Aluminum | 68 | ug/L | +/−200 | U | P | 68 | 200 |
| | Barium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Calcium | 50 | ug/L | +/−200 | U | P | 50 | 200 |
| | Copper | 3 | ug/L | +/−10 | U | P | 3 | 10 |
| | Magnesium | 110 | ug/L | +/−300 | U | P | 110 | 300 |
| | Potassium | 50 | ug/L | +/−150 | U | P | 50 | 150 |
| | Sodium | 100 | ug/L | +/−300 | U | P | 100 | 300 |
| | Tin | 2.5 | ug/L | +/−10 | U | P | 2.5 | 10 |
| | Zinc | 3.3 | ug/L | +/−10 | U | P | 3.3 | 10 |
| | Vanadium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Strontium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Silica | 53 | ug/L | +/−213 | U | P | 53 | 213 |
| | Manganese | 2 | ug/L | +/−10 | U | P | 2 | 10 |
| | Iron | 30 | ug/L | +/−100 | U | P | 30 | 100 |
| | Cobalt | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Beryllium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Boron | 15 | ug/L | +/−50 | U | P | 15 | 50 |
| 1202883954 | | | | | | | | |
| | Antimony | 1 | ug/L | +/−3 | U | MS | 1 | 3 |
| | Arsenic | 1.7 | ug/L | +/−5 | U | MS | 1.7 | 5 |
| | Cadmium | 0.11 | ug/L | +/−1 | U | MS | 0.11 | 1 |
| | Chromium | 2 | ug/L | +/−10 | U | MS | 2 | 10 |
| | Lead | 0.5 | ug/L | +/−2 | U | MS | 0.5 | 2 |
| | Molybdenum | 0.165 | ug/L | +/−0.5 | U | MS | 0.165 | 0.5 |
| | Nickel | 0.5 | ug/L | +/−2 | U | MS | 0.5 | 2 |
| | Selenium | 1.5 | ug/L | +/−5 | U | MS | 1.5 | 5 |
| | Silver | 0.2 | ug/L | +/−1 | U | MS | 0.2 | 1 |
| | Thallium | 0.45 | ug/L | +/−2 | U | MS | 0.45 | 2 |
| | Uranium | 0.067 | ug/L | +/−0.2 | U | MS | 0.067 | 0.2 |

***Analytical Methods:**

| | |
|---|---|
| **MS** | **SW846 3005/6020 DOE−AL** |
| **P** | **SW846 3005/6010B** |
| **AV** | **EPA 245.1/245.2** |

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−831 **Client ID** CAMO−13−30598S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 325643002 **Spike ID:** 1202878665

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | ug/L | 75−125 | 1.95 | | 0.067 | U | 2 | 97.7 | | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−831 **Client ID** CAMO−13−30594S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 325649002 **Spike ID:** 1202883952

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | ug/L | 75−125 | 5060 | | 68 | U | 5000 | 101 | | P |
| Barium | ug/L | 75−125 | 513 | | 21.9 | | 500 | 98.3 | | P |
| Beryllium | ug/L | 75−125 | 498 | | 1 | U | 500 | 99.5 | | P |
| Boron | ug/L | 75−125 | 491 | | 15 | U | 500 | 97.5 | | P |
| Calcium | ug/L | 75−125 | 17600 | | 13300 | | 5000 | 86.2 | | P |
| Cobalt | ug/L | 75−125 | 496 | | 1 | U | 500 | 99.2 | | P |
| Copper | ug/L | 75−125 | 532 | | 3 | U | 500 | 106 | | P |
| Iron | ug/L | 75−125 | 5140 | | 30 | U | 5000 | 103 | | P |
| Magnesium | ug/L | 75−125 | 8390 | | 3700 | | 5000 | 93.7 | | P |
| Manganese | ug/L | 75−125 | 492 | | 2 | U | 500 | 98.3 | | P |
| Potassium | ug/L | 75−125 | 5990 | | 1210 | | 5000 | 95.6 | | P |
| Silica | ug/L | | 81700 | | 74900 | | 10700 | 62.8 | N/A | P |
| Sodium | ug/L | 75−125 | 14200 | | 9930 | | 5000 | 85.2 | | P |
| Strontium | ug/L | 75−125 | 560 | | 58.8 | | 500 | 100 | | P |
| Tin | ug/L | 75−125 | 470 | | 2.5 | U | 500 | 94 | | P |
| Vanadium | ug/L | 75−125 | 507 | | 5.58 | | 500 | 100 | | P |
| Zinc | ug/L | 75−125 | 490 | | 3.3 | U | 500 | 97.4 | | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−831 **Client ID** CAMO−13−30594S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 325649002 **Spike ID:** 1202883957

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ug/L | 75−125 | 55 | | 1 | U | 50 | 110 | | MS |
| Arsenic | ug/L | 75−125 | 52.4 | | 1.7 | U | 50 | 102 | | MS |
| Cadmium | ug/L | 75−125 | 54.8 | | 0.11 | U | 50 | 110 | | MS |
| Chromium | ug/L | 75−125 | 68.1 | | 17.5 | | 50 | 101 | | MS |
| Lead | ug/L | 75−125 | 51.2 | | 0.5 | U | 50 | 102 | | MS |
| Molybdenum | ug/L | 75−125 | 51.8 | | 0.849 | | 50 | 102 | | MS |
| Nickel | ug/L | 75−125 | 53.4 | | 2.22 | | 50 | 102 | | MS |
| Selenium | ug/L | 75−125 | 59.2 | | 1.5 | U | 50 | 116 | | MS |
| Silver | ug/L | 75−125 | 54 | | 0.2 | U | 50 | 108 | | MS |
| Thallium | ug/L | 75−125 | 47.3 | | 0.45 | U | 50 | 94.6 | | MS |
| Uranium | ug/L | 75−125 | 51.9 | | 0.429 | | 50 | 103 | | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−831 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CAMO−13−30598D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325643002 **Duplicate ID:** 1202878661 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | ug/L | | 0.067 | U | 0.067 | U | | | AV |

***Analytical Methods:**

**AV EPA 245.1/245.2**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−831 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CAMO−13−30594D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325649002 **Duplicate ID:** 1202883951 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | ug/L | | 68 | U | 68 | U | | | P |
| Barium | ug/L | +/−5 | 21.9 | | 20.8 | | 5.14 | | P |
| Beryllium | ug/L | | 1 | U | 1 | U | | | P |
| Boron | ug/L | | 15 | U | 15 | U | | | P |
| Calcium | ug/L | +/−20% | 13300 | | 12900 | | 3.27 | | P |
| Cobalt | ug/L | | 1 | U | 1 | U | | | P |
| Copper | ug/L | | 3 | U | 3 | U | | | P |
| Iron | ug/L | | 30 | U | 30 | U | | | P |
| Magnesium | ug/L | +/−20% | 3700 | | 3510 | | 5.41 | | P |
| Manganese | ug/L | | 2 | U | 2 | U | | | P |
| Potassium | ug/L | +/−20% | 1210 | | 1170 | | 3.01 | | P |
| Silica | ug/L | +/−20% | 74900 | | 72500 | | 3.29 | | P |
| Sodium | ug/L | +/−20% | 9930 | | 9590 | | 3.45 | | P |
| Strontium | ug/L | +/−20% | 58.8 | | 56.4 | | 4.05 | | P |
| Tin | ug/L | | 2.5 | U | 2.5 | U | | | P |
| Vanadium | ug/L | +/−5 | 5.58 | | 4.98 | J | 11.3 | | P |
| Zinc | ug/L | | 3.3 | U | 3.3 | U | | | P |

***Analytical Methods:**

**P SW846 3005/6010B**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−831 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CAMO−13−30594D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325649002 **Duplicate ID:** 1202883956 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Antimony | ug/L | | 1 | U | 1 | U | | | MS |
| Arsenic | ug/L | | 1.7 | U | 1.7 | U | | | MS |
| Cadmium | ug/L | | 0.11 | U | 0.11 | U | | | MS |
| Chromium | ug/L | +/−10 | 17.5 | | 16 | | 9.39 | | MS |
| Lead | ug/L | | 0.5 | U | 0.5 | U | | | MS |
| Molybdenum | ug/L | +/−.5 | 0.849 | | 0.877 | | 3.24 | | MS |
| Nickel | ug/L | +/−2 | 2.22 | | 1.9 | J | 15.5 | | MS |
| Selenium | ug/L | | 1.5 | U | 1.5 | U | | | MS |
| Silver | ug/L | | 0.2 | U | 0.2 | U | | | MS |
| Thallium | ug/L | | 0.45 | U | 0.45 | U | | | MS |
| Uranium | ug/L | +/−.2 | 0.429 | | 0.42 | | 2.12 | | MS |

***Analytical Methods:**

**MS SW846 3005/6020 DOE−AL**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−831

**Contract:** ESHL00210

**Aqueous LCS Source:** GEL **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202878667 | | | | | | | | |
| | Mercury | ug/L | 2 | 1.99 | | 99.5 | 85−115 | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−831

**Contract:** ESHL00210

**Aqueous LCS Source:** OS2I **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202883950 | | | | | | | | |
| | Aluminum | ug/L | 5000 | 5200 | | 104 | 80−120 | P |
| | Barium | ug/L | 500 | 510 | | 102 | 80−120 | P |
| | Beryllium | ug/L | 500 | 508 | | 102 | 80−120 | P |
| | Boron | ug/L | 500 | 488 | | 97.7 | 80−120 | P |
| | Calcium | ug/L | 5000 | 5150 | | 103 | 80−120 | P |
| | Cobalt | ug/L | 500 | 508 | | 102 | 80−120 | P |
| | Copper | ug/L | 500 | 533 | | 107 | 80−120 | P |
| | Iron | ug/L | 5000 | 5300 | | 106 | 80−120 | P |
| | Magnesium | ug/L | 5000 | 5140 | | 103 | 80−120 | P |
| | Manganese | ug/L | 500 | 517 | | 103 | 80−120 | P |
| | Potassium | ug/L | 5000 | 5100 | | 102 | 80−120 | P |
| | Silica | ug/L | 10700 | 10800 | | 101 | 80−120 | P |
| | Sodium | ug/L | 5000 | 5040 | | 101 | 80−120 | P |
| | Strontium | ug/L | 500 | 527 | | 105 | 80−120 | P |
| | Tin | ug/L | 500 | 496 | | 99.2 | 80−120 | P |
| | Vanadium | ug/L | 500 | 517 | | 103 | 80−120 | P |
| | Zinc | ug/L | 500 | 493 | | 98.5 | 80−120 | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−831

**Contract:** ESHL00210

**Aqueous LCS Source:** O2Si **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202883955 | | | | | | | | |
| | Arsenic | ug/L | 50 | 51.7 | | 103 | 80−120 | MS |
| | Antimony | ug/L | 50 | 55.6 | | 111 | 80−120 | MS |
| | Cadmium | ug/L | 50 | 54.4 | | 109 | 80−120 | MS |
| | Chromium | ug/L | 50 | 52.9 | | 106 | 80−120 | MS |
| | Lead | ug/L | 50 | 51.4 | | 103 | 80−120 | MS |
| | Molybdenum | ug/L | 50 | 50.2 | | 100 | 80−120 | MS |
| | Nickel | ug/L | 50 | 52.7 | | 105 | 80−120 | MS |
| | Selenium | ug/L | 50 | 59.7 | | 119 | 80−120 | MS |
| | Silver | ug/L | 50 | 53.8 | | 108 | 80−120 | MS |
| | Thallium | ug/L | 50 | 46.7 | | 93.5 | 80−120 | MS |
| | Uranium | ug/L | 50 | 49.6 | | 99.3 | 80−120 | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−831 **Client ID** CAMO−13−30598L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325643002 **Serial Dilution ID:** 1202878663

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Mercury | .067 | U | .335 | U | | | | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−831 **Client ID** CAMO−13−30594L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325649002 **Serial Dilution ID:** 1202883953

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Aluminum | 68 | U | 340 | U | | | | P |
| Barium | 21.9 | | 25.2 | | 14.8 | | | P |
| Beryllium | 1 | U | 5 | U | | | | P |
| Boron | 15 | U | 75 | U | | | | P |
| Calcium | 13300 | | 13000 | | 2.28 | | 10 | P |
| Cobalt | 1 | U | 5 | U | | | | P |
| Copper | 3 | U | 15 | U | | | | P |
| Iron | 30 | U | 150 | U | | | | P |
| Magnesium | 3700 | | 3680 | | .612 | | | P |
| Manganese | 2 | U | 10 | U | | | | P |
| Potassium | 1210 | | 1320 | | 8.88 | | | P |
| Silica | 74900 | | 73100 | | 2.4 | | 10 | P |
| Sodium | 9930 | | 10500 | | 5.47 | | 10 | P |
| Strontium | 58.8 | | 56.9 | | 3.16 | | 10 | P |
| Tin | 2.5 | U | 12.5 | U | | | | P |
| Vanadium | 5.58 | | 6.2 | J | 11.1 | | | P |
| Zinc | 3.3 | U | 16.5 | U | | | | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−831 **Client ID** CAMO−13−30594L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325649002 **Serial Dilution ID:** 1202883958

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Antimony | 1 | U | 5 | U | | | | MS |
| Arsenic | 1.7 | U | 8.5 | U | | | | MS |
| Cadmium | .11 | U | .55 | U | | | | MS |
| Chromium | 17.5 | | 16.6 | J | 5.12 | | | MS |
| Lead | .5 | U | 2.5 | U | | | | MS |
| Molybdenum | .849 | | 1.15 | J | 35.5 | | | MS |
| Nickel | 2.22 | | 2.5 | U | 100 | | | MS |
| Selenium | 1.5 | U | 7.5 | U | | | | MS |
| Silver | .2 | U | 1 | U | | | | MS |
| Thallium | .45 | U | 2.25 | U | | | | MS |
| Uranium | .429 | | .53 | J | 23.5 | | | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

# General Chem Analysis

# Case Narrative

**General Chemistry Narrative**
**ARS International (ARSL)**
**SDG 2013-831**

## Method/Analysis Information

**Product:** **Carbon, Total Organic**

**Analytical Batch:** 1302095 **Method:** SW 9060 Total Organic Carbon

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9060:

| Sample ID | Client ID |
|---|---|
| 325647001 | CASA-13-30544 |
| 1202876780 | Method Blank (MB) |
| 1202876781 | 325479001(CAMO-13-30586) Sample Duplicate (DUP) |
| 1202876783 | 325479001(CAMO-13-30586) Post Spike (PS) |
| 1202876785 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-093 REV# 12.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Carbon analysis was performed on a O-I Analytical Model 1010 Total Organic Carbon Analyzer.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

## Quality Control (QC) Information

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325479001 (CAMO-13-30586).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

## Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

## Miscellaneous Information

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
A 15 mg/L Total Inorganic Carbon check standard is analyzed with each analytical run to prove that the instrument is effectively sparging away the inorganic carbon.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages

electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Specific Conductivity** | | |
| **Analytical Batch:** | 1305069 | **Method:** | EPA120.1 Specific Conductivity |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 120.1:

| Sample ID | Client ID |
|---|---|
| 325647002 | CASA-13-30552 |
| 1202884559 | Laboratory Control Sample (LCS) |
| 1202884560 | 325649002(CAMO-13-30594) Sample Duplicate (DUP) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-009 REV# 11.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Conductivity analysis was performed on a Orion 160 Conductivity Meter.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325649002 (CAMO-13-30594).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

## Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

## Miscellaneous Information

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

**Product:** **pH**

**Analytical Batch:** 1301818 **Method:** EPA 150.1 pH

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 150.1:

| Sample ID | Client ID |
|---|---|
| 325647002 | CASA-13-30552 |
| 1202876117 | 325649002(CAMO-13-30594) Sample Duplicate (DUP) |
| 1202876118 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-008 REV# 21.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Electrode analysis was performed on a PerpHect pH Meter Orion 370.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**

The following sample was selected for QC analysis: 325649002 (CAMO-13-30594).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
The following sample from this sample group was received by the lab outside of the method specified holding time: 325647002 (CASA-13-30552).

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1189891 325647002 (CASA-13-30552).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Ion Chromatography** | | |
| **Analytical Batch:** | 1300945 | **Method:** | EPA 300.0 Anions Liquid 28 day |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

| Sample ID | Client ID |
|---|---|
| 325647002 | CASA-13-30552 |
| 1202873935 | Method Blank (MB) |
| 1202873936 | 325479002(CAMO-13-30602) Sample Duplicate (DUP) |
| 1202873937 | 325479002(CAMO-13-30602) Post Spike (PS) |
| 1202873938 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 21.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-5000 Ion Chromatograph.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325479002 (CAMO-13-30602).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The spike recovery falls outside of the established acceptance limits due to matrix interference: 1202873937 (CAMO-13-30602).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1191934 1202873937 (CAMO-13-30602).

**Manual Integrations**
The following samples from this sample group had to be manually integrated due to errors in the instrument software peak integration: 1202873936 (CAMO-13-30602), 1202873937 (CAMO-13-30602) and 325647002 (CASA-13-30552).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an

effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Ammonia Nitrogen** | | |
| **Analytical Batch:** | 1301250 | **Method:** | EPA 350.1 Nitrogen and Ammonia L |
| **Prep Batch :** | 1301248 | **Method:** | EEPA 350.2 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 350.1:

| Sample ID | Client ID |
|---|---|
| 325647002 | CASA-13-30552 |
| 1202874615 | Method Blank (MB) |
| 1202874617 | 325479002(CAMO-13-30602) Sample Duplicate (DUP) |
| 1202874619 | 325479002(CAMO-13-30602) Matrix Spike (MS) |
| 1202874620 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-106 REV# 9.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325479002 (CAMO-13-30602).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample: 1202874617 (CAMO-13-30602).

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1187647 1202874617 (CAMO-13-30602).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Total Kjeldahl Nitrogen** | | |
| **Analytical Batch:** | 1301771 | **Method:** | Nitrogen and Total Kjeldahl (TKN) |
| **Prep Batch :** | 1301770 | **Method:** | EEPA 351.2 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 351.2:

| Sample ID | Client ID |
|---|---|
| 325647001 | CASA-13-30544 |
| 1202876001 | Method Blank (MB) |
| 1202876002 | 325649001(CAMO-13-30578) Sample Duplicate (DUP) |
| 1202876003 | 325649003(CAMO-13-30579) Sample Duplicate (DUP) |
| 1202876004 | 325649001(CAMO-13-30578) Matrix Spike (MS) |
| 1202876005 | 325649003(CAMO-13-30579) Matrix Spike (MS) |
| 1202876006 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-104 REV# 14.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following samples were selected for QC analysis: 325649001 (CAMO-13-30578) and 325649003 (CAMO-13-30579).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The spike recovery falls outside of the established acceptance limits due to matrix interference: 1202876005 (CAMO-13-30579).

**Duplicate Relative Percent Difference (RPD) Statement**
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202876002 (CAMO-13-30578) and 1202876003 (CAMO-13-30579).

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1186861 1202876005 (CAMO-13-30579).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Nitrate Nitrite by Cadmium Reduction** | | |
| **Analytical Batch:** | 1302060 | **Method:** | EPA 353.2 Nitrogen and Nitrate/Nitrite |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 353.2:

| Sample ID | Client ID |
|---|---|
| 325647002 | CASA-13-30552 |
| 1202876700 | Method Blank (MB) |
| 1202876701 | 325649002(CAMO-13-30594) Sample Duplicate (DUP) |
| 1202876702 | 325649004(CAMO-13-30595) Sample Duplicate (DUP) |
| 1202876703 | 325649002(CAMO-13-30594) Post Spike (PS) |
| 1202876704 | 325649004(CAMO-13-30595) Post Spike (PS) |
| 1202876705 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-128 REV# 8.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8500 Series.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following samples were selected for QC analysis: 325649002 (CAMO-13-30594) and 325649004 (CAMO-13-30595).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recoveries for this sample set were within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Total Phosphorus** | | |
| **Analytical Batch:** | 1301773 | **Method:** | EPA 365.4 Phosphorus and Total in |
| **Prep Batch :** | 1301772 | **Method:** | EEPA 365.4 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 365.4:

| Sample ID | Client ID |
|---|---|
| 325647002 | CASA-13-30552 |
| 1202876007 | Method Blank (MB) |
| 1202876008 | 325479002(CAMO-13-30602) Sample Duplicate (DUP) |
| 1202876009 | 325479005(CAMO-13-30564) Sample Duplicate (DUP) |
| 1202876010 | 325479002(CAMO-13-30602) Matrix Spike (MS) |
| 1202876011 | 325479005(CAMO-13-30564) Matrix Spike (MS) |
| 1202876012 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-103 REV# 10.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following samples were selected for QC analysis: 325479002 (CAMO-13-30602) and 325479005 (CAMO-13-30564).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recoveries for this sample set were within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The following sample was re-analyzed due to instrument failure: 1202876012 (LCS).

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages

electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Solids, Total Dissolved** | | |
| **Analytical Batch:** | 1301819 | **Method:** | EPA 160.1 Solids and Dissolved-F |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 160.1:

| Sample ID | Client ID |
|---|---|
| 325647002 | CASA-13-30552 |
| 1202876119 | Method Blank (MB) |
| 1202876120 | 325649008(CAMO-13-30597) Sample Duplicate (DUP) |
| 1202876121 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-001 REV# 13.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Solids analysis was performed on a Sartorius Balance BAL216. Solids lab

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

## Quality Control (QC) Information

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**

The following sample was selected for QC analysis: 325649008 (CAMO-13-30597).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Sample Aliquot**
A sufficient amount of sample was provided by the client for analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

**Product:** **Alkalinity**

**Analytical Batch:** 1303137 **Method:** EPA 310.1 Total Alkalinity

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 310.1:

| Sample ID | Client ID |
|---|---|
| 325647002 | CASA-13-30552 |
| 1202879523 | Laboratory Control Sample (LCS) |
| 1202879526 | 325643002(CAMO-13-30598) Sample Duplicate (DUP) |
| 1202879527 | 325643002(CAMO-13-30598) Matrix Spike (MS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-033 REV# 10.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Titration analysis was performed on a Manually operated buret.

**Initial Standardization**
The titrant was properly standardized

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325643002 (CAMO-13-30598).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**

The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

**Review Validation:**

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

**The following data validator verified the information presented in this case narrative:**

**Reviewer:**_____ **Date:**_____10Jun13_____

# Sample Data Summary

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-831  GEL Work Order: 325647

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

**  Analyte is a Tracer compound

**  Analyte is a surrogate compound

H  Analytical holding time was exceeded

J  Value is estimated

N  Metals--The Matrix spike sample recovery is not within specified control limits

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: June 10, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples

Client SDG: 2013-831

Client Sample ID: CASA-13-30544
Sample ID: 325647001
Matrix: W
Collect Date: 10-MAY-13 11:47
Receive Date: 14-MAY-13
Collector: Client

Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon Analysis | | | | | | | | | | | |
| SW 9060 Total Organic Carbon "As Received" | | | | | | | | | | | |
| Total Organic Carbon Average | J | 0.833 | 0.330 | 1.00 | mg/L | 1 | TSM | 05/16/13 | 1906 | 1302095 | 1 |
| Nutrient Analysis | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl (TKN) "As Received" | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | U | ND | 0.033 | 0.100 | mg/L | 1 | KLP1 | 05/16/13 | 1524 | 1301771 | 2 |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 351.2 Prep | EPA 351.2 Total Kjeldahl Nitrogen Prep | KLP1 | 05/16/13 | 1445 | 1301770 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | SW846 9060 | |
| 2 | EPA 351.2 | |

**Notes:**

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: June 10, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-831

Client Sample ID: CASA-13-30552
Sample ID: 325647002
Matrix: W
Collect Date: 10-MAY-13 11:47
Receive Date: 14-MAY-13
Collector: Client
Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Conductivity Analysis | | | | | | | | | | | |
| EPA120.1 Specific Conductivity "As Received" | | | | | | | | | | | |
| Conductivity | | 170 | 1.00 | 1.00 | umhos/cm | 1 | LXA1 | 05/31/13 | 1555 | 1305069 | 1 |
| Electrode Analysis | | | | | | | | | | | |
| EPA 150.1 pH "As Received" | | | | | | | | | | | |
| pH at Temp 8.60C | H | 7.70 | 0.010 | 0.100 | SU | 1 | LYG1 | 05/15/13 | 0800 | 1301818 | 2 |
| Ion Chromatography | | | | | | | | | | | |
| EPA 300.0 Anions Liquid 28 day "As Received" | | | | | | | | | | | |
| Bromide | U | ND | 0.067 | 0.200 | mg/L | 1 | MAR1 | 06/01/13 | 1204 | 1300945 | 3 |
| Chloride | | 2.83 | 0.067 | 0.200 | mg/L | 1 | | | | | |
| Fluoride | | 0.449 | 0.033 | 0.100 | mg/L | 1 | | | | | |
| Sulfate | | 3.38 | 0.133 | 0.400 | mg/L | 1 | | | | | |
| Nutrient Analysis | | | | | | | | | | | |
| EPA 350.1 Nitrogen, Ammonia L "As Received" | | | | | | | | | | | |
| Nitrogen, Ammonia | J | 0.0479 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/20/13 | 1613 | 1301250 | 4 |
| EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received" | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | 1.02 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/29/13 | 1546 | 1302060 | 5 |
| EPA 365.4 Phosphorus, Total in "As Received" | | | | | | | | | | | |
| Phosphorus, Total as P | U | ND | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/21/13 | 1212 | 1301773 | 6 |
| Solids Analysis | | | | | | | | | | | |
| EPA 160.1 Solids, Dissolved-F "As Received" | | | | | | | | | | | |
| Total Dissolved Solids | | 137 | 3.40 | 14.3 | mg/L | | LYG1 | 05/15/13 | 0947 | 1301819 | 7 |
| Titration Analysis | | | | | | | | | | | |
| EPA 310.1 Total Alkalinity "As Received" | | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | 71.6 | 0.725 | 1.00 | mg/L | | LXA1 | 05/21/13 | 1534 | 1303137 | 8 |
| Carbonate alkalinity (CaCO3) | U | ND | 0.725 | 1.00 | mg/L | | | | | | |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 350.2 Prep | EPA 350.1 Ammonia Nitrogen Prep | KLP1 | 05/20/13 | 1320 | 1301248 |
| EPA 365.4 Prep | EPA 365.4 Phosphorus, Total in liquid PR | KLP1 | 05/20/13 | 1630 | 1301772 |

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: June 10, 2013

| | | | |
|---|---|---|---|
| Company : | Los Alamos National Laboratory | | |
| Address : | PO Box 1663<br>TA-03, SM271, Drop Pt. 02U, Rm111<br>Los Alamos, New Mexico 87545 | | |
| Contact: | Keith Greene | Client SDG: | 2013-831 |
| Project: | LANL-WQH Water Samples | | |

| | | | |
|---|---|---|---|
| Client Sample ID: | CASA-13-30552 | Project: | ESHL00210 |
| Sample ID: | 325647002 | Client ID: | ARSL001 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | EPA 120.1 | |
| 2 | EPA 150.1 | |
| 3 | EPA 300.0 | |
| 4 | EPA 350.1 | |
| 5 | EPA 353.2 | |
| 6 | EPA 365.4 | |
| 7 | EPA 160.1 | |
| 8 | EPA 310.1 | |

**Notes:**

# Quality Control Summary

# GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

## QC Summary

**Report Date: June 10, 2013**


**Los Alamos National Laboratory**
**PO Box 1663**
**TA-03, SM271, Drop Pt. 02U, Rm111**
**Los Alamos, New Mexico**

**Contact:** **Keith Greene**

**Workorder:** **325647**

| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Carbon Analysis** | | | | | | | | | | | | |
| Batch 1302095 | | | | | | | | | | | | |
| QC1202876781 325479001 DUP | | | | | | | | | | | | |
| Total Organic Carbon Average | | J | 0.510 | J | 0.511 | mg/L | 0.196 | ^ | | (+/-1.00) | TSM | 05/16/13 16:57 |
| QC1202876785 LCS | | | | | | | | | | | | |
| Total Organic Carbon Average | 10.0 | | | | 9.70 | mg/L | | | 97 | (85%-115%) | | 05/16/13 16:15 |
| QC1202876780 MB | | | | | | | | | | | | |
| Total Organic Carbon Average | | | | U | ND | mg/L | | | | | | 05/16/13 16:06 |
| QC1202876783 325479001 PS | | | | | | | | | | | | |
| Total Organic Carbon Average | 10.0 | J | 0.510 | | 10.4 | mg/L | | | 99 | (65%-120%) | | 05/16/13 17:16 |
| **Conductivity Analysis** | | | | | | | | | | | | |
| Batch 1305069 | | | | | | | | | | | | |
| QC1202884560 325649002 DUP | | | | | | | | | | | | |
| Conductivity | | | 135 | | 137 | umhos/cm | 1.91 | | | (0%-10%) | LXA1 | 05/31/13 15:56 |
| QC1202884559 LCS | | | | | | | | | | | | |
| Conductivity | 1410 | | | | 1450 | umhos/cm | | | 102 | (95%-105%) | | 05/31/13 15:54 |
| **Electrode Analysis** | | | | | | | | | | | | |
| Batch 1301818 | | | | | | | | | | | | |
| QC1202876117 325649002 DUP | | | | | | | | | | | | |
| pH | | H | 7.91 | H | 7.92 | SU | 0.126 | | | (0%-10%) | LYG1 | 05/15/13 08:02 |
| QC1202876118 LCS | | | | | | | | | | | | |
| pH | 7.00 | | | | 7.00 | SU | | | 100 | (99%-101%) | | 05/15/13 07:56 |
| **Ion Chromatography** | | | | | | | | | | | | |
| Batch 1300945 | | | | | | | | | | | | |
| QC1202873936 325479002 DUP | | | | | | | | | | | | |
| Bromide | | J | 0.0717 | J | 0.0726 | mg/L | 1.25 | ^ | | (+/-0.200) | MAR1 | 06/01/13 09:27 |
| Chloride | | | 7.71 | | 7.64 | mg/L | 0.958 | | | (0%-20%) | | |
| Fluoride | | | 0.181 | | 0.182 | mg/L | 0.937 | ^ | | (+/-0.100) | | |
| Sulfate | | | 13.1 | | 13.3 | mg/L | 1.31 | | | (0%-20%) | | |
| QC1202873938 LCS | | | | | | | | | | | | |
| Bromide | 1.25 | | | | 1.28 | mg/L | | | 102 | (90%-110%) | | 06/01/13 08:24 |

## QC Summary

**Workorder: 325647**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Ion Chromatography** | | | | | | | | | | | |
| Batch 1300945 | | | | | | | | | | | |
| Chloride | 5.00 | | | | 4.66 | mg/L | | 93.3 | (90%-110%) | MAR1 | 06/01/13 08:24 |
| Fluoride | 2.50 | | | | 2.37 | mg/L | | 94.9 | (90%-110%) | | |
| Sulfate | 10.0 | | | | 9.94 | mg/L | | 99.4 | (90%-110%) | | |
| QC1202873935 MB | | | | | | | | | | | |
| Bromide | | | | U | ND | mg/L | | | | | 06/01/13 07:53 |
| Chloride | | | | U | ND | mg/L | | | | | |
| Fluoride | | | | U | ND | mg/L | | | | | |
| Sulfate | | | | U | ND | mg/L | | | | | |
| QC1202873937 325479002 PS | | | | | | | | | | | |
| Bromide | 1.25 | J | 0.0717 | | 1.30 | mg/L | | 98.3 | (90%-110%) | | 06/01/13 09:59 |
| Chloride | 5.00 | | 7.71 | | 13.3 | mg/L | | 111* | (90%-110%) | | |
| Fluoride | 2.50 | | 0.181 | | 2.49 | mg/L | | 92.2 | (90%-110%) | | |
| Sulfate | 10.0 | | 13.1 | | 23.5 | mg/L | | 104 | (90%-110%) | | |
| **Nutrient Analysis** | | | | | | | | | | | |
| Batch 1301250 | | | | | | | | | | | |
| QC1202874617 325479002 DUP | | | | | | | | | | | |
| Nitrogen, Ammonia | | | 0.0937 | J | 0.0255 | mg/L | 114*^ | | (+/-0.050) | KLP1 | 05/20/13 15:59 |
| QC1202874620 LCS | | | | | | | | | | | |
| Nitrogen, Ammonia | 1.00 | | | | 1.04 | mg/L | | 104 | (90%-110%) | | 05/20/13 15:48 |
| QC1202874615 MB | | | | | | | | | | | |
| Nitrogen, Ammonia | | | | J | 0.0235 | mg/L | | | | | 05/20/13 15:48 |
| QC1202874619 325479002 MS | | | | | | | | | | | |
| Nitrogen, Ammonia | 1.00 | | 0.0937 | | 1.05 | mg/L | | 95.6 | (90%-110%) | | 05/20/13 16:00 |
| Batch 1301771 | | | | | | | | | | | |
| QC1202876002 325649001 DUP | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | U | ND | U | ND | mg/L | N/A | | | KLP1 | 05/16/13 15:26 |
| QC1202876003 325649003 DUP | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | U | ND | U | ND | mg/L | N/A | | | | 05/16/13 15:32 |

## QC Summary

**Workorder: 325647**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Nutrient Analysis** | | | | | | | | | | | |
| Batch 1301771 | | | | | | | | | | | |
| QC1202876006 LCS | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | | | | 1.03 | mg/L | | 103 | (90%-110%) | KLP1 | 05/16/13 15:21 |
| QC1202876001 MB | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | | | U | ND | mg/L | | | | | 05/16/13 15:20 |
| QC1202876004 325649001 MS | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | U | ND | | 1.02 | mg/L | | 102 | (90%-110%) | | 05/16/13 15:27 |
| QC1202876005 325649003 MS | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | U | ND | | 1.12 | mg/L | | 112* | (90%-110%) | | 05/16/13 15:33 |
| Batch 1301773 | | | | | | | | | | | |
| QC1202876008 325479002 DUP | | | | | | | | | | | |
| Phosphorus, Total as P | | J | 0.0458 | J | 0.0491 | mg/L | 6.95 ^ | | (+/-0.050) | KLP1 | 05/21/13 12:07 |
| QC1202876009 325479005 DUP | | | | | | | | | | | |
| Phosphorus, Total as P | | J | 0.0426 | J | 0.0436 | mg/L | 2.32 ^ | | (+/-0.050) | | 05/21/13 12:10 |
| QC1202876012 LCS | | | | | | | | | | | |
| Phosphorus, Total as P | 1.00 | | | | 1.04 | mg/L | | 104 | (76%-120%) | | 05/21/13 12:17 |
| QC1202876007 MB | | | | | | | | | | | |
| Phosphorus, Total as P | | | | J | 0.0287 | mg/L | | | | | 05/21/13 12:05 |
| QC1202876010 325479002 MS | | | | | | | | | | | |
| Phosphorus, Total as P | 1.00 | J | 0.0458 | | 0.786 | mg/L | | 74 | (62%-139%) | | 05/21/13 12:08 |
| QC1202876011 325479005 MS | | | | | | | | | | | |
| Phosphorus, Total as P | 1.00 | J | 0.0426 | | 0.978 | mg/L | | 93.5 | (62%-139%) | | 05/21/13 12:11 |
| Batch 1302060 | | | | | | | | | | | |
| QC1202876701 325649002 DUP | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | | 0.986 | | 0.986 | mg/L | 0.00 | | (0%-20%) | KLP1 | 05/29/13 15:53 |
| QC1202876702 325649004 DUP | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | | 0.565 | | 0.564 | mg/L | 0.177 | | (0%-20%) | | 05/29/13 15:56 |
| QC1202876705 LCS | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | 1.00 | | | | 0.975 | mg/L | | 97.5 | (90%-110%) | | 05/29/13 15:43 |
| QC1202876700 MB | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | | | U | ND | mg/L | | | | | 05/29/13 15:42 |
| QC1202876703 325649002 PS | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | 1.00 | | 0.986 | | 1.92 | mg/L | | 93.4 | (90%-110%) | | 05/29/13 15:54 |

## QC Summary

**Workorder: 325647**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Nutrient Analysis** | | | | | | | | | | |
| Batch 1302060 | | | | | | | | | | |
| QC1202876704 325649004 PS | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | 1.00 | 0.565 | | 1.49 | mg/L | | 92.5 | (90%-110%) | KLP1 | 05/29/13 15:58 |
| **Solids Analysis** | | | | | | | | | | |
| Batch 1301819 | | | | | | | | | | |
| QC1202876120 325649008 DUP | | | | | | | | | | |
| Total Dissolved Solids | | 141 | | 140 | mg/L | 1.02 | | (0%-10%) | LYG1 | 05/15/13 09:47 |
| QC1202876121 LCS | | | | | | | | | | |
| Total Dissolved Solids | 300 | | | 293 | mg/L | | 97.6 | (95%-105%) | | 05/15/13 09:47 |
| QC1202876119 MB | | | | | | | | | | |
| Total Dissolved Solids | | | U | ND | mg/L | | | | | 05/15/13 09:47 |
| **Titration Analysis** | | | | | | | | | | |
| Batch 1303137 | | | | | | | | | | |
| QC1202879526 325643002 DUP | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | 59.9 | | 59.4 | mg/L | 0.851 | | (0%-20%) | LXA1 | 05/21/13 14:55 |
| Carbonate alkalinity (CaCO3) | U | ND | U | ND | mg/L | N/A | | | | |
| QC1202879523 LCS | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | 50.0 | | | 51.8 | mg/L | | 104 | (90%-110%) | | 05/21/13 12:19 |
| QC1202879527 325643002 MS | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | 50.0 | 59.9 | | 109 | mg/L | | 98.5 | (80%-120%) | | 05/21/13 14:58 |

**Notes:**

| | |
|---|---|
| < | Result is less than value reported |
| > | Result is greater than value reported |
| B | The target analyte was detected in the associated blank. |
| E | %difference of sample and SD is >10%. Sample concentration must meet flagging criteria |
| E | General Chemistry--Concentration of the target analyte exceeds the instrument calibration range |
| FB | Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies |
| H | Analytical holding time was exceeded |
| J | Value is estimated |
| N | Metals--The Matrix spike sample recovery is not within specified control limits |
| N/A | RPD or %Recovery limits do not apply. |

## QC Summary

**Workorder:** **325647**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|

| | |
|---|---|
| N1 | See case narrative |
| ND | Analyte concentration is not detected above the detection limit |
| NJ | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| Q | One or more quality control criteria have not been met. Refer to the applicable narrative or DER. |
| R | Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes. |
| R | Sample results are rejected |
| U | Analyte was analyzed for, but not detected above the MDL, MDA, or LOD. |
| X | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| Y | Other specific qualifiers were required to properly define the results. Consult case narrative. |
| Z | Paint Filter Test--Particulates passed through the filter, however no free liquids were observed. |
| ^ | RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry. |
| d | 5-day BOD--The 2:1 depletion requirement was not met for this sample |
| h | Preparation or preservation holding time was exceeded |

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

# Miscellaneous

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 16-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| LACHAT Flow Injection Analyzer | EPA 351.2 | Liquid | ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1301771 | See below. | | |

**Potentially affected work order(s)(SDG): 325007,325009,325643(2013-832),325647(2013-831),325649(2013-830),325658,325667,325669,325672**

**Application Issues:**

Failed Recovery for MS/PS

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed Recovery for MS:<br><br>QC 1202876005MS | 1. The spike recovery falls outside of the established acceptance limits due to matrix interference: |

**Originator's Name:**

Kristen Parson 16-MAY-13

**Data Validator/Group Leader:**

Julia Hamilton 16-MAY-13

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 20-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| LACHAT Flow Injection Analyzer | EPA 350.1 | Liquid | ALBR, ECWS, ESHL, GSTL, |
| **Batch ID:** | **Sample Numbers:** | | |
| 1301250 | See Below | | |

**Potentially affected work order(s)(SDG):** **325415,325433,325456,325465,325479(2013-822),325480(2013-823),325596,325598,325643(2013-832),325647(2013-831),325657,325730**

**Application Issues:**

Failed RPD for DUP

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed RPD for DUP:<br><br>QC 1202874617DUP | 1. The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample. |

**Originator's Name:**
Kristen Parson 20-MAY-13

**Data Validator/Group Leader:**
Thomas Lewis 21-MAY-13

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 28-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| ELECTRODE | EPA 150.1 | Liquid | ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1301818 | See below. | | |

**Potentially affected work order(s)(SDG): 325643(2013-832),325647(2013-831),325649(2013-830)**

**Application Issues:**

Sample received out of holding

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Sample received out of holding:<br><br>325643002, 325647002, 325649002, 325649004, 325649006, and 325649008 | 1. Samples were received out of holding. |

**Originator's Name:**

Lisa Gregory 28-MAY-13

**Data Validator/Group Leader:**

Julia Hamilton 28-MAY-13

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 04-JUN-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| IC | EPA 300.0 | Liquid | ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1300945 | See Below | | |

**Potentially affected work order(s)(SDG): 325479(2013-822),325480(2013-823),325643(2013-832),325647(2013-831),325649(2013-830)**

**Application Issues:**

Failed Recovery for MS/PS

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed Recovery for MS/PS:<br><br>QC 1202873937PS | 1. The MS/PS mixture contains seven anions of interest. Of those, all requested anions except chloride met normal acceptance criteria for recovery (90 - 110%). This failure is attributed to the matrix of the sample because the successful recovery of the other compounds indicate that the laboratory process was in control. This variance is judged to have no negative impact on the data. The deviation is noted in the Case Narrative and DER, and the data has been reported. |

**Originator's Name:**

Mary Sherwood 05-JUN-13

**Data Validator/Group Leader:**

Virginia Wininger 06-JUN-13

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

# Chain of Custody/Analysis Request

**COC/Lab Request #:** 2013-830



**Client Contact:**

**Lab Agreement # :** 126310011

**Project Number :**

**Analysis Turnaround Time:**

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

**Site Name:** Los Alamos National Laboratory

**Rad Screening Info:** Yes, Below Background

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | WSP-GENINORG | WSP-Met+B+SN+SR+U | WSP-NH3+NO3/NO2+PO4 | WSP-TKN+TOC | Special Instructions: |
|---|---|---|---|---|---|---|---|---|
| CAMO-13-30578 | May 9 2013 | 11:24 | W | | | | 1 | |
| CAMO-13-30594 | May 9 2013 | 11:24 | W | 1 | 1 | 1 | | |
| CAMO-13-30579 | May 9 2013 | 13:13 | W | | | | 1 | |
| CAMO-13-30595 | May 9 2013 | 13:13 | W | 1 | 1 | 1 | | |
| CAMO-13-30580 | May 9 2013 | 12:41 | W | | | | 1 | |
| CAMO-13-30596 | May 9 2013 | 12:41 | W | 1 | 1 | 1 | | |
| CAMO-13-30581 | May 9 2013 | 11:18 | W | | | | 1 | |
| CAMO-13-30597 | May 9 2013 | 11:18 | W | 1 | 1 | 1 | | |

Special Instructions:

| | | | |
|---|---|---|---|
| Relinquished by: | | Date/Time: 5/13/13 3:00 | Received by: |
| Relinquished by: | | Date/Time: | Received by: |
| Relinquished by: | | Date/Time: | Received by: |

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30578

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | 05/09/2013 | FIELD MATRIX: WG | | OK |
| TIME COLLECTED (HH:MM): | | 1124 | MEDIA: UA | | OK |
| PRS ID: | | OK | SAMPLE TECH CODE: UA | | GSP |
| LOCATION ID: R-44 S1 | | | FIELD PREP: UF | | OK |
| LOCATION TYPE: MON | | | FIELD QC TYPE: REG | | |
| PORT: P1A | | | SAMPLE USAGE: INV | | |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-TKN+TOC | 500 ML AMBER GLASS | 1 | H2SO4 | Y | NA |

**SAMPLE COMMENTS:** Samples taken within 50 feet of a running diesel generator.

**LOCATION COMMENTS:** NA

**FIELD PARAMETERS:**

Dissolved Oxygen 6.89 mg/L  Oxidation-Reduction Potential 182.2 MV  pH 7.73 SU

Specific Conductance 135 uS/cm  Temperature 20.39 deg C  Turbidity 0.2 NTU

**COLLECTED BY (PRINT)** Shaw, W

| RELINQUISHED BY | Date/Time | RECEIVED BY | Date/Time |
|---|---|---|---|
| (Printed Name) D Woody<br>(Signature) David Woody | 05/09/13 1405 | (Printed Name) M. Martin<br>(Signature) | 05/09/13 1405 |
| RELINQUISHED BY<br>(Printed Name)<br>(Signature) | Date/Time | RECEIVED BY<br>(Printed Name)<br>(Signature) | Date/Time |

Report Date 04/30/2013

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30579

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | 05/09/2013 | FIELD MATRIX: WG | | OK |
| TIME COLLECTED (HH:MM): | | 1313 | MEDIA: UA | | OK |
| PRS ID: | | OK | SAMPLE TECH CODE: UA | | GSP |
| LOCATION ID: R-44 S2 | | | FIELD PREP: UF | | |
| LOCATION TYPE: MON | | | FIELD QC TYPE: REG | | |
| PORT: P2A | | | SAMPLE USAGE: INV | | |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-TKN+TOC | 500 ML AMBER GLASS | 1 | H2SO4 | Y | NA |

**SAMPLE COMMENTS:** Samples taken within 50 feet of a running diesel generator

**LOCATION COMMENTS:** None

**FIELD PARAMETERS:**

Dissolved Oxygen 7.18 mg/L  Oxidation-Reduction Potential 139.0 MV  pH 7.81 SU

Specific Conductance 144 uS/cm  Temperature 20.78 deg C  Turbidity 0.1 NTU

**COLLECTED BY (PRINT)** D Woody

| RELINQUISHED BY | Date/Time | RECEIVED BY | Date/Time |
|---|---|---|---|
| (Printed Name) D Woody<br>(Signature) David Woody | 05/09/13 1405 | (Printed Name) M. Martin<br>(Signature) | 05/09/13 1405 |
| **RELINQUISHED BY** | **Date/Time** | **RECEIVED BY** | **Date/Time** |
| (Printed Name)<br>(Signature) | | (Printed Name)<br>(Signature) | |

Report Date 04/30/2013

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30580

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| **DATE COLLECTED (MM/DD/YYYY):** | | 05/09/2013 | **FIELD MATRIX:** | WG | ok |
| **TIME COLLECTED (HH:MM):** | | 1241 | **MEDIA:** | UA | |
| **PRS ID:** | | ok | **SAMPLE TECH CODE:** | UA | GSP |
| **LOCATION ID:** | R-45 S1 | | **FIELD PREP:** | UF | on |
| **LOCATION TYPE:** | MON | | **FIELD QC TYPE:** | REG | |
| **PORT:** | P1A | | **SAMPLE USAGE:** | INV | |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-TKN+TOC | 500 ML AMBER GLASS | 1 | H2SO4 | Y | NA |

**SAMPLE COMMENTS:**

NA

**LOCATION COMMENTS:** diesel generator running 40' away

**FIELD PARAMETERS:**

Dissolved Oxygen 7.14 mg/L Oxidation-Reduction Potential 303.7 MV pH 7.66 SU

Specific Conductance 179 uS/cm Temperature 19.49 deg C Turbidity 0.39 NTU

**COLLECTED BY (PRINT)** D. Fellenz

| | | | |
|---|---|---|---|
| **RELINQUISHED BY (Printed Name) (Signature)** D. Fellenz | **Date/Time** 5/9/13 1340 | **RECEIVED BY (Printed Name) (Signature)** S. Sherwood | **Date/Time** 5/9/13 1340 |
| **RELINQUISHED BY (Printed Name) (Signature)** | **Date/Time** | **RECEIVED BY (Printed Name) (Signature)** | **Date/Time** |

Report Date 04/30/2013

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30581

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | 05/09/2013 | FIELD MATRIX: | WG | ok |
| TIME COLLECTED (HH:MM): | | 1118 | MEDIA: | UA | ↓ |
| PRS ID: | | ok | SAMPLE TECH CODE: | UA | GSP |
| LOCATION ID: | R-45 S2 | ↓ | FIELD PREP: | UF | ok |
| LOCATION TYPE: | MON | ↓ | FIELD QC TYPE: | REG | ↓ |
| PORT: | P2A | ↓ | SAMPLE USAGE: | INV | ↓ |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-TKN+TOC | 500 ML AMBER GLASS | 1 | H2SO4 | Y | NA |

**SAMPLE COMMENTS:**

NA

**LOCATION COMMENTS:**

Diesel generator 40' away

**FIELD PARAMETERS:**

Dissolved Oxygen 6.43 mg/L  Oxidation-Reduction Potential 314.4 MV  pH 7.94 SU

Specific Conductance 170 uS/cm  Temperature 20.99 deg C  Turbidity 0.34 NTU

**COLLECTED BY (PRINT)** D. Fellenz

| RELINQUISHED BY (Printed Name) (Signature) | Date/Time | RECEIVED BY (Printed Name) (Signature) | Date/Time |
|---|---|---|---|
| Andrew Stocker | 5/9/13 1340 | D. Sherwood Sheri Sherwood | 5/9/13 1340 |
| **RELINQUISHED BY (Printed Name) (Signature)** | **Date/Time** | **RECEIVED BY (Printed Name) (Signature)** | **Date/Time** |

Report Date 04/30/2013

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30594

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| **DATE COLLECTED (MM/DD/YYYY):** | | 05/09/2013 | **FIELD MATRIX:** WG | | OK |
| **TIME COLLECTED (HH:MM):** | | 1124 | **MEDIA:** UA | | OK |
| **PRS ID:** | | OK | **SAMPLE TECH CODE:** UA | | GSP |
| **LOCATION ID:** R-44 S1 | | | **FIELD PREP:** F | | OK |
| **LOCATION TYPE:** MON | | | **FIELD QC TYPE:** REG | | |
| **PORT:** P1A | | | **SAMPLE USAGE:** INV | | |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-GENINORG | 1 LITER POLY | 1 | ICE | Y | NA |
| | WSP-Met+B+SN+SR+U | 1 LITER POLY | 1 | HNO3 | | |
| | WSP-NH3+NO3/NO2+PO4 | 500 ML AMBER GLASS | 1 | H2SO4 | | |

**SAMPLE COMMENTS:** NA

**LOCATION COMMENTS:**

**FIELD PARAMETERS:**

Dissolved Oxygen NA mg/L  Oxidation-Reduction Potential NA MV  pH NA SU

Specific Conductance NA uS/cm  Temperature NA deg C  Turbidity NA NTU

**COLLECTED BY (PRINT)** W Shaw

| | | | |
|---|---|---|---|
| **RELINQUISHED BY (Printed Name)** D Woody **(Signature)** David Woody | **Date/Time** 05/09/13 1405 | **RECEIVED BY (Printed Name)** **(Signature)** | **Date/Time** 05/09/13 1405 |
| **RELINQUISHED BY (Printed Name) (Signature)** | **Date/Time** | **RECEIVED BY (Printed Name) (Signature)** | **Date/Time** |

Report Date 04/30/2013

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30595

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| **DATE COLLECTED (MM/DD/YYYY):** | | 05/09/2013 | **FIELD MATRIX:** | WG | OK |
| **TIME COLLECTED (HH:MM):** | | 1313 | **MEDIA:** | UA | OK |
| **PRS ID:** | | OK | **SAMPLE TECH CODE:** | UA | GSP |
| **LOCATION ID:** | R-44 S2 | | **FIELD PREP:** | F | |
| **LOCATION TYPE:** | MON | | **FIELD QC TYPE:** | REG | |
| **PORT:** | P2A | | **SAMPLE USAGE:** | INV | |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-GENINORG | 1 LITER POLY | 1 | ICE | Y | NA |
| | WSP-Met+B+SN+SR+U | 1 LITER POLY | 1 | HNO3 | | |
| | WSP-NH3+NO3/NO2+PO4 | 500 ML AMBER GLASS | 1 | H2SO4 | | |

**SAMPLE COMMENTS:** NA

**LOCATION COMMENTS:** NA

**FIELD PARAMETERS:**

Dissolved Oxygen NA mg/L  Oxidation-Reduction Potential NA MV  pH NA SU

Specific Conductance NA uS/cm  Temperature NA deg C  Turbidity NA NTU

**COLLECTED BY (PRINT)** W Shaw

| RELINQUISHED BY | Date/Time | RECEIVED BY | Date/Time |
|---|---|---|---|
| (Printed Name) D Woody<br>(Signature) David Woody | 05/09/13 1405 | (Printed Name) A. Montoya<br>(Signature) | 05/09/13 1405 |
| **RELINQUISHED BY**<br>(Printed Name)<br>(Signature) | **Date/Time** | **RECEIVED BY**<br>(Printed Name)<br>(Signature) | **Date/Time** |

Report Date 04/30/2013

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30596

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| **DATE COLLECTED (MM/DD/YYYY):** | | 05/09/2013 | **FIELD MATRIX:** | WG | ok |
| **TIME COLLECTED (HH:MM):** | | 1241 | **MEDIA:** | UA | |
| **PRS ID:** | | ok | **SAMPLE TECH CODE:** | UA | GSI |
| **LOCATION ID:** | R-45 S1 | | **FIELD PREP:** | F | ok |
| **LOCATION TYPE:** | MON | | **FIELD QC TYPE:** | REG | |
| **PORT:** | P1A | | **SAMPLE USAGE:** | INV | |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-GENINORG | 1 LITER POLY | 1 | ICE | Y | NA |
| | WSP-Met+B+SN+SR+U | 1 LITER POLY | 1 | HNO3 | | |
| | WSP-NH3+NO3/NO2+PO4 | 500 ML AMBER GLASS | 1 | H2SO4 | | |

**SAMPLE COMMENTS:**

NA

**LOCATION COMMENTS:** Dead generator running 40' away

**FIELD PARAMETERS:**

Dissolved Oxygen 7.14 mg/L  Oxidation-Reduction Potential 303.7 MV  pH 7.66 SU

Specific Conductance 179 uS/cm  Temperature 19.49 deg C  Turbidity 0.39 NTU

**COLLECTED BY (PRINT)** D. Fellenz

| | | | |
|---|---|---|---|
| **RELINQUISHED BY (Printed Name) (Signature)** Andrew Stokes | **Date/Time** 5/9/13 1340 | **RECEIVED BY (Printed Name)** Sherwood **(Signature)** Sheri Sherwood | **Date/Time** 5/9/13 1340 |
| **RELINQUISHED BY (Printed Name) (Signature)** | **Date/Time** | **RECEIVED BY (Printed Name) (Signature)** | **Date/Time** |

Report Date 04/30/2013

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30597

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | 05/09/2013 | FIELD MATRIX: | WG | ok |
| TIME COLLECTED (HH:MM): | | 1118 | MEDIA: | UA | |
| PRS ID: | | ok | SAMPLE TECH CODE: | UA | GSB |
| LOCATION ID: | R-45 S2 | | FIELD PREP: | F | ok |
| LOCATION TYPE: | MON | | FIELD QC TYPE: | REG | |
| PORT: | P2A | | SAMPLE USAGE: | INV | |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-GENINORG | 1 LITER POLY | 1 | ICE | Y | NA |
| | WSP-Met+B+SN+SR+U | 1 LITER POLY | 1 | HNO3 | | |
| | WSP-NH3+NO3/NO2+PO4 | 500 ML AMBER GLASS | 1 | H2SO4 | | |

**SAMPLE COMMENTS:**

NA

**LOCATION COMMENTS:** Diesel generator ~~ar.ft~~ 40' away

**FIELD PARAMETERS:**

Dissolved Oxygen 6.43 mg/L Oxidation-Reduction Potential 319.4 MV pH 7.94 SU

Specific Conductance 170 uS/cm Temperature 20.99 deg C Turbidity 0.34 NTU

**COLLECTED BY (PRINT)** D. Fellenz

| | | | |
|---|---|---|---|
| **RELINQUISHED BY (Printed Name) (Signature)** J. Rodriguez | **Date/Time** 5/9/13 1340 | **RECEIVED BY (Printed Name) (Signature)** D. Sherwood | **Date/Time** 5/9/13 1340 |
| **RELINQUISHED BY (Printed Name) (Signature)** | **Date/Time** | **RECEIVED BY (Printed Name) (Signature)** | **Date/Time** |

Report Date 04/30/2013

Data Validation Report

Chain Of Custody No. 2013-830

**1. Distribution Of Samples In EDD.**

| SDG | Analytical Method | Regular Samples | Field Duplicates | Trip Blanks | Field Blanks | Equipment Blanks |
|---|---|---|---|---|---|---|
| 325649 | EPA:120.1 | 4 | | | | |
| 325649 | EPA:150.1 | 4 | | | | |
| 325649 | EPA:160.1 | 4 | | | | |
| 325649 | EPA:245.2 | 4 | | | | |
| 325649 | EPA:300.0 | 4 | | | | |
| 325649 | EPA:310.1 | 4 | | | | |
| 325649 | EPA:350.1 | 4 | | | | |
| 325649 | EPA:351.2 | 4 | | | | |
| 325649 | EPA:353.2 | 4 | | | | |
| 325649 | EPA:365.4 | 4 | | | | |
| 325649 | SM:A2340B | 4 | | | | |
| 325649 | SW-846:6010B | 4 | | | | |
| 325649 | SW-846:6020 | 4 | | | | |
| 325649 | SW-846:9060 | 4 | | | | |

| SDG | Analytical Method | Analysis Lot ID | Prep Lot ID | Regular Samples | Field Duplicates | Trip Blanks | Field Blanks | Equipment Blanks | Method Blanks | Matrix Spikes | Matrix Spike Dups |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 325649 | EPA:120.1 | 1305069 | 1305069 | 4 | | | | | | | |
| 325649 | EPA:150.1 | 1301818 | 1301818 | 4 | | | | | | | |
| 325649 | EPA:160.1 | 1301819 | 1301819 | 4 | | | | | 1 | | |
| 325649 | EPA:245.2 | 1304495 | 1304494 | 4 | | | | | 1 | 1 | |
| 325649 | EPA:300.0 | 1300945 | 1300945 | 4 | | | | | 1 | | |
| 325649 | EPA:310.1 | 1302919 | 1302919 | 4 | | | | | 2 | 1 | |
| 325649 | EPA:350.1 | 1302059 | 1302058 | 4 | | | | | 1 | 2 | |
| 325649 | EPA:351.2 | 1301771 | 1301770 | 4 | | | | | 1 | 2 | |
| 325649 | EPA:353.2 | 1302060 | 1302060 | 4 | | | | | 1 | | |
| 325649 | EPA:365.4 | 1301773 | 1301772 | 4 | | | | | 1 | 2 | |
| 325649 | SM:A2340B | 1306882 | 1306882 | 4 | | | | | | | |
| 325649 | SW-846:6010B | 1304837 | 1304836 | 4 | | | | | 1 | 1 | |
| 325649 | SW-846:6020 | 1304840 | 1304838 | 4 | | | | | 1 | 1 | |
| 325649 | SW-846:9060 | 1302095 | 1302095 | 4 | | | | | 1 | | |

**2. Distribution Of Analytes In EDD.**

| Analytical Method | Method Category | Field Sample ID | Lab Sample ID | Sample Purpose | Target Analytes | Surrogates | Spikes | TICS |
|---|---|---|---|---|---|---|---|---|
| EPA:120.1 | GENERAL CHEMISTRY | CAMO-13-30594 | 1202884560 | DUP | 1 | 0 | 0 | 0 |
| EPA:120.1 | GENERAL CHEMISTRY | CAMO-13-30594 | 325649002 | REG | 1 | 0 | 0 | 0 |
| EPA:120.1 | GENERAL CHEMISTRY | CAMO-13-30595 | 325649004 | REG | 1 | 0 | 0 | 0 |
| EPA:120.1 | GENERAL CHEMISTRY | CAMO-13-30596 | 325649006 | REG | 1 | 0 | 0 | 0 |
| EPA:120.1 | GENERAL CHEMISTRY | CAMO-13-30597 | 325649008 | REG | 1 | 0 | 0 | 0 |
| EPA:120.1 | GENERAL CHEMISTRY | LCS | 1202884559 | LCS | 0 | 0 | 1 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | CAMO-13-30594 | 1202876117 | DUP | 1 | 0 | 0 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | CAMO-13-30594 | 325649002 | REG | 1 | 0 | 0 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | CAMO-13-30595 | 325649004 | REG | 1 | 0 | 0 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | CAMO-13-30596 | 325649006 | REG | 1 | 0 | 0 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | CAMO-13-30597 | 325649008 | REG | 1 | 0 | 0 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | LCS | 1202876118 | LCS | 0 | 0 | 1 | 0 |

Data Validation Report for:

Chain Of Custody No. 2013-830

| Analytical Spikes | Post-Digestion Spikes | Lab Control Samples | Lab Control Sample Dups | Blank Spikes | Blank Spike Dups | Lab Duplicates | Storage Blanks | Preparation Blanks | Reagent Blanks |
|---|---|---|---|---|---|---|---|---|---|
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 2 | | | | 1 | | | |
| | | 1 | | | | 2 | | | |
| | | 1 | | | | 2 | | | |
| | | 1 | | | | 2 | | | |
| | | 1 | | | | 2 | | | |
| | | | | | | | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| EPA:160.1 | GENERAL CHEMISTRY | CAMO-13-30594 | 325649002 | REG | 1 | 0 | 0 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | CAMO-13-30595 | 325649004 | REG | 1 | 0 | 0 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | CAMO-13-30596 | 325649006 | REG | 1 | 0 | 0 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | CAMO-13-30597 | 1202876120 | DUP | 1 | 0 | 0 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | CAMO-13-30597 | 325649008 | REG | 1 | 0 | 0 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | LCS | 1202876121 | LCS | 0 | 0 | 1 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | MB | 1202876119 | MB | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30594 | 325649002 | REG | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30595 | 325649004 | REG | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30596 | 325649006 | REG | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30597 | 325649008 | REG | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CASA-13-30554 | 1202883025 | DUP | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CASA-13-30554 | 1202883026 | MS | 0 | 0 | 1 | 0 |
| EPA:245.2 | INORGANIC | LCS | 1202883024 | LCS | 0 | 0 | 1 | 0 |
| EPA:245.2 | INORGANIC | MB | 1202883023 | MB | 1 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | CAMO-13-30594 | 325649002 | REG | 4 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | CAMO-13-30595 | 325649004 | REG | 4 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | CAMO-13-30596 | 325649006 | REG | 4 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | CAMO-13-30597 | 325649008 | REG | 4 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | CAMO-13-30602 | 1202873936 | DUP | 4 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | LCS | 1202873938 | LCS | 0 | 0 | 4 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | MB | 1202873935 | MB | 4 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CAMO-13-30594 | 1202878878 | DUP | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CAMO-13-30594 | 1202878879 | MS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CAMO-13-30594 | 325649002 | REG | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CAMO-13-30595 | 325649004 | REG | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CAMO-13-30596 | 325649006 | REG | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CAMO-13-30597 | 325649008 | REG | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | LCS | 1202878877 | LCS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | LCS | 1202879028 | LCS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | MB | 1202878876 | MB | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | MB | 1202879027 | MB | 2 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30594 | 1202876695 | DUP | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30594 | 1202876697 | MS | 0 | 0 | 1 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30594 | 325649002 | REG | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30595 | 1202876696 | DUP | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30595 | 1202876698 | MS | 0 | 0 | 1 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30595 | 325649004 | REG | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30596 | 325649006 | REG | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30597 | 325649008 | REG | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | LCS | 1202876699 | LCS | 0 | 0 | 1 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | MB | 1202876694 | MB | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30578 | 1202876002 | DUP | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30578 | 1202876004 | MS | 0 | 0 | 1 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30578 | 325649001 | REG | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30579 | 1202876003 | DUP | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30579 | 1202876005 | MS | 0 | 0 | 1 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30579 | 325649003 | REG | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30580 | 325649005 | REG | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30581 | 325649007 | REG | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | LCS | 1202876006 | LCS | 0 | 0 | 1 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | MB | 1202876001 | MB | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CAMO-13-30594 | 1202876701 | DUP | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CAMO-13-30594 | 325649002 | REG | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CAMO-13-30595 | 1202876702 | DUP | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CAMO-13-30595 | 325649004 | REG | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CAMO-13-30596 | 325649006 | REG | 1 | 0 | 0 | 0 |

Data Validation Report for:

Chain Of Custody No. 2013-830

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| EPA:353.2 | GENERAL CHEMISTRY | CAMO-13-30597 | 325649008 | REG | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | LCS | 1202876705 | LCS | 0 | 0 | 1 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | MB | 1202876700 | MB | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CAMO-13-30564 | 1202876009 | DUP | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CAMO-13-30564 | 1202876011 | MS | 0 | 0 | 1 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CAMO-13-30594 | 325649002 | REG | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CAMO-13-30595 | 325649004 | REG | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CAMO-13-30596 | 325649006 | REG | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CAMO-13-30597 | 325649008 | REG | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CAMO-13-30602 | 1202876008 | DUP | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CAMO-13-30602 | 1202876010 | MS | 0 | 0 | 1 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | LCS | 1202876012 | LCS | 0 | 0 | 1 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | MB | 1202876007 | MB | 1 | 0 | 0 | 0 |
| SM:A2340B | INORGANIC | CAMO-13-30594 | 325649002 | REG | 1 | 0 | 0 | 0 |
| SM:A2340B | INORGANIC | CAMO-13-30595 | 325649004 | REG | 1 | 0 | 0 | 0 |
| SM:A2340B | INORGANIC | CAMO-13-30596 | 325649006 | REG | 1 | 0 | 0 | 0 |
| SM:A2340B | INORGANIC | CAMO-13-30597 | 325649008 | REG | 1 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30594 | 1202883951 | DUP | 17 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30594 | 1202883952 | MS | 0 | 0 | 17 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30594 | 325649002 | REG | 17 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30595 | 325649004 | REG | 17 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30596 | 325649006 | REG | 17 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30597 | 325649008 | REG | 17 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | LCS | 1202883950 | LCS | 0 | 0 | 17 | 0 |
| SW-846:6010B | INORGANIC | MB | 1202883949 | MB | 17 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30594 | 1202883956 | DUP | 11 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30594 | 1202883957 | MS | 0 | 0 | 11 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30594 | 325649002 | REG | 11 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30595 | 325649004 | REG | 11 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30596 | 325649006 | REG | 11 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30597 | 325649008 | REG | 11 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | LCS | 1202883955 | LCS | 0 | 0 | 11 | 0 |
| SW-846:6020 | INORGANIC | MB | 1202883954 | MB | 11 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | CAMO-13-30578 | 325649001 | REG | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | CAMO-13-30579 | 325649003 | REG | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | CAMO-13-30580 | 325649005 | REG | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | CAMO-13-30581 | 325649007 | REG | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | CAMO-13-30586 | 1202876781 | DUP | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | LCS | 1202876785 | LCS | 0 | 0 | 1 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | MB | 1202876780 | MB | 1 | 0 | 0 | 0 |

**3. Are any analytes missing?**

No.

**4. Were any holding times exceeded?**

No.

**5. Any contaminants in blanks?**

| Field Sample ID | Lab Sample ID | Type Of Blank | Analytical Method | Sample Matrix | Parameter Name | Lab Result | Lab Qualifier | Units | Lab Detection Limit |
|---|---|---|---|---|---|---|---|---|---|
| MB | 1202876007 | METHOD BLANK | EPA:365.4 | W | Total Phosphate as Phosphorus | 0.0287 | J | mg/L | 0.05 |
| MB | 1202876694 | METHOD BLANK | EPA:350.1 | W | Ammonia as Nitrogen | 0.0186 | J | mg/L | 0.05 |

Data Validation Report for:

Chain Of Custody No. 2013-830

**Any samples affected by the presence of contaminants in blanks?**

| Field Sample ID | Blank Field Sample ID | Blank Lab Sample ID | Blank Type | Analytical Method | Parameter Name | Units | Blank Result | Sample Result | Lab Qualifier | Detect Limit | Detected |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAMO-13-30594 | MB | 1202876694 | METHOD BLANK | EPA:350.1 | Ammonia as Nitrogen | mg/L | 0.0186 | 0.0529 | | 0.05 | Y |
| CAMO-13-30595 | MB | 1202876694 | METHOD BLANK | EPA:350.1 | Ammonia as Nitrogen | mg/L | 0.0186 | 0.0394 | J | 0.05 | Y |
| CAMO-13-30596 | MB | 1202876694 | METHOD BLANK | EPA:350.1 | Ammonia as Nitrogen | mg/L | 0.0186 | 0.0268 | J | 0.05 | Y |
| CAMO-13-30597 | MB | 1202876694 | METHOD BLANK | EPA:350.1 | Ammonia as Nitrogen | mg/L | 0.0186 | 0.0172 | J | 0.05 | Y |
| CAMO-13-30594 | MB | 1202876007 | METHOD BLANK | EPA:365.4 | Total Phosphate as Phosphorus | mg/L | 0.0287 | 0.0432 | J | 0.05 | Y |
| CAMO-13-30595 | MB | 1202876007 | METHOD BLANK | EPA:365.4 | Total Phosphate as Phosphorus | mg/L | 0.0287 | 0.0324 | J | 0.05 | Y |
| CAMO-13-30596 | MB | 1202876007 | METHOD BLANK | EPA:365.4 | Total Phosphate as Phosphorus | mg/L | 0.0287 | 0.0452 | J | 0.05 | Y |
| CAMO-13-30597 | MB | 1202876007 | METHOD BLANK | EPA:365.4 | Total Phosphate as Phosphorus | mg/L | 0.0287 | 0.0403 | J | 0.05 | Y |

**6. Any surrogate recoveries outside the control limits?**

No.

**7. Any MS/MSD recoveries or RPDs outside the control limits?**

| Field Sample ID | Matrix Spike ID | Matrix Spike Dup ID | Analytical Method | Parameter Name | Analysis Lot ID | Analysis Date | Sample Matrix | MS % Recvry | MSD % Recvry | Upper Limit | Lower Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAMO-13-30579 | 1202876005 | | EPA:351.2 | Total Kjeldahl Nitrogen | 1301770 | 5/16/2013 | W | 112 | | 110 | 90 |
| CAMO-13-30579 | 1202876005 | | EPA:351.2 | Total Kjeldahl Nitrogen | 1301770 | 5/16/2013 | W | 112 | | 110 | 90 |
| CAMO-13-30594 | 1202883952 | | SW-846:6010B | Silicon Dioxide | 1304836 | 6/6/2013 | W | 62.8 | | 125 | 75 |
| CAMO-13-30594 | 1202883952 | | SW-846:6010B | Silicon Dioxide | 1304836 | 6/6/2013 | W | 62.8 | | 125 | 75 |

**8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?**

No.

**9. Any Field Duplicate RPDs outside the desired limits?**

No.

**10. Any Lab Duplicate RPDs outside the desired limits?**

No.

**11. Any required reporting limits exceeded?**

No.

**12. Additional Validator's Coments.**

None.

Data Validation Report for:

Chain Of Custody No. 2013-830

| Correction Factor (ND) | Correction Factor (J) | Use Factors |
|---|---|---|
| 5 | | Y |
| 5 | | Y |
| 5 | | Y |
| 5 | | Y |
| 5 | | Y |
| 5 | | Y |
| 5 | | Y |
| 5 | | Y |

| Rejection Limit | RPD |
|---|---|
| 10 | |
| 10 | |
| 10 | |
| 10 | |

RPD Limit

**13. Display Flagged Data.**

| Location ID | Chain Of Custody No | Field Sample ID | Sample Purpose | Analysis Type Code | Analytical Suite | Analytical Method | Parameter Name | Lab Qualifier | Validation Qualifier | Validation Reason Codes | Detected |
|---|---|---|---|---|---|---|---|---|---|---|---|
| R-44 S2 | 2013-830 | CAMO-13-30579 | REG | INIT | GENERAL CHEMISTRY | EPA:351.2 | Total Kjeldahl Nitrogen | U | UJ | I6b | N |
| R-44 S1 | 2013-830 | CAMO-13-30594 | REG | INIT | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | | U | I4 | N |
| R-44 S1 | 2013-830 | CAMO-13-30594 | REG | INIT | INORGANIC | SW-846:6010B | Silicon Dioxide | | J- | I6a | Y |
| R-44 S1 | 2013-830 | CAMO-13-30594 | REG | INIT | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | J | U | I4 | N |
| R-44 S2 | 2013-830 | CAMO-13-30595 | REG | INIT | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | J | U | I4 | N |
| R-44 S2 | 2013-830 | CAMO-13-30595 | REG | INIT | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | J | U | I4 | N |
| R-45 S1 | 2013-830 | CAMO-13-30596 | REG | INIT | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | J | U | I4 | N |
| R-45 S1 | 2013-830 | CAMO-13-30596 | REG | INIT | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | J | U | I4 | N |
| R-45 S2 | 2013-830 | CAMO-13-30597 | REG | INIT | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | J | U | I4 | N |
| R-45 S2 | 2013-830 | CAMO-13-30597 | REG | INIT | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | J | U | I4 | N |

| **Reason Code** | Description |
|---|---|
| I4 | the sample result is =<5x the concentration of related analyte in the method blank. |
| I6a | The associated matrix spike recovery was below the lower acceptance limit (LAL) but >10%. Follow the external laboratory limits located within the associated data package. |
| I6b | The associated matrix spike recovery was above the Upper Acceptance Limit (UAL). Follow the external laboratory limits located within the associated data package. |
| J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL |
| NQ | The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample. |
| U_LAB | The analytical laboratory qualified the analyte as not detected. |

**14. Useable Result Count.**

| Field Sample ID | Location ID | Sample Purpose | Analytical Method | No. Unuseable Records | Total No. Of Records |
|---|---|---|---|---|---|
| CAMO-13-30578 | R-44 S1 | REG | EPA:351.2 | 0 | 1 |
| CAMO-13-30578 | R-44 S1 | REG | SW-846:9060 | 0 | 1 |
| CAMO-13-30579 | R-44 S2 | REG | EPA:351.2 | 0 | 1 |
| CAMO-13-30579 | R-44 S2 | REG | SW-846:9060 | 0 | 1 |
| CAMO-13-30580 | R-45 S1 | REG | EPA:351.2 | 0 | 1 |
| CAMO-13-30580 | R-45 S1 | REG | SW-846:9060 | 0 | 1 |
| CAMO-13-30581 | R-45 S2 | REG | EPA:351.2 | 0 | 1 |
| CAMO-13-30581 | R-45 S2 | REG | SW-846:9060 | 0 | 1 |
| CAMO-13-30594 | R-44 S1 | REG | EPA:120.1 | 0 | 1 |
| CAMO-13-30594 | R-44 S1 | REG | EPA:150.1 | 0 | 1 |
| CAMO-13-30594 | R-44 S1 | REG | EPA:160.1 | 0 | 1 |
| CAMO-13-30594 | R-44 S1 | REG | EPA:245.2 | 0 | 1 |
| CAMO-13-30594 | R-44 S1 | REG | EPA:300.0 | 0 | 4 |
| CAMO-13-30594 | R-44 S1 | REG | EPA:310.1 | 0 | 2 |
| CAMO-13-30594 | R-44 S1 | REG | EPA:350.1 | 0 | 1 |
| CAMO-13-30594 | R-44 S1 | REG | EPA:353.2 | 0 | 1 |

Data Validation Report for:

Chain Of Custody No. 2013-830

| Lab Result | Lab Units | Report Result | Report Units | Report MDA | Report Uncertainty | Lab Matrix | Sample Date | Percent Moisture | Analysis Lot ID | Validation Status Code | Use Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.1 | mg/L | 0.1 | mg/L | | | W | 5/9/2013 | | 1301771 | VAL | Y |
| 0.0529 | mg/L | 0.0529 | mg/L | | | W | 5/9/2013 | | 1302059 | VAL | Y |
| 74900 | ug/L | 74.9 | mg/L | | | W | 5/9/2013 | | 1304837 | VAL | Y |
| 0.0432 | mg/L | 0.0432 | mg/L | | | W | 5/9/2013 | | 1301773 | VAL | Y |
| 0.0394 | mg/L | 0.0394 | mg/L | | | W | 5/9/2013 | | 1302059 | VAL | Y |
| 0.0324 | mg/L | 0.0324 | mg/L | | | W | 5/9/2013 | | 1301773 | VAL | Y |
| 0.0268 | mg/L | 0.0268 | mg/L | | | W | 5/9/2013 | | 1302059 | VAL | Y |
| 0.0452 | mg/L | 0.0452 | mg/L | | | W | 5/9/2013 | | 1301773 | VAL | Y |
| 0.0172 | mg/L | 0.0172 | mg/L | | | W | 5/9/2013 | | 1302059 | VAL | Y |
| 0.0403 | mg/L | 0.0403 | mg/L | | | W | 5/9/2013 | | 1301773 | VAL | Y |

| | | | | | |
|---|---|---|---|---|---|
| CAMO-13-30594 | R-44 S1 | REG | EPA:365.4 | 0 | 1 |
| CAMO-13-30594 | R-44 S1 | REG | SM:A2340B | 0 | 1 |
| CAMO-13-30594 | R-44 S1 | REG | SW-846:6010B | 0 | 17 |
| CAMO-13-30594 | R-44 S1 | REG | SW-846:6020 | 0 | 11 |
| CAMO-13-30595 | R-44 S2 | REG | EPA:120.1 | 0 | 1 |
| CAMO-13-30595 | R-44 S2 | REG | EPA:150.1 | 0 | 1 |
| CAMO-13-30595 | R-44 S2 | REG | EPA:160.1 | 0 | 1 |
| CAMO-13-30595 | R-44 S2 | REG | EPA:245.2 | 0 | 1 |
| CAMO-13-30595 | R-44 S2 | REG | EPA:300.0 | 0 | 4 |
| CAMO-13-30595 | R-44 S2 | REG | EPA:310.1 | 0 | 2 |
| CAMO-13-30595 | R-44 S2 | REG | EPA:350.1 | 0 | 1 |
| CAMO-13-30595 | R-44 S2 | REG | EPA:353.2 | 0 | 1 |
| CAMO-13-30595 | R-44 S2 | REG | EPA:365.4 | 0 | 1 |
| CAMO-13-30595 | R-44 S2 | REG | SM:A2340B | 0 | 1 |
| CAMO-13-30595 | R-44 S2 | REG | SW-846:6010B | 0 | 17 |
| CAMO-13-30595 | R-44 S2 | REG | SW-846:6020 | 0 | 11 |
| CAMO-13-30596 | R-45 S1 | REG | EPA:120.1 | 0 | 1 |
| CAMO-13-30596 | R-45 S1 | REG | EPA:150.1 | 0 | 1 |
| CAMO-13-30596 | R-45 S1 | REG | EPA:160.1 | 0 | 1 |
| CAMO-13-30596 | R-45 S1 | REG | EPA:245.2 | 0 | 1 |
| CAMO-13-30596 | R-45 S1 | REG | EPA:300.0 | 0 | 4 |
| CAMO-13-30596 | R-45 S1 | REG | EPA:310.1 | 0 | 2 |
| CAMO-13-30596 | R-45 S1 | REG | EPA:350.1 | 0 | 1 |
| CAMO-13-30596 | R-45 S1 | REG | EPA:353.2 | 0 | 1 |
| CAMO-13-30596 | R-45 S1 | REG | EPA:365.4 | 0 | 1 |
| CAMO-13-30596 | R-45 S1 | REG | SM:A2340B | 0 | 1 |
| CAMO-13-30596 | R-45 S1 | REG | SW-846:6010B | 0 | 17 |
| CAMO-13-30596 | R-45 S1 | REG | SW-846:6020 | 0 | 11 |
| CAMO-13-30597 | R-45 S2 | REG | EPA:120.1 | 0 | 1 |
| CAMO-13-30597 | R-45 S2 | REG | EPA:150.1 | 0 | 1 |
| CAMO-13-30597 | R-45 S2 | REG | EPA:160.1 | 0 | 1 |
| CAMO-13-30597 | R-45 S2 | REG | EPA:245.2 | 0 | 1 |
| CAMO-13-30597 | R-45 S2 | REG | EPA:300.0 | 0 | 4 |
| CAMO-13-30597 | R-45 S2 | REG | EPA:310.1 | 0 | 2 |
| CAMO-13-30597 | R-45 S2 | REG | EPA:350.1 | 0 | 1 |
| CAMO-13-30597 | R-45 S2 | REG | EPA:353.2 | 0 | 1 |
| CAMO-13-30597 | R-45 S2 | REG | EPA:365.4 | 0 | 1 |
| CAMO-13-30597 | R-45 S2 | REG | SM:A2340B | 0 | 1 |
| CAMO-13-30597 | R-45 S2 | REG | SW-846:6010B | 0 | 17 |
| CAMO-13-30597 | R-45 S2 | REG | SW-846:6020 | 0 | 11 |

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178
www.gel.com

June 10, 2013

Keith Greene
Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Re: LANL-WQH Water Samples
Work Order: 325649
SDG: 2013-830

Dear Keith Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on May 14, 2013, and analyzed for General Chemistry and Metals. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,

Hope Taylor for
Valerie Davis
Project Manager

Purchase Order: 63641-10
Chain of Custody: 2013-830
Enclosures

**ARS International (63641-10)**
**LANL-WQH Water Samples**
**Work Order #: 325649**
**SDG: 2013-830**

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# Case Narrative

**Case Narrative for**
**ARS International (63641-10)**
**LANL-WQH Water Samples**
**Workorder #: 325649**
**SDG # : 2013-830**

**June 10, 2013**

**Laboratory Identification:**

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

**Summary**

**Sample receipt** The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on May 14, 2013 for analysis. The samples were delivered with proper chain of custody documentation and signatures. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. Containers were checked for pH, where appropriate, and matched the preservative as documented on the accompanying chain of custody. Shipping container temperature was within specification (0 - 6C). Shipping container temperatures were checked, documented, and within specifications. There are no additional comments concerning sample receipt.

**Sample Identification** The laboratory received the following samples:

| Laboratory ID | Client ID |
|---|---|
| 325649001 | CAMO-13-30578 |
| 325649002 | CAMO-13-30594 |
| 325649003 | CAMO-13-30579 |
| 325649004 | CAMO-13-30595 |
| 325649005 | CAMO-13-30580 |
| 325649006 | CAMO-13-30596 |
| 325649007 | CAMO-13-30581 |
| 325649008 | CAMO-13-30597 |

**Case Narrative**

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

**Data Package**

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: General Chemistry and Metals.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.

Hope Taylor for
Valerie Davis
Project Manager

**List of current GEL Certifications as of 10 June 2013**

| State | Certification |
|---|---|
| Alaska | UST−110 |
| Arkansas | 88−0651 |
| CLIA | 42D0904046 |
| California NELAP | 01151CA |
| Colorado | SC00012 |
| Connecticut | PH−0169 |
| Delaware | SC00012 |
| DoD ELAP A2LA ISO 17025 | 2567.01 |
| Florida NELAP | E87156 |
| Foreign Soils Permit | P330−12−00283, P330−12−00284 |
| Georgia | SC00012 |
| Georgia SDWA | 967 |
| Hawaii | SC00012 |
| Idaho | SC00012 |
| Illinois NELAP | 200029 |
| Indiana | C−SC−01 |
| Kansas NELAP | E−10332 |
| Kentucky | 90129 |
| Louisiana NELAP | 03046 (AI33904) |
| Louisiana SDWA | LA130005 |
| Maryland | 270 |
| Massachusetts | M−SC012 |
| Nevada | SC000122011−1 |
| New Hampshire NELAP | 2054 |
| New Jersey NELAP | SC002 |
| New Mexico | SC00012 |
| New York NELAP | 11501 |
| North Carolina | 233 |
| North Carolina SDWA | 45709 |
| Oklahoma | 9904 |
| Pennsylvania NELAP | 68−00485 |
| Plant Material Permit | PDEP−12−00260 |
| South Carolina Chemistry | 10120001 |
| South Carolina Radiochemi | 10120002 |
| Tennessee | TN 02934 |
| Texas NELAP | T104704235−13−8 |
| Utah NELAP | SC000122013−8 |
| Vermont | VT87156 |
| Virginia NELAP | 460202 |
| Washington | C780−12 |
| Wisconsin | 999887790 |

# Chain of Custody and Supporting Documentation

General Engineering Laboratories, Inc., Charleston, SC.
2040 Savage Rd
Charleston SC 29407

# Chain of Custody/Analysis Request

325649

COC/Lab Request #: 2013-830

Page 1 of 1

**Client Contact:**

**Lab Agreement # :** 126310011

**Project Number :**

**Site Name:** Los Alamos National Laboratory

**Analysis Turnaround Time:**

- 24 Hour - ☐
- 7 Day - ☐
- 14 Day - ☐
- 21 Day - ☐
- 28 Day - ☒
- Other - ☐

**Rad Screening Info:** Yes, Below Background

**Special Instructions:**

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | WSP-GENINORG | WSP-Met+B+SN+SR+U | WSP-NH3+NO3/NO2+PO4 | WSP-TKN+TOC |
|---|---|---|---|---|---|---|---|
| CAMO-13-30578 | May 9 2013 | 11:24 | W | | | | 1 |
| CAMO-13-30594 | May 9 2013 | 11:24 | W | 1 | 1 | 1 | |
| CAMO-13-30579 | May 9 2013 | 13:13 | W | | | | 1 |
| CAMO-13-30595 | May 9 2013 | 13:13 | W | 1 | 1 | 1 | |
| CAMO-13-30580 | May 9 2013 | 12:41 | W | | | | 1 |
| CAMO-13-30596 | May 9 2013 | 12:41 | W | 1 | 1 | 1 | |
| CAMO-13-30581 | May 9 2013 | 11:18 | W | | | | 1 |
| CAMO-13-30597 | May 9 2013 | 11:18 | W | 1 | 1 | 1 | |

Special Instructions:

| | | | | |
|---|---|---|---|---|
| Relinquished by: | | Date/Time: 5/13/13 3:00 | Received by: P. Nlent | 5-14-13.08:50 |
| Relinquished by: | | Date/Time: | Received by: | |
| Relinquished by: | | Date/Time: | Received by: | |

GEL Laboratories LLC

# SAMPLE RECEIPT & REVIEW FORM

| | |
|---|---|
| **Client: LANL** | **SDG/AR/COC/Work Order: 2013-830** |
| **Received By: Patricia Dent** | **Date Received: May 14, 2013** |

| **Suspected Hazard Information** | **Yes** | **No** | *If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation. |
|---|---|---|---|
| COC/Samples marked as radioactive? | | X | Maximum Net Counts Observed* (Observed Counts - Area Background Counts): **0 CPM** |
| Classified Radioactive II or III by RSO? | | X | If yes, Were swipes taken of sample contatiners < action levels? |
| COC/Samples marked containing PCBs? | | X | |
| Package, COC, and/or Samples marked as beryllium or asbestos containing? | | X | If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group. |
| Shipped as a DOT Hazardous? | | X | Hazard Class Shipped: UN#: |
| Samples identified as Foreign Soil? | | X | |

| | **Sample Receipt Criteria** | **Yes** | **NA** | **No** | **Comments/Qualifiers (Required for Non-Conforming Items)** |
|---|---|---|---|---|---|
| 1 | Shipping containers received intact and sealed? | X | | | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 2 | Samples requiring cold preservation within (0 ≤ 6 deg. C)?* | X | | | Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius **3,4C** |
| 2a | Daily check performed and passed on IR temperature gun? | X | | | Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable):**61524649** |
| 3 | Chain of custody documents included with shipment? | X | | | |
| 4 | Sample containers intact and sealed? | X | | | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 5 | Samples requiring chemical preservation at proper pH? | X | | | Sample ID's, containers affected and observed Ph If Preservation added, Lot# |
| 6 | VOA vials free of headspace (defined as < 6mm bubble)? | | X | | Sample ID's and containers affected: |
| 7 | Are Encore containers present? | | | X | (If yes, immediately deliver to Volatiles laboratory) |
| 8 | Samples received within holding time? | X | | | ID's and tests affected: |
| 9 | Sample ID's on COC match ID's on bottles? | X | | | Sample ID's and containers affected: |
| 10 | Date & time on COC match date & time on bottles? | X | | | Sample ID's affected: |
| 11 | Number of containers received match number indicated on COC? | X | | | Sample ID's affected: |
| 12 | Are sample containers identifiable as GEL provided? | | | X | **Client** |
| 13 | COC form is properly signed in relinquished/received sections? | X | | | |
| 14 | Carrier and tracking number. | X | | | Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other **5462 9833 0078 3C 5462 9833 0067 4C** |

QP 5-15-13

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 13MAY13
ACTWGT: 48.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWKO

3C

S0DC1/99B3/10BC

FedEx Express

J111311060601 25

2 of 2

MPS# 0263 5462 9833 0078
Mstr# 5462 9833 0067

XX CHSA

TUE - 14 MAY 10:30A
PRIORITY OVERNIGHT
0201

29407
SC-US CHS

Part # 156148-436 RIT2 08/10

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 13MAY13
ACTWGT: 40.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWKO

4c

50DC1/9983/10BC

FedEx Express

J11131106060125

1 of 2

TRK# 0201 5462 9833 0067

TUE - 14 MAY 10:30A
PRIORITY OVERNIGHT

## MASTER ##

XX CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 08/10

# Data Review Qualifier Flag Definition Sheet

## Data Review Qualifier Definitions

| Qualifier | Explanation |
|---|---|
| * | A quality control analyte recovery is outside of specified acceptance criteria |
| ** | Analyte is a surrogate compound |
| < | Result is less than value reported |
| > | Result is greater than value reported |
| ^ | RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL |
| A | The TIC is a suspected aldol-condensation product |
| B | Target analyte was detected in the associated blank |
| B | Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL |
| BD | Results are either below the MDC or tracer recovery is low |
| C | Analyte has been confirmed by GC/MS analysis |
| D | Results are reported from a diluted aliquot of the sample |
| d | 5-day BOD-The 2:1 depletion requirement was not met for this sample |
| E | Organics-Concentration of the target analyte exceeds the instrument calibration range |
| E | Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria |
| H | Analytical holding time was exceeded |
| h | Preparation or preservation holding time was exceeded |
| J | Value is estimated |
| N | Metals-The Matrix spike sample recovery is not within specified control limits |
| N | Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N/A | Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more |
| ND | Analyte concentration is not detected above the reporting limit |
| UI | Gamma Spectroscopy-Uncertain identification |
| X | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| Y | QC Samples were not spiked with this compound |
| Z | Paint Filter Test-Particulates passed through the filter, however no free liquids were observed. |

# Metals Analysis

# Case Narrative

**Metals Fractional Narrative**
**ARS International (ARSL)**
**SDG 2013-830**

## Sample Analysis

| Sample ID | Client ID |
|---|---|
| 325649002 | CAMO-13-30594 |
| 325649004 | CAMO-13-30595 |
| 325649006 | CAMO-13-30596 |
| 325649008 | CAMO-13-30597 |
| 1202883949 | Method Blank (MB) **ICP** |
| 1202883950 | Laboratory Control Sample (LCS) |
| 1202883953 | 325649002(CAMO-13-30594L) Serial Dilution (SD) |
| 1202883951 | 325649002(CAMO-13-30594D) Sample Duplicate (DUP) |
| 1202883952 | 325649002(CAMO-13-30594S) Matrix Spike (MS) |
| 1202883954 | Method Blank (MB) **ICP-MS** |
| 1202883955 | Laboratory Control Sample (LCS) |
| 1202883958 | 325649002(CAMO-13-30594L) Serial Dilution (SD) |
| 1202883956 | 325649002(CAMO-13-30594D) Sample Duplicate (DUP) |
| 1202883957 | 325649002(CAMO-13-30594S) Matrix Spike (MS) |
| 1202883023 | Method Blank (MB) **CVAA** |
| 1202883024 | Laboratory Control Sample (LCS) |
| 1202883027 | 325923002(CASA-13-30554L) Serial Dilution (SD) |
| 1202883025 | 325923002(CASA-13-30554D) Sample Duplicate (DUP) |
| 1202883026 | 325923002(CASA-13-30554S) Matrix Spike (MS) |

## Method/Analysis Information

| | |
|---|---|
| **Analytical Batch:** | 1304837, 1304840, 1304495 and 1306882 |
| **Prep Batch :** | 1304836, 1304838 and 1304494 |
| **Standard Operating Procedures:** | GL-MA-E-013 REV# 22, GL-MA-E-006 REV# 9, GL-MA-E-014 REV# 25, GL-MA-E-010 REV# 26 and GL-GC-E-107 REV# 8 |

| | |
|---|---|
| **Analytical Method:** | SW846 3005/6010B, SW846 3005/6020 DOE-AL, EPA 245.1/245.2 and SM 2340 B |
| **Prep Method :** | SW846 3005A and EPA 245.1/245.2 Prep |

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

**System Configuration**

The Hardness as CaCO3 is calculated from Calcium and Magnesium results.

The Metals analysis-ICP was performed on a P E 5300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis-ICP was performed on a PE 7300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN 9000 inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadrupole mass spectrometer, and dual mode electron multiplier detector. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum. Operating conditions are set at 1400W power and combined argon pressures of 360+/-7 kPa for the plasma and auxiliary gases, and 0.85 L/min carrier gas flow, and an initial lens voltage of 5.2.

The Metals analysis-Mercury was performed on a Perkin-Elmer Flow Injection Mercury System (FIMS-100) automated mercury analyzer. The instrument consists of a cold vapor atomic absorption spectrometer set to detect mercury at a wavelength of 253.7 nm. Sample introduction through the flow injection system is performed via a peristaltic pump at 9 mL/min and nitrogen carrier gas rate of 80 mL/min.

**Calibration Information**

**Instrument Calibration**
All initial calibration requirements have been met for this sample delivery group (SDG).

**CRDL Requirements**
All initial CRDL standard(s) met the referenced advisory control limits.

**ICSA/ICSAB Statement**
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

**Continuing Calibration Blank (CCB) Requirements**
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

**Continuing Calibration Verification (CCV) Requirements**
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MBs analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recoveries met the acceptance limits.

**Quality Control (QC) Sample Statement**
The following samples were selected as the quality control (QC) samples for this SDG: 325649002 (CAMO-13-30594)-ICP and ICP-MS and 325923002 (CASA-13-30554)-CVAA.

**Matrix Spike (MS) Recovery Statement**
The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. All applicable elements met the acceptance criteria.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. All applicable analytes met these requirements.

**Serial Dilution % Difference Statement**
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations that are 25X the IDL/MDL for CVAA, 50X the IDL/MDL for ICP, and

100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the acceptance criteria of less than 10% difference (%D).

## Technical Information

### Holding Time Specifications

GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

### Preparation/Analytical Method Verification

All procedures were performed as stated in the SOP.

### Sample Dilutions

Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. The samples in this SDG did not require dilutions.

### Preparation Information

The samples in this SDG were prepared exactly according to the cited SOP.

## Miscellaneous Information

### Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

### Data Exception (DER) Documentation

Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.
Total Hardness by Calculation is determined using the results of Total Calcium (Ca) and Total Magnesium (Mg) determined by ICP or ICP-MS.

Hardness = 2.497 (Ca) + 4.118 (Mg)

Please refer to the Total Ca and Total Mg data to validate results appearing on the Hardness Summary sheet. Both results are in the Inorganic/metals section of the package. There is no Batch QC for calculated results, and thus no QC Summary for the Hardness by Calculation Batch. The MDLs and PQLs are calculated using the higher of the two calculated values of Ca or Mg.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

**Review Validation:**

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

**The following data validator verified the information presented in this case narrative:**

**Reviewer:**_____ **Date:** 6/10/13

# Sample Data Summary

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-830  GEL Work Order: 325649

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

J  Value is estimated

N  Metals--The Matrix spike sample recovery is not within specified control limits

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____ 6/10/13

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−830 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

**SAMPLE ID:** 325649002 **BASIS:** As Received **DATE COLLECTED** 09−MAY−13

**CLIENT ID:** CAMO−13−30594 **LEVEL:** Low **DATE RECEIVED** 14−MAY−13

**MATRIX:** Water **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7439−97−6 | Mercury | 0.20 | ug/L | U | 0.067 | 0.2 | 0.2 | 1 | AV | NOR1 | 05/30/13 10:43 | 053013W1−6 | 1304495 |

# METALS
## −1−
## INORGANICS ANALYSIS DATA PACKAGE

**SDG No:** 2013−830 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

**SAMPLE ID:** 325649002 **BASIS:** As Received **DATE COLLECTED** 09−MAY−13

**CLIENT ID:** CAMO−13−30594 **LEVEL:** Low **DATE RECEIVED** 14−MAY−13

**MATRIX:** Water **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7429−90−5 | Aluminum | 200 | ug/L | U | 68 | 200 | 200 | 1 | P | HSC | 06/06/13 15:00 | 060613−1 | 1304837 |
| 7440−36−0 | Antimony | 3 | ug/L | U | 1 | 3 | 3 | 1 | MS | PRB | 06/08/13 04:35 | 130607−5 | 1304840 |
| 7440−38−2 | Arsenic | 5 | ug/L | U | 1.7 | 5 | 5 | 1 | MS | BAJ | 06/07/13 06:14 | 130606−3 | 1304840 |
| 7440−39−3 | Barium | 21.9 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:00 | 060613−1 | 1304837 |
| 7440−41−7 | Beryllium | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:00 | 060613−1 | 1304837 |
| 7440−42−8 | Boron | 50 | ug/L | U | 15 | 50 | 50 | 1 | P | HSC | 06/06/13 15:00 | 060613−1 | 1304837 |
| 7440−43−9 | Cadmium | 1 | ug/L | U | 0.11 | 1 | 1 | 1 | MS | BAJ | 06/07/13 06:14 | 130606−3 | 1304840 |
| 7440−70−2 | Calcium | 13300 | ug/L | | 50 | 200 | 200 | 1 | P | HSC | 06/06/13 15:00 | 060613−1 | 1304837 |
| 7440−47−3 | Chromium | 17.5 | ug/L | | 2 | 10 | 10 | 1 | MS | BAJ | 06/07/13 06:14 | 130606−3 | 1304840 |
| 7440−48−4 | Cobalt | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:00 | 060613−1 | 1304837 |
| 7440−50−8 | Copper | 10 | ug/L | U | 3 | 10 | 10 | 1 | P | HSC | 06/06/13 15:00 | 060613−1 | 1304837 |
| 7439−89−6 | Iron | 100 | ug/L | U | 30 | 100 | 100 | 1 | P | HSC | 06/06/13 15:00 | 060613−1 | 1304837 |
| 7439−92−1 | Lead | 2 | ug/L | U | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/07/13 06:14 | 130606−3 | 1304840 |
| 7439−95−4 | Magnesium | 3700 | ug/L | | 110 | 300 | 300 | 1 | P | HSC | 06/07/13 09:54 | 060713B−2 | 1304837 |
| 7439−96−5 | Manganese | 10 | ug/L | U | 2 | 10 | 10 | 1 | P | HSC | 06/06/13 15:00 | 060613−1 | 1304837 |
| 7439−98−7 | Molybdenum | 0.849 | ug/L | | 0.165 | 0.5 | 0.5 | 1 | MS | BAJ | 06/07/13 15:41 | 130607−4 | 1304840 |
| 7440−02−0 | Nickel | 2.22 | ug/L | | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/07/13 06:14 | 130606−3 | 1304840 |
| 7440−09−7 | Potassium | 1210 | ug/L | | 50 | 150 | 150 | 1 | P | HSC | 06/06/13 15:00 | 060613−1 | 1304837 |
| 7782−49−2 | Selenium | 5 | ug/L | U | 1.5 | 5 | 5 | 1 | MS | BAJ | 06/07/13 06:14 | 130606−3 | 1304840 |
| 7631−86−9 | Silica | 74900 | ug/L | | 53 | 213 | 213 | 1 | P | HSC | 06/06/13 15:00 | 060613−1 | 1304837 |
| 7440−22−4 | Silver | 1 | ug/L | U | 0.2 | 1 | 1 | 1 | MS | BAJ | 06/07/13 06:14 | 130606−3 | 1304840 |
| 7440−23−5 | Sodium | 9930 | ug/L | | 100 | 300 | 300 | 1 | P | HSC | 06/07/13 09:54 | 060713B−2 | 1304837 |
| 7440−24−6 | Strontium | 58.8 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:00 | 060613−1 | 1304837 |
| 7440−28−0 | Thallium | 2 | ug/L | U | 0.45 | 2 | 2 | 1 | MS | BAJ | 06/07/13 06:14 | 130606−3 | 1304840 |
| 7440−31−5 | Tin | 10 | ug/L | U | 2.5 | 10 | 10 | 1 | P | HSC | 06/07/13 09:54 | 060713B−2 | 1304837 |
| 7440−61−1 | Uranium | 0.429 | ug/L | | 0.067 | 0.2 | 0.2 | 1 | MS | BAJ | 06/07/13 15:41 | 130607−4 | 1304840 |
| 7440−62−2 | Vanadium | 5.58 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:00 | 060613−1 | 1304837 |
| 7440−66−6 | Zinc | 10 | ug/L | U | 3.3 | 10 | 10 | 1 | P | HSC | 06/06/13 15:00 | 060613−1 | 1304837 |

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−830 **CONTRACT:** ESHL00210 **METHOD TYPE:**

**SAMPLE ID:** 325649002 **BASIS:** As Received **DATE COLLECTED** 09−MAY−13

**CLIENT ID:** CAMO−13−30594 **LEVEL:** Low **DATE RECEIVED** 14−MAY−13

**MATRIX:** Water **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Hardness as CaCO3 | 49.2 | mg/L | | 0.453 | 1.24 | 1.24 | 1 | | JJ2 | 06/10/13 11:06 | | 1306882 |

**Prep Information:**

| Analytical Batch | Prep Batch | Prep Method | Initial wt./vol. | Units | Final wt./vol. | Units | Date | Analyst |
|---|---|---|---|---|---|---|---|---|
| 1304495 | 1304494 | EPA 245.1/245.2 Prep | 20 | mL | 20 | mL | 05/29/13 | AXS5 |
| 1304837 | 1304836 | SW846 3005A | 50 | mL | 50 | mL | 06/06/13 | AXG2 |
| 1304840 | 1304838 | SW846 3005A | 50 | mL | 50 | mL | 06/06/13 | AXG2 |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**
**P** **SW846 3005/6010B**
**AV** **EPA 245.1/245.2**

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−830 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

**SAMPLE ID:** 325649004 **BASIS:** As Received **DATE COLLECTED** 09−MAY−13

**CLIENT ID:** CAMO−13−30595 **LEVEL:** Low **DATE RECEIVED** 14−MAY−13

**MATRIX:** Water **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7439−97−6 | Mercury | 0.20 | ug/L | U | 0.067 | 0.2 | 0.2 | 1 | AV | NOR1 | 05/30/13 10:45 | 053013W1−6 | 1304495 |

# METALS
## −1−
## INORGANICS ANALYSIS DATA PACKAGE

**SDG No:** 2013−830 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

**SAMPLE ID:** 325649004 **BASIS:** As Received **DATE COLLECTED** 09−MAY−13

**CLIENT ID:** CAMO−13−30595 **LEVEL:** Low **DATE RECEIVED** 14−MAY−13

**MATRIX:** Water **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7429−90−5 | Aluminum | 200 | ug/L | U | 68 | 200 | 200 | 1 | P | HSC | 06/06/13 15:12 | 060613−1 | 1304837 |
| 7440−36−0 | Antimony | 3 | ug/L | U | 1 | 3 | 3 | 1 | MS | PRB | 06/08/13 04:56 | 130607−5 | 1304840 |
| 7440−38−2 | Arsenic | 5 | ug/L | U | 1.7 | 5 | 5 | 1 | MS | BAJ | 06/07/13 06:40 | 130606−3 | 1304840 |
| 7440−39−3 | Barium | 23.7 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:12 | 060613−1 | 1304837 |
| 7440−41−7 | Beryllium | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:12 | 060613−1 | 1304837 |
| 7440−42−8 | Boron | 50 | ug/L | U | 15 | 50 | 50 | 1 | P | HSC | 06/06/13 15:12 | 060613−1 | 1304837 |
| 7440−43−9 | Cadmium | 1 | ug/L | U | 0.11 | 1 | 1 | 1 | MS | BAJ | 06/07/13 06:40 | 130606−3 | 1304840 |
| 7440−70−2 | Calcium | 13400 | ug/L | | 50 | 200 | 200 | 1 | P | HSC | 06/06/13 15:12 | 060613−1 | 1304837 |
| 7440−47−3 | Chromium | 5.02 | ug/L | J | 2 | 10 | 10 | 1 | MS | BAJ | 06/07/13 06:40 | 130606−3 | 1304840 |
| 7440−48−4 | Cobalt | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:12 | 060613−1 | 1304837 |
| 7440−50−8 | Copper | 10 | ug/L | U | 3 | 10 | 10 | 1 | P | HSC | 06/06/13 15:12 | 060613−1 | 1304837 |
| 7439−89−6 | Iron | 100 | ug/L | U | 30 | 100 | 100 | 1 | P | HSC | 06/06/13 15:12 | 060613−1 | 1304837 |
| 7439−92−1 | Lead | 2 | ug/L | U | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/07/13 06:40 | 130606−3 | 1304840 |
| 7439−95−4 | Magnesium | 4040 | ug/L | | 110 | 300 | 300 | 1 | P | HSC | 06/07/13 10:13 | 060713B−2 | 1304837 |
| 7439−96−5 | Manganese | 2.04 | ug/L | J | 2 | 10 | 10 | 1 | P | HSC | 06/06/13 15:12 | 060613−1 | 1304837 |
| 7439−98−7 | Molybdenum | 0.768 | ug/L | | 0.165 | 0.5 | 0.5 | 1 | MS | BAJ | 06/07/13 16:01 | 130607−4 | 1304840 |
| 7440−02−0 | Nickel | 0.661 | ug/L | J | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/07/13 06:40 | 130606−3 | 1304840 |
| 7440−09−7 | Potassium | 1320 | ug/L | | 50 | 150 | 150 | 1 | P | HSC | 06/06/13 15:12 | 060613−1 | 1304837 |
| 7782−49−2 | Selenium | 5 | ug/L | U | 1.5 | 5 | 5 | 1 | MS | BAJ | 06/07/13 06:40 | 130606−3 | 1304840 |
| 7631−86−9 | Silica | 75800 | ug/L | | 53 | 213 | 213 | 1 | P | HSC | 06/06/13 15:12 | 060613−1 | 1304837 |
| 7440−22−4 | Silver | 1 | ug/L | U | 0.2 | 1 | 1 | 1 | MS | BAJ | 06/07/13 06:40 | 130606−3 | 1304840 |
| 7440−23−5 | Sodium | 10600 | ug/L | | 100 | 300 | 300 | 1 | P | HSC | 06/07/13 10:13 | 060713B−2 | 1304837 |
| 7440−24−6 | Strontium | 59.4 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:12 | 060613−1 | 1304837 |
| 7440−28−0 | Thallium | 2 | ug/L | U | 0.45 | 2 | 2 | 1 | MS | BAJ | 06/07/13 06:40 | 130606−3 | 1304840 |
| 7440−31−5 | Tin | 10 | ug/L | U | 2.5 | 10 | 10 | 1 | P | HSC | 06/07/13 10:13 | 060713B−2 | 1304837 |
| 7440−61−1 | Uranium | 0.515 | ug/L | | 0.067 | 0.2 | 0.2 | 1 | MS | BAJ | 06/07/13 16:01 | 130607−4 | 1304840 |
| 7440−62−2 | Vanadium | 6.16 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:12 | 060613−1 | 1304837 |
| 7440−66−6 | Zinc | 10 | ug/L | U | 3.3 | 10 | 10 | 1 | P | HSC | 06/06/13 15:12 | 060613−1 | 1304837 |

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−830 **CONTRACT:** ESHL00210 **METHOD TYPE:**

**SAMPLE ID:** 325649004 **BASIS:** As Received **DATE COLLECTED** 09−MAY−13

**CLIENT ID:** CAMO−13−30595 **LEVEL:** Low **DATE RECEIVED** 14−MAY−13

**MATRIX:** Water **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Hardness as CaCO3 | 50.9 | mg/L | | 0.453 | 1.24 | 1.24 | 1 | | JJ2 | 06/10/13 11:06 | | 1306882 |

**Prep Information:**

| Analytical Batch | Prep Batch | Prep Method | Initial wt./vol. | Units | Final wt./vol. | Units | Date | Analyst |
|---|---|---|---|---|---|---|---|---|
| 1304495 | 1304494 | EPA 245.1/245.2 Prep | 20 | mL | 20 | mL | 05/29/13 | AXS5 |
| 1304837 | 1304836 | SW846 3005A | 50 | mL | 50 | mL | 06/06/13 | AXG2 |
| 1304840 | 1304838 | SW846 3005A | 50 | mL | 50 | mL | 06/06/13 | AXG2 |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**
**P** **SW846 3005/6010B**
**AV** **EPA 245.1/245.2**

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−830 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

**SAMPLE ID:** 325649006 **BASIS:** As Received **DATE COLLECTED** 09−MAY−13

**CLIENT ID:** CAMO−13−30596 **LEVEL:** Low **DATE RECEIVED** 14−MAY−13

**MATRIX:** Water **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7439−97−6 | Mercury | 0.20 | ug/L | U | 0.067 | 0.2 | 0.2 | 1 | AV | NOR1 | 05/30/13 10:47 | 053013W1−6 | 1304495 |

# METALS
## −1−
## INORGANICS ANALYSIS DATA PACKAGE

**SDG No:** 2013−830 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

**SAMPLE ID:** 325649006 **BASIS:** As Received **DATE COLLECTED** 09−MAY−13

**CLIENT ID:** CAMO−13−30596 **LEVEL:** Low **DATE RECEIVED** 14−MAY−13

**MATRIX:** Water **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7429−90−5 | Aluminum | 200 | ug/L | U | 68 | 200 | 200 | 1 | P | HSC | 06/06/13 15:22 | 060613−1 | 1304837 |
| 7440−36−0 | Antimony | 3 | ug/L | U | 1 | 3 | 3 | 1 | MS | PRB | 06/08/13 05:00 | 130607−5 | 1304840 |
| 7440−38−2 | Arsenic | 5 | ug/L | U | 1.7 | 5 | 5 | 1 | MS | BAJ | 06/07/13 07:00 | 130606−3 | 1304840 |
| 7440−39−3 | Barium | 30.6 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:22 | 060613−1 | 1304837 |
| 7440−41−7 | Beryllium | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:22 | 060613−1 | 1304837 |
| 7440−42−8 | Boron | 50 | ug/L | U | 15 | 50 | 50 | 1 | P | HSC | 06/06/13 15:22 | 060613−1 | 1304837 |
| 7440−43−9 | Cadmium | 1 | ug/L | U | 0.11 | 1 | 1 | 1 | MS | BAJ | 06/07/13 07:00 | 130606−3 | 1304840 |
| 7440−70−2 | Calcium | 18800 | ug/L | | 50 | 200 | 200 | 1 | P | HSC | 06/06/13 15:22 | 060613−1 | 1304837 |
| 7440−47−3 | Chromium | 24.1 | ug/L | | 2 | 10 | 10 | 1 | MS | BAJ | 06/07/13 07:00 | 130606−3 | 1304840 |
| 7440−48−4 | Cobalt | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:22 | 060613−1 | 1304837 |
| 7440−50−8 | Copper | 10 | ug/L | U | 3 | 10 | 10 | 1 | P | HSC | 06/06/13 15:22 | 060613−1 | 1304837 |
| 7439−89−6 | Iron | 100 | ug/L | U | 30 | 100 | 100 | 1 | P | HSC | 06/06/13 15:22 | 060613−1 | 1304837 |
| 7439−92−1 | Lead | 2 | ug/L | U | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/07/13 07:00 | 130606−3 | 1304840 |
| 7439−95−4 | Magnesium | 5110 | ug/L | | 110 | 300 | 300 | 1 | P | HSC | 06/07/13 10:22 | 060713B−2 | 1304837 |
| 7439−96−5 | Manganese | 10 | ug/L | U | 2 | 10 | 10 | 1 | P | HSC | 06/06/13 15:22 | 060613−1 | 1304837 |
| 7439−98−7 | Molybdenum | 0.733 | ug/L | | 0.165 | 0.5 | 0.5 | 1 | MS | BAJ | 06/07/13 16:05 | 130607−4 | 1304840 |
| 7440−02−0 | Nickel | 1.59 | ug/L | J | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/07/13 07:00 | 130606−3 | 1304840 |
| 7440−09−7 | Potassium | 1350 | ug/L | | 50 | 150 | 150 | 1 | P | HSC | 06/06/13 15:22 | 060613−1 | 1304837 |
| 7782−49−2 | Selenium | 5 | ug/L | U | 1.5 | 5 | 5 | 1 | MS | BAJ | 06/07/13 07:00 | 130606−3 | 1304840 |
| 7631−86−9 | Silica | 76600 | ug/L | | 53 | 213 | 213 | 1 | P | HSC | 06/06/13 15:22 | 060613−1 | 1304837 |
| 7440−22−4 | Silver | 1 | ug/L | U | 0.2 | 1 | 1 | 1 | MS | BAJ | 06/07/13 07:00 | 130606−3 | 1304840 |
| 7440−23−5 | Sodium | 11000 | ug/L | | 100 | 300 | 300 | 1 | P | HSC | 06/07/13 10:22 | 060713B−2 | 1304837 |
| 7440−24−6 | Strontium | 84.2 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:22 | 060613−1 | 1304837 |
| 7440−28−0 | Thallium | 2 | ug/L | U | 0.45 | 2 | 2 | 1 | MS | BAJ | 06/07/13 07:00 | 130606−3 | 1304840 |
| 7440−31−5 | Tin | 10 | ug/L | U | 2.5 | 10 | 10 | 1 | P | HSC | 06/07/13 10:22 | 060713B−2 | 1304837 |
| 7440−61−1 | Uranium | 0.705 | ug/L | | 0.067 | 0.2 | 0.2 | 1 | MS | BAJ | 06/07/13 16:05 | 130607−4 | 1304840 |
| 7440−62−2 | Vanadium | 6.35 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:22 | 060613−1 | 1304837 |
| 7440−66−6 | Zinc | 5.05 | ug/L | J | 3.3 | 10 | 10 | 1 | P | HSC | 06/06/13 15:22 | 060613−1 | 1304837 |

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−830 **CONTRACT:** ESHL00210 **METHOD TYPE:**

**SAMPLE ID:** 325649006 **BASIS:** As Received **DATE COLLECTED** 09−MAY−13

**CLIENT ID:** CAMO−13−30596 **LEVEL:** Low **DATE RECEIVED** 14−MAY−13

**MATRIX:** Water **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Hardness as CaCO3 | 69 | mg/L | | 0.453 | 1.24 | 1.24 | 1 | | JJ2 | 06/10/13 11:06 | | 1306882 |

**Prep Information:**

| Analytical Batch | Prep Batch | Prep Method | Initial wt./vol. | Units | Final wt./vol. | Units | Date | Analyst |
|---|---|---|---|---|---|---|---|---|
| 1304495 | 1304494 | EPA 245.1/245.2 Prep | 20 | mL | 20 | mL | 05/29/13 | AXS5 |
| 1304837 | 1304836 | SW846 3005A | 50 | mL | 50 | mL | 06/06/13 | AXG2 |
| 1304840 | 1304838 | SW846 3005A | 50 | mL | 50 | mL | 06/06/13 | AXG2 |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**
**P** **SW846 3005/6010B**
**AV** **EPA 245.1/245.2**

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−830 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

**SAMPLE ID:** 325649008 **BASIS:** As Received **DATE COLLECTED** 09−MAY−13

**CLIENT ID:** CAMO−13−30597 **LEVEL:** Low **DATE RECEIVED** 14−MAY−13

**MATRIX:** Water **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7439−97−6 | Mercury | 0.20 | ug/L | U | 0.067 | 0.2 | 0.2 | 1 | AV | NOR1 | 05/30/13 10:49 | 053013W1−6 | 1304495 |

# METALS
## −1−
## INORGANICS ANALYSIS DATA PACKAGE

**SDG No:** 2013−830 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

**SAMPLE ID:** 325649008 **BASIS:** As Received **DATE COLLECTED** 09−MAY−13

**CLIENT ID:** CAMO−13−30597 **LEVEL:** Low **DATE RECEIVED** 14−MAY−13

**MATRIX:** Water **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7429−90−5 | Aluminum | 200 | ug/L | U | 68 | 200 | 200 | 1 | P | HSC | 06/06/13 15:25 | 060613−1 | 1304837 |
| 7440−36−0 | Antimony | 3 | ug/L | U | 1 | 3 | 3 | 1 | MS | PRB | 06/08/13 05:03 | 130607−5 | 1304840 |
| 7440−38−2 | Arsenic | 5 | ug/L | U | 1.7 | 5 | 5 | 1 | MS | BAJ | 06/07/13 07:13 | 130606−3 | 1304840 |
| 7440−39−3 | Barium | 29.9 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:25 | 060613−1 | 1304837 |
| 7440−41−7 | Beryllium | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:25 | 060613−1 | 1304837 |
| 7440−42−8 | Boron | 50 | ug/L | U | 15 | 50 | 50 | 1 | P | HSC | 06/06/13 15:25 | 060613−1 | 1304837 |
| 7440−43−9 | Cadmium | 1 | ug/L | U | 0.11 | 1 | 1 | 1 | MS | BAJ | 06/07/13 07:13 | 130606−3 | 1304840 |
| 7440−70−2 | Calcium | 16700 | ug/L | | 50 | 200 | 200 | 1 | P | HSC | 06/06/13 15:25 | 060613−1 | 1304837 |
| 7440−47−3 | Chromium | 12.1 | ug/L | | 2 | 10 | 10 | 1 | MS | BAJ | 06/07/13 07:13 | 130606−3 | 1304840 |
| 7440−48−4 | Cobalt | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:25 | 060613−1 | 1304837 |
| 7440−50−8 | Copper | 10 | ug/L | U | 3 | 10 | 10 | 1 | P | HSC | 06/06/13 15:25 | 060613−1 | 1304837 |
| 7439−89−6 | Iron | 100 | ug/L | U | 30 | 100 | 100 | 1 | P | HSC | 06/06/13 15:25 | 060613−1 | 1304837 |
| 7439−92−1 | Lead | 2 | ug/L | U | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/07/13 07:13 | 130606−3 | 1304840 |
| 7439−95−4 | Magnesium | 4790 | ug/L | | 110 | 300 | 300 | 1 | P | HSC | 06/07/13 10:26 | 060713B−2 | 1304837 |
| 7439−96−5 | Manganese | 10 | ug/L | U | 2 | 10 | 10 | 1 | P | HSC | 06/06/13 15:25 | 060613−1 | 1304837 |
| 7439−98−7 | Molybdenum | 0.874 | ug/L | | 0.165 | 0.5 | 0.5 | 1 | MS | BAJ | 06/07/13 16:08 | 130607−4 | 1304840 |
| 7440−02−0 | Nickel | 1.13 | ug/L | J | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/07/13 07:13 | 130606−3 | 1304840 |
| 7440−09−7 | Potassium | 1350 | ug/L | | 50 | 150 | 150 | 1 | P | HSC | 06/06/13 15:25 | 060613−1 | 1304837 |
| 7782−49−2 | Selenium | 5 | ug/L | U | 1.5 | 5 | 5 | 1 | MS | BAJ | 06/07/13 07:13 | 130606−3 | 1304840 |
| 7631−86−9 | Silica | 76200 | ug/L | | 53 | 213 | 213 | 1 | P | HSC | 06/06/13 15:25 | 060613−1 | 1304837 |
| 7440−22−4 | Silver | 1 | ug/L | U | 0.2 | 1 | 1 | 1 | MS | BAJ | 06/07/13 07:13 | 130606−3 | 1304840 |
| 7440−23−5 | Sodium | 10900 | ug/L | | 100 | 300 | 300 | 1 | P | HSC | 06/07/13 10:26 | 060713B−2 | 1304837 |
| 7440−24−6 | Strontium | 72.3 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:25 | 060613−1 | 1304837 |
| 7440−28−0 | Thallium | 2 | ug/L | U | 0.45 | 2 | 2 | 1 | MS | BAJ | 06/07/13 07:13 | 130606−3 | 1304840 |
| 7440−31−5 | Tin | 10 | ug/L | U | 2.5 | 10 | 10 | 1 | P | HSC | 06/07/13 10:26 | 060713B−2 | 1304837 |
| 7440−61−1 | Uranium | 0.651 | ug/L | | 0.067 | 0.2 | 0.2 | 1 | MS | BAJ | 06/07/13 16:08 | 130607−4 | 1304840 |
| 7440−62−2 | Vanadium | 6.94 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/06/13 15:25 | 060613−1 | 1304837 |
| 7440−66−6 | Zinc | 10 | ug/L | U | 3.3 | 10 | 10 | 1 | P | HSC | 06/06/13 15:25 | 060613−1 | 1304837 |

# METALS
## −1−
## INORGANICS ANALYSIS DATA PACKAGE

**SDG No:** 2013−830 **CONTRACT:** ESHL00210 **METHOD TYPE:**

**SAMPLE ID:** 325649008 **BASIS:** As Received **DATE COLLECTED** 09−MAY−13

**CLIENT ID:** CAMO−13−30597 **LEVEL:** Low **DATE RECEIVED** 14−MAY−13

**MATRIX:** Water **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Hardness as CaCO3 | 62.6 | mg/L | | 0.453 | 1.24 | 1.24 | 1 | | JJ2 | 06/10/13 11:06 | | 1306882 |

**Prep Information:**

| Analytical Batch | Prep Batch | Prep Method | Initial wt./vol. | Units | Final wt./vol. | Units | Date | Analyst |
|---|---|---|---|---|---|---|---|---|
| 1304495 | 1304494 | EPA 245.1/245.2 Prep | 20 | mL | 20 | mL | 05/29/13 | AXS5 |
| 1304837 | 1304836 | SW846 3005A | 50 | mL | 50 | mL | 06/06/13 | AXG2 |
| 1304840 | 1304838 | SW846 3005A | 50 | mL | 50 | mL | 06/06/13 | AXG2 |

***Analytical Methods:**

| | |
|---|---|
| **MS** | **SW846 3005/6020 DOE−AL** |
| **P** | **SW846 3005/6010B** |
| **AV** | **EPA 245.1/245.2** |

# Quality Control Summary

**METALS**
**−3b−**
**PREPARATION BLANK SUMMARY**

**SDG NO.** 2013−830

**Contract:** ESHL00210

**Matrix:** Water

| Sample ID | Analyte | Result | Units | Acceptance Window | Conc Qual | M* | MDL | RDL |
|---|---|---|---|---|---|---|---|---|
| 1202883023 | | | | | | | | |
| | Mercury | 0.067 | ug/L | +/−0.2 | U | AV | 0.067 | 0.2 |
| 1202883949 | | | | | | | | |
| | Aluminum | 68 | ug/L | +/−200 | U | P | 68 | 200 |
| | Barium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Beryllium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Boron | 15 | ug/L | +/−50 | U | P | 15 | 50 |
| | Calcium | 50 | ug/L | +/−200 | U | P | 50 | 200 |
| | Cobalt | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Copper | 3 | ug/L | +/−10 | U | P | 3 | 10 |
| | Iron | 30 | ug/L | +/−100 | U | P | 30 | 100 |
| | Magnesium | 110 | ug/L | +/−300 | U | P | 110 | 300 |
| | Manganese | 2 | ug/L | +/−10 | U | P | 2 | 10 |
| | Potassium | 50 | ug/L | +/−150 | U | P | 50 | 150 |
| | Silica | 53 | ug/L | +/−213 | U | P | 53 | 213 |
| | Sodium | 100 | ug/L | +/−300 | U | P | 100 | 300 |
| | Strontium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Tin | 2.5 | ug/L | +/−10 | U | P | 2.5 | 10 |
| | Vanadium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Zinc | 3.3 | ug/L | +/−10 | U | P | 3.3 | 10 |
| 1202883954 | | | | | | | | |
| | Antimony | 1 | ug/L | +/−3 | U | MS | 1 | 3 |
| | Arsenic | 1.7 | ug/L | +/−5 | U | MS | 1.7 | 5 |
| | Cadmium | 0.11 | ug/L | +/−1 | U | MS | 0.11 | 1 |
| | Chromium | 2 | ug/L | +/−10 | U | MS | 2 | 10 |
| | Lead | 0.5 | ug/L | +/−2 | U | MS | 0.5 | 2 |
| | Molybdenum | 0.165 | ug/L | +/−0.5 | U | MS | 0.165 | 0.5 |
| | Nickel | 0.5 | ug/L | +/−2 | U | MS | 0.5 | 2 |
| | Selenium | 1.5 | ug/L | +/−5 | U | MS | 1.5 | 5 |
| | Silver | 0.2 | ug/L | +/−1 | U | MS | 0.2 | 1 |
| | Thallium | 0.45 | ug/L | +/−2 | U | MS | 0.45 | 2 |
| | Uranium | 0.067 | ug/L | +/−0.2 | U | MS | 0.067 | 0.2 |

***Analytical Methods:**

| | |
|---|---|
| **MS** | **SW846 3005/6020 DOE−AL** |
| **P** | **SW846 3005/6010B** |
| **AV** | **EPA 245.1/245.2** |

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−830 **Client ID** CASA−13−30554S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 325923002 **Spike ID:** 1202883026

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | ug/L | 75−125 | 2 | | 0.067 | U | 2 | 100 | | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−830 **Client ID** CAMO−13−30594S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 325649002 **Spike ID:** 1202883952

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Vanadium | ug/L | 75−125 | 507 | | 5.58 | | 500 | 100 | | P |
| Zinc | ug/L | 75−125 | 490 | | 3.3 | U | 500 | 97.4 | | P |
| Aluminum | ug/L | 75−125 | 5060 | | 68 | U | 5000 | 101 | | P |
| Barium | ug/L | 75−125 | 513 | | 21.9 | | 500 | 98.3 | | P |
| Beryllium | ug/L | 75−125 | 498 | | 1 | U | 500 | 99.5 | | P |
| Boron | ug/L | 75−125 | 491 | | 15 | U | 500 | 97.5 | | P |
| Calcium | ug/L | 75−125 | 17600 | | 13300 | | 5000 | 86.2 | | P |
| Cobalt | ug/L | 75−125 | 496 | | 1 | U | 500 | 99.2 | | P |
| Copper | ug/L | 75−125 | 532 | | 3 | U | 500 | 106 | | P |
| Iron | ug/L | 75−125 | 5140 | | 30 | U | 5000 | 103 | | P |
| Magnesium | ug/L | 75−125 | 8390 | | 3700 | | 5000 | 93.7 | | P |
| Manganese | ug/L | 75−125 | 492 | | 2 | U | 500 | 98.3 | | P |
| Potassium | ug/L | 75−125 | 5990 | | 1210 | | 5000 | 95.6 | | P |
| Silica | ug/L | | 81700 | | 74900 | | 10700 | 62.8 | N/A | P |
| Sodium | ug/L | 75−125 | 14200 | | 9930 | | 5000 | 85.2 | | P |
| Strontium | ug/L | 75−125 | 560 | | 58.8 | | 500 | 100 | | P |
| Tin | ug/L | 75−125 | 470 | | 2.5 | U | 500 | 94 | | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−830 **Client ID** CAMO−13−30594S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 325649002 **Spike ID:** 1202883957

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ug/L | 75−125 | 52.4 | | 1.7 | U | 50 | 102 | | MS |
| Cadmium | ug/L | 75−125 | 54.8 | | 0.11 | U | 50 | 110 | | MS |
| Chromium | ug/L | 75−125 | 68.1 | | 17.5 | | 50 | 101 | | MS |
| Lead | ug/L | 75−125 | 51.2 | | 0.5 | U | 50 | 102 | | MS |
| Molybdenum | ug/L | 75−125 | 51.8 | | 0.849 | | 50 | 102 | | MS |
| Nickel | ug/L | 75−125 | 53.4 | | 2.22 | | 50 | 102 | | MS |
| Selenium | ug/L | 75−125 | 59.2 | | 1.5 | U | 50 | 116 | | MS |
| Silver | ug/L | 75−125 | 54 | | 0.2 | U | 50 | 108 | | MS |
| Thallium | ug/L | 75−125 | 47.3 | | 0.45 | U | 50 | 94.6 | | MS |
| Uranium | ug/L | 75−125 | 51.9 | | 0.429 | | 50 | 103 | | MS |
| Antimony | ug/L | 75−125 | 55 | | 1 | U | 50 | 110 | | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−830 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CASA−13−30554D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325923002 **Duplicate ID:** 1202883025 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | ug/L | | 0.067 | U | 0.067 | U | | | AV |

***Analytical Methods:**

**AV EPA 245.1/245.2**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−830 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CAMO−13−30594D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325649002 **Duplicate ID:** 1202883951 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | ug/L | | 68 | U | 68 | U | | | P |
| Barium | ug/L | +/−5 | 21.9 | | 20.8 | | 5.14 | | P |
| Beryllium | ug/L | | 1 | U | 1 | U | | | P |
| Boron | ug/L | | 15 | U | 15 | U | | | P |
| Calcium | ug/L | +/−20% | 13300 | | 12900 | | 3.27 | | P |
| Cobalt | ug/L | | 1 | U | 1 | U | | | P |
| Copper | ug/L | | 3 | U | 3 | U | | | P |
| Iron | ug/L | | 30 | U | 30 | U | | | P |
| Magnesium | ug/L | +/−20% | 3700 | | 3510 | | 5.41 | | P |
| Manganese | ug/L | | 2 | U | 2 | U | | | P |
| Potassium | ug/L | +/−20% | 1210 | | 1170 | | 3.01 | | P |
| Silica | ug/L | +/−20% | 74900 | | 72500 | | 3.29 | | P |
| Sodium | ug/L | +/−20% | 9930 | | 9590 | | 3.45 | | P |
| Strontium | ug/L | +/−20% | 58.8 | | 56.4 | | 4.05 | | P |
| Tin | ug/L | | 2.5 | U | 2.5 | U | | | P |
| Vanadium | ug/L | +/−5 | 5.58 | | 4.98 | J | 11.3 | | P |
| Zinc | ug/L | | 3.3 | U | 3.3 | U | | | P |

***Analytical Methods:**

**P SW846 3005/6010B**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−830 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CAMO−13−30594D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325649002 **Duplicate ID:** 1202883956 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Antimony | ug/L | | 1 | U | 1 | U | | | MS |
| Arsenic | ug/L | | 1.7 | U | 1.7 | U | | | MS |
| Cadmium | ug/L | | 0.11 | U | 0.11 | U | | | MS |
| Chromium | ug/L | +/−10 | 17.5 | | 16 | | 9.39 | | MS |
| Lead | ug/L | | 0.5 | U | 0.5 | U | | | MS |
| Molybdenum | ug/L | +/−.5 | 0.849 | | 0.877 | | 3.24 | | MS |
| Nickel | ug/L | +/−2 | 2.22 | | 1.9 | J | 15.5 | | MS |
| Selenium | ug/L | | 1.5 | U | 1.5 | U | | | MS |
| Silver | ug/L | | 0.2 | U | 0.2 | U | | | MS |
| Thallium | ug/L | | 0.45 | U | 0.45 | U | | | MS |
| Uranium | ug/L | +/−.2 | 0.429 | | 0.42 | | 2.12 | | MS |

***Analytical Methods:**

**MS SW846 3005/6020 DOE−AL**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−830

**Contract:** ESHL00210

**Aqueous LCS Source:** GEL **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202883024 | | | | | | | | |
| | Mercury | ug/L | 2 | 2.04 | | 102 | 85−115 | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−830

**Contract:** ESHL00210

**Aqueous LCS Source:** OS2I **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202883950 | | | | | | | | |
| | Magnesium | ug/L | 5000 | 5140 | | 103 | 80−120 | P |
| | Manganese | ug/L | 500 | 517 | | 103 | 80−120 | P |
| | Potassium | ug/L | 5000 | 5100 | | 102 | 80−120 | P |
| | Silica | ug/L | 10700 | 10800 | | 101 | 80−120 | P |
| | Iron | ug/L | 5000 | 5300 | | 106 | 80−120 | P |
| | Sodium | ug/L | 5000 | 5040 | | 101 | 80−120 | P |
| | Strontium | ug/L | 500 | 527 | | 105 | 80−120 | P |
| | Tin | ug/L | 500 | 496 | | 99.2 | 80−120 | P |
| | Vanadium | ug/L | 500 | 517 | | 103 | 80−120 | P |
| | Zinc | ug/L | 500 | 493 | | 98.5 | 80−120 | P |
| | Aluminum | ug/L | 5000 | 5200 | | 104 | 80−120 | P |
| | Barium | ug/L | 500 | 510 | | 102 | 80−120 | P |
| | Beryllium | ug/L | 500 | 508 | | 102 | 80−120 | P |
| | Boron | ug/L | 500 | 488 | | 97.7 | 80−120 | P |
| | Calcium | ug/L | 5000 | 5150 | | 103 | 80−120 | P |
| | Cobalt | ug/L | 500 | 508 | | 102 | 80−120 | P |
| | Copper | ug/L | 500 | 533 | | 107 | 80−120 | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−830

**Contract:** ESHL00210

**Aqueous LCS Source:** O2Si **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202883955 | | | | | | | | |
| | Antimony | ug/L | 50 | 55.6 | | 111 | 80−120 | MS |
| | Arsenic | ug/L | 50 | 51.7 | | 103 | 80−120 | MS |
| | Cadmium | ug/L | 50 | 54.4 | | 109 | 80−120 | MS |
| | Chromium | ug/L | 50 | 52.9 | | 106 | 80−120 | MS |
| | Lead | ug/L | 50 | 51.4 | | 103 | 80−120 | MS |
| | Molybdenum | ug/L | 50 | 50.2 | | 100 | 80−120 | MS |
| | Nickel | ug/L | 50 | 52.7 | | 105 | 80−120 | MS |
| | Selenium | ug/L | 50 | 59.7 | | 119 | 80−120 | MS |
| | Silver | ug/L | 50 | 53.8 | | 108 | 80−120 | MS |
| | Thallium | ug/L | 50 | 46.7 | | 93.5 | 80−120 | MS |
| | Uranium | ug/L | 50 | 49.6 | | 99.3 | 80−120 | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−830 **Client ID** CASA−13−30554L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325923002 **Serial Dilution ID:** 1202883027

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Mercury | .067 | U | .335 | U | | | | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−830 **Client ID** CAMO−13−30594L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325649002 **Serial Dilution ID:** 1202883953

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Aluminum | 68 | U | 340 | U | | | | P |
| Barium | 21.9 | | 25.2 | | 14.8 | | | P |
| Beryllium | 1 | U | 5 | U | | | | P |
| Boron | 15 | U | 75 | U | | | | P |
| Calcium | 13300 | | 13000 | | 2.28 | | 10 | P |
| Cobalt | 1 | U | 5 | U | | | | P |
| Copper | 3 | U | 15 | U | | | | P |
| Iron | 30 | U | 150 | U | | | | P |
| Magnesium | 3700 | | 3680 | | .612 | | | P |
| Manganese | 2 | U | 10 | U | | | | P |
| Potassium | 1210 | | 1320 | | 8.88 | | | P |
| Silica | 74900 | | 73100 | | 2.4 | | 10 | P |
| Sodium | 9930 | | 10500 | | 5.47 | | 10 | P |
| Strontium | 58.8 | | 56.9 | | 3.16 | | 10 | P |
| Tin | 2.5 | U | 12.5 | U | | | | P |
| Vanadium | 5.58 | | 6.2 | J | 11.1 | | | P |
| Zinc | 3.3 | U | 16.5 | U | | | | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−830 **Client ID** CAMO−13−30594L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325649002 **Serial Dilution ID:** 1202883958

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Antimony | 1 | U | 5 | U | | | | MS |
| Arsenic | 1.7 | U | 8.5 | U | | | | MS |
| Cadmium | .11 | U | .55 | U | | | | MS |
| Chromium | 17.5 | | 16.6 | J | 5.12 | | | MS |
| Lead | .5 | U | 2.5 | U | | | | MS |
| Molybdenum | .849 | | 1.15 | J | 35.5 | | | MS |
| Nickel | 2.22 | | 2.5 | U | 100 | | | MS |
| Selenium | 1.5 | U | 7.5 | U | | | | MS |
| Silver | .2 | U | 1 | U | | | | MS |
| Thallium | .45 | U | 2.25 | U | | | | MS |
| Uranium | .429 | | .53 | J | 23.5 | | | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

# General Chem Analysis

# Case Narrative

**General Chemistry Narrative**
**ARS International (ARSL)**
**SDG 2013-830**

## Method/Analysis Information

**Product:** **Carbon, Total Organic**

**Analytical Batch:** 1302095 **Method:** SW 9060 Total Organic Carbon

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9060:

| Sample ID | Client ID |
|---|---|
| 325649001 | CAMO-13-30578 |
| 325649003 | CAMO-13-30579 |
| 325649005 | CAMO-13-30580 |
| 325649007 | CAMO-13-30581 |
| 1202876780 | Method Blank (MB) |
| 1202876781 | 325479001(CAMO-13-30586) Sample Duplicate (DUP) |
| 1202876783 | 325479001(CAMO-13-30586) Post Spike (PS) |
| 1202876785 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-093 REV# 12.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Carbon analysis was performed on a O-I Analytical Model 1010 Total Organic Carbon Analyzer.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325479001 (CAMO-13-30586).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
A 15 mg/L Total Inorganic Carbon check standard is analyzed with each analytical run to prove that the instrument is effectively sparging away the inorganic carbon.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Specific Conductivity** | | |
| **Analytical Batch:** | 1305069 | **Method:** | EPA120.1 Specific Conductivity |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 120.1:

| Sample ID | Client ID |
|---|---|
| 325649002 | CAMO-13-30594 |
| 325649004 | CAMO-13-30595 |
| 325649006 | CAMO-13-30596 |
| 325649008 | CAMO-13-30597 |
| 1202884559 | Laboratory Control Sample (LCS) |
| 1202884560 | 325649002(CAMO-13-30594) Sample Duplicate (DUP) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-009 REV# 11.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Conductivity analysis was performed on a Orion 160 Conductivity Meter.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325649002 (CAMO-13-30594).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

**Product:** **pH**

**Analytical Batch:** 1301818 **Method:** EPA 150.1 pH

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 150.1:

| Sample ID | Client ID |
|---|---|
| 325649002 | CAMO-13-30594 |
| 325649004 | CAMO-13-30595 |
| 325649006 | CAMO-13-30596 |
| 325649008 | CAMO-13-30597 |
| 1202876117 | 325649002(CAMO-13-30594) Sample Duplicate (DUP) |
| 1202876118 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-008 REV# 21.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Electrode analysis was performed on a PerpHect pH Meter Orion 370.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**

The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325649002 (CAMO-13-30594).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
The following samples from this sample group were received by the lab outside of the method specified holding time: 325649002 (CAMO-13-30594), 325649004 (CAMO-13-30595), 325649006 (CAMO-13-30596) and 325649008 (CAMO-13-30597).

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1189891 325649002 (CAMO-13-30594), 325649004 (CAMO-13-30595), 325649006 (CAMO-13-30596) and 325649008 (CAMO-13-30597).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Ion Chromatography** | | |
| **Analytical Batch:** | 1300945 | **Method:** | EPA 300.0 Anions Liquid 28 day |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

| Sample ID | Client ID |
|---|---|
| 325649002 | CAMO-13-30594 |
| 325649004 | CAMO-13-30595 |
| 325649006 | CAMO-13-30596 |
| 325649008 | CAMO-13-30597 |
| 1202873935 | Method Blank (MB) |
| 1202873936 | 325479002(CAMO-13-30602) Sample Duplicate (DUP) |
| 1202873937 | 325479002(CAMO-13-30602) Post Spike (PS) |
| 1202873938 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 21.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-5000 Ion Chromatograph.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325479002 (CAMO-13-30602).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The spike recovery falls outside of the established acceptance limits due to matrix interference: 1202873937 (CAMO-13-30602).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1191934 1202873937 (CAMO-13-30602).

**Manual Integrations**
The following samples from this sample group had to be manually integrated due to errors in the instrument software peak integration: 1202873936 (CAMO-13-30602), 1202873937 (CAMO-13-30602), 325649002 (CAMO-13-30594), 325649004 (CAMO-13-30595), 325649006 (CAMO-13-30596) and 325649008 (CAMO-13-30597).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Ammonia Nitrogen** | | |
| **Analytical Batch:** | 1302059 | **Method:** | EPA 350.1 Nitrogen and Ammonia L |
| **Prep Batch :** | 1302058 | **Method:** | EEPA 350.2 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 350.1:

| Sample ID | Client ID |
|---|---|
| 325649002 | CAMO-13-30594 |
| 325649004 | CAMO-13-30595 |
| 325649006 | CAMO-13-30596 |
| 325649008 | CAMO-13-30597 |
| 1202876694 | Method Blank (MB) |
| 1202876695 | 325649002(CAMO-13-30594) Sample Duplicate (DUP) |
| 1202876696 | 325649004(CAMO-13-30595) Sample Duplicate (DUP) |
| 1202876697 | 325649002(CAMO-13-30594) Matrix Spike (MS) |
| 1202876698 | 325649004(CAMO-13-30595) Matrix Spike (MS) |
| 1202876699 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-106 REV# 9.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following samples were selected for QC analysis: 325649002 (CAMO-13-30594) and 325649004 (CAMO-13-30595).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recoveries for this sample set were within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced

SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Total Kjeldahl Nitrogen** | | |
| **Analytical Batch:** | 1301771 | **Method:** | Nitrogen and Total Kjeldahl (TKN) |
| **Prep Batch :** | 1301770 | **Method:** | EEPA 351.2 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 351.2:

| Sample ID | Client ID |
|---|---|
| 325649001 | CAMO-13-30578 |
| 325649003 | CAMO-13-30579 |
| 325649005 | CAMO-13-30580 |
| 325649007 | CAMO-13-30581 |
| 1202876001 | Method Blank (MB) |
| 1202876002 | 325649001(CAMO-13-30578) Sample Duplicate (DUP) |
| 1202876003 | 325649003(CAMO-13-30579) Sample Duplicate (DUP) |
| 1202876004 | 325649001(CAMO-13-30578) Matrix Spike (MS) |
| 1202876005 | 325649003(CAMO-13-30579) Matrix Spike (MS) |
| 1202876006 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-104 REV# 14.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following samples were selected for QC analysis: 325649001 (CAMO-13-30578) and 325649003 (CAMO-13-30579).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The spike recovery falls outside of the established acceptance limits due to matrix interference: 1202876005 (CAMO-13-30579).

**Duplicate Relative Percent Difference (RPD) Statement**
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202876002 (CAMO-13-30578) and 1202876003 (CAMO-13-30579).

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The following sample was re-analyzed due to instrument failure: 325649001 (CAMO-13-30578). The following sample was re-analyzed due to CCV failure: 325649001 (CAMO-13-30578).

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1186861 1202876005 (CAMO-13-30579).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Method/Analysis Information**

| | | | |
|---|---|---|---|
| **Product:** | **Nitrate Nitrite by Cadmium Reduction** | | |
| **Analytical Batch:** | 1302060 | **Method:** | EPA 353.2 Nitrogen and Nitrate/Nitrite |

**Sample Analysis**

The following samples were analyzed using the analytical protocol as established in EPA 353.2:

| Sample ID | Client ID |
|---|---|
| 325649002 | CAMO-13-30594 |
| 325649004 | CAMO-13-30595 |
| 325649006 | CAMO-13-30596 |
| 325649008 | CAMO-13-30597 |
| 1202876700 | Method Blank (MB) |
| 1202876701 | 325649002(CAMO-13-30594) Sample Duplicate (DUP) |
| 1202876702 | 325649004(CAMO-13-30595) Sample Duplicate (DUP) |
| 1202876703 | 325649002(CAMO-13-30594) Post Spike (PS) |
| 1202876704 | 325649004(CAMO-13-30595) Post Spike (PS) |
| 1202876705 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-128 REV# 8.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

**Calibration Information**

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8500 Series.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Continuing Calibration Blanks**

All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following samples were selected for QC analysis: 325649002 (CAMO-13-30594) and 325649004 (CAMO-13-30595).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recoveries for this sample set were within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The following sample in this sample group was diluted due to high concentration: 325649006 (CAMO-13-30596).

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Total Phosphorus** | | |
| **Analytical Batch:** | 1301773 | **Method:** | EPA 365.4 Phosphorus and Total in |
| **Prep Batch :** | 1301772 | **Method:** | EEPA 365.4 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 365.4:

| Sample ID | Client ID |
|---|---|
| 325649002 | CAMO-13-30594 |
| 325649004 | CAMO-13-30595 |
| 325649006 | CAMO-13-30596 |
| 325649008 | CAMO-13-30597 |
| 1202876007 | Method Blank (MB) |
| 1202876008 | 325479002(CAMO-13-30602) Sample Duplicate (DUP) |
| 1202876009 | 325479005(CAMO-13-30564) Sample Duplicate (DUP) |
| 1202876010 | 325479002(CAMO-13-30602) Matrix Spike (MS) |
| 1202876011 | 325479005(CAMO-13-30564) Matrix Spike (MS) |
| 1202876012 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-103 REV# 10.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following samples were selected for QC analysis: 325479002 (CAMO-13-30602) and 325479005 (CAMO-13-30564).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recoveries for this sample set were within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The following sample was re-analyzed due to instrument failure: 1202876012 (LCS).

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Solids, Total Dissolved** | | |
| **Analytical Batch:** | 1301819 | **Method:** | EPA 160.1 Solids and Dissolved-F |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 160.1:

| Sample ID | Client ID |
|---|---|
| 325649002 | CAMO-13-30594 |
| 325649004 | CAMO-13-30595 |
| 325649006 | CAMO-13-30596 |
| 325649008 | CAMO-13-30597 |
| 1202876119 | Method Blank (MB) |
| 1202876120 | 325649008(CAMO-13-30597) Sample Duplicate (DUP) |
| 1202876121 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-001 REV# 13.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Solids analysis was performed on a Sartorius Balance BAL216. Solids lab

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

## Quality Control (QC) Information

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**

The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325649008 (CAMO-13-30597).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Sample Aliquot**
A sufficient amount of sample was provided by the client for analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

**Product:** **Alkalinity**

**Analytical Batch:** 1302919 **Method:** EPA 310.1 Total Alkalinity

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 310.1:

| Sample ID | Client ID |
|---|---|
| 325649002 | CAMO-13-30594 |
| 325649004 | CAMO-13-30595 |
| 325649006 | CAMO-13-30596 |
| 325649008 | CAMO-13-30597 |
| 1202878877 | Laboratory Control Sample (LCS) |
| 1202878878 | 325649002(CAMO-13-30594) Sample Duplicate (DUP) |
| 1202878879 | 325649002(CAMO-13-30594) Matrix Spike (MS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-033 REV# 10.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Titration analysis was performed on a Manually operated buret.

**Initial Standardization**
The titrant was properly standardized

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**

The following sample was selected for QC analysis: 325649002 (CAMO-13-30594).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

**Review Validation:**

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

**The following data validator verified the information presented in this case narrative:**

**Reviewer:_____ Date:_____**

# Sample Data Summary

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-830  GEL Work Order: 325649

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

**  Analyte is a Tracer compound

**  Analyte is a surrogate compound

H  Analytical holding time was exceeded

J  Value is estimated

N  Metals--The Matrix spike sample recovery is not within specified control limits

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: June 10, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-830

Client Sample ID: CAMO-13-30578
Sample ID: 325649001
Matrix: Water
Collect Date: 09-MAY-13 11:24
Receive Date: 14-MAY-13
Collector: Client
Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon Analysis | | | | | | | | | | | |
| SW 9060 Total Organic Carbon "As Received" | | | | | | | | | | | |
| Total Organic Carbon Average | | 1.02 | 0.330 | 1.00 | mg/L | 1 | TSM | 05/16/13 | 1940 | 1302095 | 1 |
| Nutrient Analysis | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl (TKN) "As Received" | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | U | ND | 0.033 | 0.100 | mg/L | 1 | KLP1 | 05/16/13 | 1609 | 1301771 | 2 |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 351.2 Prep | EPA 351.2 Total Kjeldahl Nitrogen Prep | KLP1 | 05/16/13 | 1445 | 1301770 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | SW846 9060 | |
| 2 | EPA 351.2 | |

**Notes:**

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: June 10, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-830

Client Sample ID: CAMO-13-30594
Sample ID: 325649002
Matrix: Water
Collect Date: 09-MAY-13 11:24
Receive Date: 14-MAY-13
Collector: Client
Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Conductivity Analysis | | | | | | | | | | | |
| EPA120.1 Specific Conductivity "As Received" | | | | | | | | | | | |
| Conductivity | | 135 | 1.00 | 1.00 | umhos/cm | 1 | LXA1 | 05/31/13 | 1556 | 1305069 | 1 |
| Electrode Analysis | | | | | | | | | | | |
| EPA 150.1 pH "As Received" | | | | | | | | | | | |
| pH at Temp 9.50C | H | 7.91 | 0.010 | 0.100 | SU | 1 | LYG1 | 05/15/13 | 0802 | 1301818 | 2 |
| Ion Chromatography | | | | | | | | | | | |
| EPA 300.0 Anions Liquid 28 day "As Received" | | | | | | | | | | | |
| Bromide | U | ND | 0.067 | 0.200 | mg/L | 1 | MAR1 | 06/01/13 | 1338 | 1300945 | 3 |
| Chloride | | 2.25 | 0.067 | 0.200 | mg/L | 1 | | | | | |
| Fluoride | | 0.273 | 0.033 | 0.100 | mg/L | 1 | | | | | |
| Sulfate | | 3.26 | 0.133 | 0.400 | mg/L | 1 | | | | | |
| Nutrient Analysis | | | | | | | | | | | |
| EPA 350.1 Nitrogen, Ammonia L "As Received" | | | | | | | | | | | |
| Nitrogen, Ammonia | | 0.0529 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/28/13 | 1007 | 1302059 | 4 |
| EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received" | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | 0.986 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/29/13 | 1552 | 1302060 | 5 |
| EPA 365.4 Phosphorus, Total in "As Received" | | | | | | | | | | | |
| Phosphorus, Total as P | J | 0.0432 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/21/13 | 1218 | 1301773 | 6 |
| Solids Analysis | | | | | | | | | | | |
| EPA 160.1 Solids, Dissolved-F "As Received" | | | | | | | | | | | |
| Total Dissolved Solids | | 124 | 3.40 | 14.3 | mg/L | | LYG1 | 05/15/13 | 0947 | 1301819 | 7 |
| Titration Analysis | | | | | | | | | | | |
| EPA 310.1 Total Alkalinity "As Received" | | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | 54.8 | 0.725 | 1.00 | mg/L | | LXA1 | 05/20/13 | 1505 | 1302919 | 8 |
| Carbonate alkalinity (CaCO3) | U | ND | 0.725 | 1.00 | mg/L | | | | | | |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 350.2 Prep | EPA 350.1 Ammonia Nitrogen Prep | KLP1 | 05/28/13 | 0800 | 1302058 |
| EPA 365.4 Prep | EPA 365.4 Phosphorus, Total in liquid PR | KLP1 | 05/20/13 | 1630 | 1301772 |

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## Certificate of Analysis

Report Date: June 10, 2013

| | | | |
|---|---|---|---|
| Company : | Los Alamos National Laboratory | | |
| Address : | PO Box 1663<br>TA-03, SM271, Drop Pt. 02U, Rm111<br>Los Alamos, New Mexico 87545 | | |
| Contact: | Keith Greene | Client SDG: | 2013-830 |
| Project: | LANL-WQH Water Samples | | |

| | | | |
|---|---|---|---|
| Client Sample ID: | CAMO-13-30594 | Project: | ESHL00210 |
| Sample ID: | 325649002 | Client ID: | ARSL001 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | EPA 120.1 | |
| 2 | EPA 150.1 | |
| 3 | EPA 300.0 | |
| 4 | EPA 350.1 | |
| 5 | EPA 353.2 | |
| 6 | EPA 365.4 | |
| 7 | EPA 160.1 | |
| 8 | EPA 310.1 | |

**Notes:**

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## Certificate of Analysis

Report Date: June 10, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-830

Client Sample ID: CAMO-13-30579
Sample ID: 325649003
Matrix: Water
Collect Date: 09-MAY-13 13:13
Receive Date: 14-MAY-13
Collector: Client
Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon Analysis | | | | | | | | | | | |
| SW 9060 Total Organic Carbon "As Received" | | | | | | | | | | | |
| Total Organic Carbon Average | J | 0.692 | 0.330 | 1.00 | mg/L | 1 | TSM | 05/16/13 | 2031 | 1302095 | 1 |
| Nutrient Analysis | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl (TKN) "As Received" | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | U | ND | 0.033 | 0.100 | mg/L | 1 | KLP1 | 05/16/13 | 1528 | 1301771 | 2 |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 351.2 Prep | EPA 351.2 Total Kjeldahl Nitrogen Prep | KLP1 | 05/16/13 | 1445 | 1301770 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | SW846 9060 | |
| 2 | EPA 351.2 | |

**Notes:**

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## Certificate of Analysis

Report Date: June 10, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-830

Client Sample ID: CAMO-13-30595
Sample ID: 325649004
Matrix: Water
Collect Date: 09-MAY-13 13:13
Receive Date: 14-MAY-13
Collector: Client
Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Conductivity Analysis | | | | | | | | | | | |
| EPA120.1 Specific Conductivity "As Received" | | | | | | | | | | | |
| Conductivity | | 145 | 1.00 | 1.00 | umhos/cm | 1 | LXA1 | 05/31/13 | 1556 | 1305069 | 1 |
| Electrode Analysis | | | | | | | | | | | |
| EPA 150.1 pH "As Received" | | | | | | | | | | | |
| pH at Temp 13.9C | H | 7.94 | 0.010 | 0.100 | SU | 1 | LYG1 | 05/15/13 | 0811 | 1301818 | 2 |
| Ion Chromatography | | | | | | | | | | | |
| EPA 300.0 Anions Liquid 28 day "As Received" | | | | | | | | | | | |
| Bromide | U | ND | 0.067 | 0.200 | mg/L | 1 | MAR1 | 06/01/13 | 1410 | 1300945 | 3 |
| Chloride | | 2.18 | 0.067 | 0.200 | mg/L | 1 | | | | | |
| Fluoride | | 0.314 | 0.033 | 0.100 | mg/L | 1 | | | | | |
| Sulfate | | 2.86 | 0.133 | 0.400 | mg/L | 1 | | | | | |
| Nutrient Analysis | | | | | | | | | | | |
| EPA 350.1 Nitrogen, Ammonia L "As Received" | | | | | | | | | | | |
| Nitrogen, Ammonia | J | 0.0394 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/28/13 | 1013 | 1302059 | 4 |
| EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received" | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | 0.565 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/29/13 | 1555 | 1302060 | 5 |
| EPA 365.4 Phosphorus, Total in "As Received" | | | | | | | | | | | |
| Phosphorus, Total as P | J | 0.0324 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/21/13 | 1219 | 1301773 | 6 |
| Solids Analysis | | | | | | | | | | | |
| EPA 160.1 Solids, Dissolved-F "As Received" | | | | | | | | | | | |
| Total Dissolved Solids | | 149 | 3.40 | 14.3 | mg/L | | LYG1 | 05/15/13 | 0947 | 1301819 | 7 |
| Titration Analysis | | | | | | | | | | | |
| EPA 310.1 Total Alkalinity "As Received" | | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | 61.9 | 0.725 | 1.00 | mg/L | | LXA1 | 05/20/13 | 1524 | 1302919 | 8 |
| Carbonate alkalinity (CaCO3) | U | ND | 0.725 | 1.00 | mg/L | | | | | | |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 350.2 Prep | EPA 350.1 Ammonia Nitrogen Prep | KLP1 | 05/28/13 | 0800 | 1302058 |
| EPA 365.4 Prep | EPA 365.4 Phosphorus, Total in liquid PR | KLP1 | 05/20/13 | 1630 | 1301772 |

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Report Date: June 10, 2013

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|---|---|---|---|
| Company : | Los Alamos National Laboratory | | |
| Address : | PO Box 1663<br>TA-03, SM271, Drop Pt. 02U, Rm111<br>Los Alamos, New Mexico 87545 | | |
| Contact: | Keith Greene | Client SDG: | 2013-830 |
| Project: | LANL-WQH Water Samples | | |

| | | | |
|---|---|---|---|
| Client Sample ID: | CAMO-13-30595 | Project: | ESHL00210 |
| Sample ID: | 325649004 | Client ID: | ARSL001 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | EPA 120.1 | |
| 2 | EPA 150.1 | |
| 3 | EPA 300.0 | |
| 4 | EPA 350.1 | |
| 5 | EPA 353.2 | |
| 6 | EPA 365.4 | |
| 7 | EPA 160.1 | |
| 8 | EPA 310.1 | |

**Notes:**

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## Certificate of Analysis

Report Date: June 10, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-830

Client Sample ID: CAMO-13-30580
Sample ID: 325649005
Matrix: Water
Collect Date: 09-MAY-13 12:41
Receive Date: 14-MAY-13
Collector: Client
Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon Analysis | | | | | | | | | | | |
| SW 9060 Total Organic Carbon "As Received" | | | | | | | | | | | |
| Total Organic Carbon Average | J | 0.658 | 0.330 | 1.00 | mg/L | 1 | TSM | 05/16/13 | 2105 | 1302095 | 1 |
| Nutrient Analysis | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl (TKN) "As Received" | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | U | ND | 0.033 | 0.100 | mg/L | 1 | KLP1 | 05/16/13 | 1534 | 1301771 | 2 |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 351.2 Prep | EPA 351.2 Total Kjeldahl Nitrogen Prep | KLP1 | 05/16/13 | 1445 | 1301770 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | SW846 9060 | |
| 2 | EPA 351.2 | |

**Notes:**

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## Certificate of Analysis

Report Date: June 10, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-830

Client Sample ID: CAMO-13-30596
Sample ID: 325649006
Matrix: Water
Collect Date: 09-MAY-13 12:41
Receive Date: 14-MAY-13
Collector: Client
Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Conductivity Analysis | | | | | | | | | | | |
| EPA120.1 Specific Conductivity "As Received" | | | | | | | | | | | |
| Conductivity | | 184 | 1.00 | 1.00 | umhos/cm | 1 | LXA1 | 05/31/13 | 1557 | 1305069 | 1 |
| Electrode Analysis | | | | | | | | | | | |
| EPA 150.1 pH "As Received" | | | | | | | | | | | |
| pH at Temp 13.4C | H | 7.91 | 0.010 | 0.100 | SU | 1 | LYG1 | 05/15/13 | 0813 | 1301818 | 2 |
| Ion Chromatography | | | | | | | | | | | |
| EPA 300.0 Anions Liquid 28 day "As Received" | | | | | | | | | | | |
| Bromide | U | ND | 0.067 | 0.200 | mg/L | 1 | MAR1 | 06/01/13 | 1441 | 1300945 | 3 |
| Chloride | | 4.06 | 0.067 | 0.200 | mg/L | 1 | | | | | |
| Fluoride | | 0.291 | 0.033 | 0.100 | mg/L | 1 | | | | | |
| Sulfate | | 6.17 | 0.133 | 0.400 | mg/L | 1 | | | | | |
| Nutrient Analysis | | | | | | | | | | | |
| EPA 350.1 Nitrogen, Ammonia L "As Received" | | | | | | | | | | | |
| Nitrogen, Ammonia | J | 0.0268 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/28/13 | 1016 | 1302059 | 4 |
| EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received" | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | 2.30 | 0.085 | 0.250 | mg/L | 5 | KLP1 | 05/29/13 | 1627 | 1302060 | 5 |
| EPA 365.4 Phosphorus, Total in "As Received" | | | | | | | | | | | |
| Phosphorus, Total as P | J | 0.0452 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/21/13 | 1220 | 1301773 | 6 |
| Solids Analysis | | | | | | | | | | | |
| EPA 160.1 Solids, Dissolved-F "As Received" | | | | | | | | | | | |
| Total Dissolved Solids | | 149 | 3.40 | 14.3 | mg/L | | LYG1 | 05/15/13 | 0947 | 1301819 | 7 |
| Titration Analysis | | | | | | | | | | | |
| EPA 310.1 Total Alkalinity "As Received" | | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | 65.0 | 0.725 | 1.00 | mg/L | | LXA1 | 05/20/13 | 1531 | 1302919 | 8 |
| Carbonate alkalinity (CaCO3) | U | ND | 0.725 | 1.00 | mg/L | | | | | | |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 350.2 Prep | EPA 350.1 Ammonia Nitrogen Prep | KLP1 | 05/28/13 | 0800 | 1302058 |
| EPA 365.4 Prep | EPA 365.4 Phosphorus, Total in liquid PR | KLP1 | 05/20/13 | 1630 | 1301772 |

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## Certificate of Analysis

Report Date: June 10, 2013

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| Company : | Los Alamos National Laboratory | | |
| Address : | PO Box 1663<br>TA-03, SM271, Drop Pt. 02U, Rm111<br>Los Alamos, New Mexico 87545 | | |
| Contact: | Keith Greene | Client SDG: | 2013-830 |
| Project: | LANL-WQH Water Samples | | |

| | | | |
|---|---|---|---|
| Client Sample ID: | CAMO-13-30596 | Project: | ESHL00210 |
| Sample ID: | 325649006 | Client ID: | ARSL001 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | EPA 120.1 | |
| 2 | EPA 150.1 | |
| 3 | EPA 300.0 | |
| 4 | EPA 350.1 | |
| 5 | EPA 353.2 | |
| 6 | EPA 365.4 | |
| 7 | EPA 160.1 | |
| 8 | EPA 310.1 | |

**Notes:**

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## Certificate of Analysis

Report Date: June 10, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-830

Client Sample ID: CAMO-13-30581
Sample ID: 325649007
Matrix: Water
Collect Date: 09-MAY-13 11:18
Receive Date: 14-MAY-13
Collector: Client
Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon Analysis | | | | | | | | | | | |
| SW 9060 Total Organic Carbon "As Received" | | | | | | | | | | | |
| Total Organic Carbon Average | J | 0.770 | 0.330 | 1.00 | mg/L | 1 | TSM | 05/16/13 | 2138 | 1302095 | 1 |
| Nutrient Analysis | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl (TKN) "As Received" | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | U | ND | 0.033 | 0.100 | mg/L | 1 | KLP1 | 05/16/13 | 1535 | 1301771 | 2 |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 351.2 Prep | EPA 351.2 Total Kjeldahl Nitrogen Prep | KLP1 | 05/16/13 | 1445 | 1301770 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | SW846 9060 | |
| 2 | EPA 351.2 | |

**Notes:**

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## Certificate of Analysis

Report Date: June 10, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-830

Client Sample ID: CAMO-13-30597
Sample ID: 325649008
Matrix: Water
Collect Date: 09-MAY-13 11:18
Receive Date: 14-MAY-13
Collector: Client
Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Conductivity Analysis | | | | | | | | | | | |
| EPA120.1 Specific Conductivity "As Received" | | | | | | | | | | | |
| Conductivity | | 171 | 1.00 | 1.00 | umhos/cm | 1 | LXA1 | 05/31/13 | 1558 | 1305069 | 1 |
| Electrode Analysis | | | | | | | | | | | |
| EPA 150.1 pH "As Received" | | | | | | | | | | | |
| pH at Temp 13.5C | H | 8.16 | 0.010 | 0.100 | SU | 1 | LYG1 | 05/15/13 | 0814 | 1301818 | 2 |
| Ion Chromatography | | | | | | | | | | | |
| EPA 300.0 Anions Liquid 28 day "As Received" | | | | | | | | | | | |
| Bromide | U | ND | 0.067 | 0.200 | mg/L | 1 | MAR1 | 06/01/13 | 1513 | 1300945 | 3 |
| Chloride | | 3.40 | 0.067 | 0.200 | mg/L | 1 | | | | | |
| Fluoride | | 0.352 | 0.033 | 0.100 | mg/L | 1 | | | | | |
| Sulfate | | 4.06 | 0.133 | 0.400 | mg/L | 1 | | | | | |
| Nutrient Analysis | | | | | | | | | | | |
| EPA 350.1 Nitrogen, Ammonia L "As Received" | | | | | | | | | | | |
| Nitrogen, Ammonia | J | 0.0172 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/28/13 | 1017 | 1302059 | 4 |
| EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received" | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | 0.589 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/29/13 | 1600 | 1302060 | 5 |
| EPA 365.4 Phosphorus, Total in "As Received" | | | | | | | | | | | |
| Phosphorus, Total as P | J | 0.0403 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/21/13 | 1220 | 1301773 | 6 |
| Solids Analysis | | | | | | | | | | | |
| EPA 160.1 Solids, Dissolved-F "As Received" | | | | | | | | | | | |
| Total Dissolved Solids | | 141 | 3.40 | 14.3 | mg/L | | LYG1 | 05/15/13 | 0947 | 1301819 | 7 |
| Titration Analysis | | | | | | | | | | | |
| EPA 310.1 Total Alkalinity "As Received" | | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | 72.1 | 0.725 | 1.00 | mg/L | | LXA1 | 05/20/13 | 1540 | 1302919 | 8 |
| Carbonate alkalinity (CaCO3) | U | ND | 0.725 | 1.00 | mg/L | | | | | | |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 350.2 Prep | EPA 350.1 Ammonia Nitrogen Prep | KLP1 | 05/28/13 | 0800 | 1302058 |
| EPA 365.4 Prep | EPA 365.4 Phosphorus, Total in liquid PR | KLP1 | 05/20/13 | 1630 | 1301772 |

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## Certificate of Analysis

Report Date: June 10, 2013

| | | | |
|---|---|---|---|
| Company : | Los Alamos National Laboratory | | |
| Address : | PO Box 1663<br>TA-03, SM271, Drop Pt. 02U, Rm111<br>Los Alamos, New Mexico 87545 | | |
| Contact: | Keith Greene | Client SDG: | 2013-830 |
| Project: | LANL-WQH Water Samples | | |

| | | | |
|---|---|---|---|
| Client Sample ID: | CAMO-13-30597 | Project: | ESHL00210 |
| Sample ID: | 325649008 | Client ID: | ARSL001 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | EPA 120.1 | |
| 2 | EPA 150.1 | |
| 3 | EPA 300.0 | |
| 4 | EPA 350.1 | |
| 5 | EPA 353.2 | |
| 6 | EPA 365.4 | |
| 7 | EPA 160.1 | |
| 8 | EPA 310.1 | |

**Notes:**

# Quality Control Summary

# GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

## QC Summary

**Report Date: June 10, 2013**


**Los Alamos National Laboratory**
**PO Box 1663**
**TA-03, SM271, Drop Pt. 02U, Rm111**
**Los Alamos, New Mexico**

**Contact:** **Keith Greene**

**Workorder:** **325649**

| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Carbon Analysis** | | | | | | | | | | | | |
| Batch 1302095 | | | | | | | | | | | | |
| QC1202876781 325479001 DUP | | | | | | | | | | | | |
| Total Organic Carbon Average | | J | 0.510 | J | 0.511 | mg/L | 0.196 | ^ | | (+/-1.00) | TSM | 05/16/13 16:57 |
| QC1202876785 LCS | | | | | | | | | | | | |
| Total Organic Carbon Average | 10.0 | | | | 9.70 | mg/L | | | 97 | (85%-115%) | | 05/16/13 16:15 |
| QC1202876780 MB | | | | | | | | | | | | |
| Total Organic Carbon Average | | | | U | ND | mg/L | | | | | | 05/16/13 16:06 |
| QC1202876783 325479001 PS | | | | | | | | | | | | |
| Total Organic Carbon Average | 10.0 | J | 0.510 | | 10.4 | mg/L | | | 99 | (65%-120%) | | 05/16/13 17:16 |
| **Conductivity Analysis** | | | | | | | | | | | | |
| Batch 1305069 | | | | | | | | | | | | |
| QC1202884560 325649002 DUP | | | | | | | | | | | | |
| Conductivity | | | 135 | | 137 | umhos/cm | 1.91 | | | (0%-10%) | LXA1 | 05/31/13 15:56 |
| QC1202884559 LCS | | | | | | | | | | | | |
| Conductivity | 1410 | | | | 1450 | umhos/cm | | | 102 | (95%-105%) | | 05/31/13 15:54 |
| **Electrode Analysis** | | | | | | | | | | | | |
| Batch 1301818 | | | | | | | | | | | | |
| QC1202876117 325649002 DUP | | | | | | | | | | | | |
| pH | | H | 7.91 | H | 7.92 | SU | 0.126 | | | (0%-10%) | LYG1 | 05/15/13 08:02 |
| QC1202876118 LCS | | | | | | | | | | | | |
| pH | 7.00 | | | | 7.00 | SU | | | 100 | (99%-101%) | | 05/15/13 07:56 |
| **Ion Chromatography** | | | | | | | | | | | | |
| Batch 1300945 | | | | | | | | | | | | |
| QC1202873936 325479002 DUP | | | | | | | | | | | | |
| Bromide | | J | 0.0717 | J | 0.0726 | mg/L | 1.25 | ^ | | (+/-0.200) | MAR1 | 06/01/13 09:27 |
| Chloride | | | 7.71 | | 7.64 | mg/L | 0.958 | | | (0%-20%) | | |
| Fluoride | | | 0.181 | | 0.182 | mg/L | 0.937 | ^ | | (+/-0.100) | | |
| Sulfate | | | 13.1 | | 13.3 | mg/L | 1.31 | | | (0%-20%) | | |
| QC1202873938 LCS | | | | | | | | | | | | |
| Bromide | 1.25 | | | | 1.28 | mg/L | | | 102 | (90%-110%) | | 06/01/13 08:24 |

## QC Summary

**Workorder: 325649**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Ion Chromatography** | | | | | | | | | | | |
| Batch 1300945 | | | | | | | | | | | |
| Chloride | 5.00 | | | | 4.66 | mg/L | | 93.3 | (90%-110%) | MAR1 | 06/01/13 08:24 |
| Fluoride | 2.50 | | | | 2.37 | mg/L | | 94.9 | (90%-110%) | | |
| Sulfate | 10.0 | | | | 9.94 | mg/L | | 99.4 | (90%-110%) | | |
| QC1202873935 MB | | | | | | | | | | | |
| Bromide | | | | U | ND | mg/L | | | | | 06/01/13 07:53 |
| Chloride | | | | U | ND | mg/L | | | | | |
| Fluoride | | | | U | ND | mg/L | | | | | |
| Sulfate | | | | U | ND | mg/L | | | | | |
| QC1202873937 325479002 PS | | | | | | | | | | | |
| Bromide | 1.25 | J | 0.0717 | | 1.30 | mg/L | | 98.3 | (90%-110%) | | 06/01/13 09:59 |
| Chloride | 5.00 | | 7.71 | | 13.3 | mg/L | | 111* | (90%-110%) | | |
| Fluoride | 2.50 | | 0.181 | | 2.49 | mg/L | | 92.2 | (90%-110%) | | |
| Sulfate | 10.0 | | 13.1 | | 23.5 | mg/L | | 104 | (90%-110%) | | |
| **Nutrient Analysis** | | | | | | | | | | | |
| Batch 1301771 | | | | | | | | | | | |
| QC1202876002 325649001 DUP | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | U | ND | U | ND | mg/L | N/A | | | KLP1 | 05/16/13 15:26 |
| QC1202876003 325649003 DUP | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | U | ND | U | ND | mg/L | N/A | | | | 05/16/13 15:32 |
| QC1202876006 LCS | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | | | | 1.03 | mg/L | | 103 | (90%-110%) | | 05/16/13 15:21 |
| QC1202876001 MB | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | | | U | ND | mg/L | | | | | 05/16/13 15:20 |
| QC1202876004 325649001 MS | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | U | ND | | 1.02 | mg/L | | 102 | (90%-110%) | | 05/16/13 15:27 |
| QC1202876005 325649003 MS | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | U | ND | | 1.12 | mg/L | | 112* | (90%-110%) | | 05/16/13 15:33 |

## QC Summary

**Workorder: 325649**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Nutrient Analysis** | | | | | | | | | | | | |
| Batch 1301773 | | | | | | | | | | | | |
| QC1202876008 325479002 DUP | | | | | | | | | | | | |
| Phosphorus, Total as P | | J | 0.0458 | J | 0.0491 | mg/L | 6.95 | ^ | | (+/-0.050) | KLP1 | 05/21/13 12:07 |
| QC1202876009 325479005 DUP | | | | | | | | | | | | |
| Phosphorus, Total as P | | J | 0.0426 | J | 0.0436 | mg/L | 2.32 | ^ | | (+/-0.050) | | 05/21/13 12:10 |
| QC1202876012 LCS | | | | | | | | | | | | |
| Phosphorus, Total as P | 1.00 | | | | 1.04 | mg/L | | | 104 | (76%-120%) | | 05/21/13 12:17 |
| QC1202876007 MB | | | | | | | | | | | | |
| Phosphorus, Total as P | | | | J | 0.0287 | mg/L | | | | | | 05/21/13 12:05 |
| QC1202876010 325479002 MS | | | | | | | | | | | | |
| Phosphorus, Total as P | 1.00 | J | 0.0458 | | 0.786 | mg/L | | | 74 | (62%-139%) | | 05/21/13 12:08 |
| QC1202876011 325479005 MS | | | | | | | | | | | | |
| Phosphorus, Total as P | 1.00 | J | 0.0426 | | 0.978 | mg/L | | | 93.5 | (62%-139%) | | 05/21/13 12:11 |
| Batch 1302059 | | | | | | | | | | | | |
| QC1202876695 325649002 DUP | | | | | | | | | | | | |
| Nitrogen, Ammonia | | | 0.0529 | J | 0.0472 | mg/L | 11.4 | ^ | | (+/-0.050) | KLP1 | 05/28/13 10:12 |
| QC1202876696 325649004 DUP | | | | | | | | | | | | |
| Nitrogen, Ammonia | | J | 0.0394 | J | 0.0394 | mg/L | 0.00 | ^ | | (+/-0.050) | | 05/28/13 10:14 |
| QC1202876699 LCS | | | | | | | | | | | | |
| Nitrogen, Ammonia | 1.00 | | | | 1.07 | mg/L | | | 107 | (90%-110%) | | 05/28/13 10:01 |
| QC1202876694 MB | | | | | | | | | | | | |
| Nitrogen, Ammonia | | | | J | 0.0186 | mg/L | | | | | | 05/28/13 10:00 |
| QC1202876697 325649002 MS | | | | | | | | | | | | |
| Nitrogen, Ammonia | 1.00 | | 0.0529 | | 1.06 | mg/L | | | 101 | (90%-110%) | | 05/28/13 10:12 |
| QC1202876698 325649004 MS | | | | | | | | | | | | |
| Nitrogen, Ammonia | 1.00 | J | 0.0394 | | 1.11 | mg/L | | | 107 | (90%-110%) | | 05/28/13 10:15 |
| Batch 1302060 | | | | | | | | | | | | |
| QC1202876701 325649002 DUP | | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | | 0.986 | | 0.986 | mg/L | 0.00 | | | (0%-20%) | KLP1 | 05/29/13 15:53 |
| QC1202876702 325649004 DUP | | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | | 0.565 | | 0.564 | mg/L | 0.177 | | | (0%-20%) | | 05/29/13 15:56 |
| QC1202876705 LCS | | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | 1.00 | | | | 0.975 | mg/L | | | 97.5 | (90%-110%) | | 05/29/13 15:43 |
| QC1202876700 MB | | | | | | | | | | | | |

## QC Summary

**Workorder: 325649**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Nutrient Analysis** | | | | | | | | | | |
| Batch 1302060 | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | | U | ND | mg/L | | | | | 05/29/13 15:42 |
| QC1202876703 325649002 PS | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | 1.00 | 0.986 | | 1.92 | mg/L | | 93.4 | (90%-110%) | KLP1 | 05/29/13 15:54 |
| QC1202876704 325649004 PS | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | 1.00 | 0.565 | | 1.49 | mg/L | | 92.5 | (90%-110%) | | 05/29/13 15:58 |
| **Solids Analysis** | | | | | | | | | | |
| Batch 1301819 | | | | | | | | | | |
| QC1202876120 325649008 DUP | | | | | | | | | | |
| Total Dissolved Solids | | 141 | | 140 | mg/L | 1.02 | | (0%-10%) | LYG1 | 05/15/13 09:47 |
| QC1202876121 LCS | | | | | | | | | | |
| Total Dissolved Solids | 300 | | | 293 | mg/L | | 97.6 | (95%-105%) | | 05/15/13 09:47 |
| QC1202876119 MB | | | | | | | | | | |
| Total Dissolved Solids | | | U | ND | mg/L | | | | | 05/15/13 09:47 |
| **Titration Analysis** | | | | | | | | | | |
| Batch 1302919 | | | | | | | | | | |
| QC1202878878 325649002 DUP | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | 54.8 | | 55.8 | mg/L | 1.83 | | (0%-20%) | LXA1 | 05/20/13 15:10 |
| Carbonate alkalinity (CaCO3) | U | ND | U | ND | mg/L | N/A | | | | |
| QC1202878877 LCS | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | 50.0 | | | 51.3 | mg/L | | 103 | (90%-110%) | | 05/20/13 11:51 |
| QC1202878879 325649002 MS | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | 50.0 | 54.8 | | 104 | mg/L | | 97.4 | (80%-120%) | | 05/20/13 15:17 |

**Notes:**

| | |
|---|---|
| < | Result is less than value reported |
| > | Result is greater than value reported |
| B | The target analyte was detected in the associated blank. |
| E | %difference of sample and SD is >10%. Sample concentration must meet flagging criteria |
| E | General Chemistry--Concentration of the target analyte exceeds the instrument calibration range |
| FB | Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies |
| H | Analytical holding time was exceeded |
| J | Value is estimated |

## QC Summary

**Workorder:** **325649**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|

| | |
|---|---|
| N | Metals--The Matrix spike sample recovery is not within specified control limits |
| N/A | RPD or %Recovery limits do not apply. |
| N1 | See case narrative |
| ND | Analyte concentration is not detected above the detection limit |
| NJ | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| Q | One or more quality control criteria have not been met. Refer to the applicable narrative or DER. |
| R | Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes. |
| R | Sample results are rejected |
| U | Analyte was analyzed for, but not detected above the MDL, MDA, or LOD. |
| X | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| Y | Other specific qualifiers were required to properly define the results. Consult case narrative. |
| Z | Paint Filter Test--Particulates passed through the filter, however no free liquids were observed. |
| ^ | RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry. |
| d | 5-day BOD--The 2:1 depletion requirement was not met for this sample |
| h | Preparation or preservation holding time was exceeded |

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

# Miscellaneous

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 16-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| LACHAT Flow Injection Analyzer | EPA 351.2 | Liquid | ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1301771 | See below. | | |

**Potentially affected work order(s)(SDG): 325007,325009,325643(2013-832),325647(2013-831),325649(2013-830),325658,325667,325669,325672**

**Application Issues:**

Failed Recovery for MS/PS

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed Recovery for MS:<br><br>QC 1202876005MS | 1. The spike recovery falls outside of the established acceptance limits due to matrix interference: |

**Originator's Name:**

Kristen Parson 16-MAY-13

**Data Validator/Group Leader:**

Julia Hamilton 16-MAY-13

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 28-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| ELECTRODE | EPA 150.1 | Liquid | ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1301818 | See below. | | |

**Potentially affected work order(s)(SDG): 325643(2013-832),325647(2013-831),325649(2013-830)**

**Application Issues:**

Sample received out of holding

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Sample received out of holding:<br><br>325643002, 325647002, 325649002, 325649004, 325649006, and 325649008 | 1. Samples were received out of holding. |

**Originator's Name:**

Lisa Gregory 28-MAY-13

**Data Validator/Group Leader:**

Julia Hamilton 28-MAY-13

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 04-JUN-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| IC | EPA 300.0 | Liquid | ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1300945 | See Below | | |

**Potentially affected work order(s)(SDG): 325479(2013-822),325480(2013-823),325643(2013-832),325647(2013-831),325649(2013-830)**

**Application Issues:**

Failed Recovery for MS/PS

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed Recovery for MS/PS:<br><br>QC 1202873937PS | 1. The MS/PS mixture contains seven anions of interest. Of those, all requested anions except chloride met normal acceptance criteria for recovery (90 - 110%). This failure is attributed to the matrix of the sample because the successful recovery of the other compounds indicate that the laboratory process was in control. This variance is judged to have no negative impact on the data. The deviation is noted in the Case Narrative and DER, and the data has been reported. |

**Originator's Name:**

Mary Sherwood 05-JUN-13

**Data Validator/Group Leader:**

Virginia Wininger 06-JUN-13

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

# Chain of Custody/Analysis Request

COC/Lab Request #: 2013-823



**Client Contact:**

**Lab Agreement # :** 126310011

**Project Number :**

**Analysis Turnaround Time:**

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

**Site Name:** Los Alamos National Laboratory

**Rad Screening Info:** Yes, Below Background

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | WSP-8260B-VOA | WSP-8270C-SVOA | WSP-CL04 | WSP-GENINORG | WSP-Met+B+SN+SR+U | WSP-NH3+NO3/NO2+PO4 | WSP-TKN+TOC | Special Instructions: |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAMO-13-30573 | May 8 2013 | 12:13 | W | 2 | 3 | | | | | 1 | |
| CAMO-13-30589 | May 8 2013 | 12:13 | W | | | 1 | 1 | 1 | 1 | | |
| CAMO-13-30567 | May 8 2013 | 12:13 | W | 2 | | | | | | | |

Special Instructions:

| | | | |
|---|---|---|---|
| Relinquished by: Melissa Montoya | | Date/Time: 5/9/13 3:00 | Received by: |
| Relinquished by: | | Date/Time: | Received by: |
| Relinquished by: | | Date/Time: | Received by: |

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30573

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | 05/08/2013 | FIELD MATRIX: | WG | OK |
| TIME COLLECTED (HH:MM): | | 1213 | MEDIA: | UA | ↓ |
| PRS ID: | | OK | SAMPLE TECH CODE: | UA | GSP |
| LOCATION ID: | MCOI-6 | ↓ | FIELD PREP: | UF | OK |
| LOCATION TYPE: | MON | ↓ | FIELD QC TYPE: | REG | ↓ |
| PORT: | SINGLE COMPLETION | ↓ | SAMPLE USAGE: | INV | ↓ |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-8260B-VOA | 40 ML SEPTUM AMBER GLASS | 2 | HCL | Y | NA |
| ↓ | WSP-8270C-SVOA | 1 LITER AMBER GLASS | ~~3~~ 2 | ICE | Y | ↓ |
| ↓ | WSP-TKN+TOC | 500 ML AMBER GLASS | 1 | H2SO4 | Y | ↓ |

**SAMPLE COMMENTS:** Sampled within 50' of Running generator

**LOCATION COMMENTS:** NA

**FIELD PARAMETERS:**

Dissolved Oxygen 7.51 mg/L  Oxidation-Reduction Potential 164.7 MV  pH 7.22 SU

Specific Conductance 596 uS/cm  Temperature 15.96 deg C  Turbidity 3.9 NTU

**COLLECTED BY (PRINT)** M. Green

| RELINQUISHED BY | Date/Time | RECEIVED BY | Date/Time |
|---|---|---|---|
| (Printed Name) Maurice Shendo<br>(Signature) | 05/08/13 1323 | (Printed Name) M. Martin<br>(Signature) | 5/8/13 1325 |
| RELINQUISHED BY<br>(Printed Name)<br>(Signature) | Date/Time | RECEIVED BY<br>(Printed Name)<br>(Signature) | Date/Time |

Report Date 04/30/2013

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30567

**WORK ORDER:**

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| **DATE COLLECTED (MM/DD/YYYY):** | | 05/08/2013 | **FIELD MATRIX:** | WG | ok |
| **TIME COLLECTED (HH:MM):** | | 1213 | **MEDIA:** | UA | ↓ |
| **PRS ID:** | | ok | **SAMPLE TECH CODE:** | UA | DC |
| **LOCATION ID:** | MCOI-6 | ↓ | **FIELD PREP:** | UF | ok |
| **LOCATION TYPE:** | | ↓ | **FIELD QC TYPE:** | FTB | ↓ |
| **PORT:** | SINGLE COMPLETION | ↓ | **SAMPLE USAGE:** | QC | ↓ |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-8260B-VOA | 40 ML SEPTUM AMBER GLASS | 7 | HCL | yes | NA |

MS 5/8/13

**SAMPLE COMMENTS:** NA

**LOCATION COMMENTS:** NA

**FIELD PARAMETERS:**

Dissolved Oxygen NA mg/L  Oxidation-Reduction Potential NA MV  pH NA SU

Specific Conductance NA uS/cm  Temperature NA deg C  Turbidity NA NTU

**COLLECTED BY (PRINT)** M. Green

| RELINQUISHED BY | Date/Time | RECEIVED BY | Date/Time |
|---|---|---|---|
| (Printed Name) Maurice Shendo<br>(Signature) | 05/08/13 1323 | (Printed Name) M. Martin<br>(Signature) | 5/8/13 1323 |
| **RELINQUISHED BY**<br>**(Printed Name)**<br>**(Signature)** | **Date/Time** | **RECEIVED BY**<br>**(Printed Name)**<br>**(Signature)** | **Date/Time** |

Report Date 04/30/2013

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30589

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| **DATE COLLECTED (MM/DD/YYYY):** | | 05/08/2013 | **FIELD MATRIX:** | WG | ok |
| **TIME COLLECTED (HH:MM):** | | 1213 | **MEDIA:** | UA | ↓ |
| **PRS ID:** | | ok | **SAMPLE TECH CODE:** | UA | GSP |
| **LOCATION ID:** | MCOI-6 | ↓ | **FIELD PREP:** | F | ok |
| **LOCATION TYPE:** | MON | ↓ | **FIELD QC TYPE:** | REG | ↓ |
| **PORT:** | SINGLE COMPLETION | ↓ | **SAMPLE USAGE:** | INV | ↓ |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-CL04 | 250 ML POLY | 1 | ICE | yes | NA |
| ↓ | WSP-GENINORG | 1 LITER POLY | 1 | ICE | ↓ | ↓ |
| ↓ | WSP-Met+B+SN+SR+U | 1 LITER POLY | 1 | HNO3 | ↓ | ↓ |
| ↓ | WSP-NH3+NO3/NO2+PO4 | 500 ML AMBER GLASS | 1 | H2SO4 | ↓ | ↓ |

**SAMPLE COMMENTS:** NA

**LOCATION COMMENTS:** NA

**FIELD PARAMETERS:**

Dissolved Oxygen NA mg/L  Oxidation-Reduction Potential NA MV  pH NA SU

Specific Conductance NA uS/cm  Temperature NA deg C  Turbidity NA NTU

**COLLECTED BY (PRINT)** M. Green

| | | | |
|---|---|---|---|
| **RELINQUISHED BY (Printed Name)** Maurice Shendo **(Signature)** | **Date/Time** 05/08/13 1323 | **RECEIVED BY (Printed Name)** **(Signature)** | **Date/Time** 5/8/13 1323 |
| **RELINQUISHED BY (Printed Name) (Signature)** | **Date/Time** | **RECEIVED BY (Printed Name) (Signature)** | **Date/Time** |

Report Date 04/30/2013

Data Validation Report

Chain Of Custody No. 2013-823

**1. Distribution Of Samples In EDD.**

| SDG | Analytical Method | Regular Samples | Field Duplicates | Trip Blanks | Field Blanks | Equipment Blanks |
|---|---|---|---|---|---|---|
| 325480 | EPA:120.1 | 1 | | | | |
| 325480 | EPA:150.1 | 1 | | | | |
| 325480 | EPA:160.1 | 1 | | | | |
| 325480 | EPA:245.2 | 1 | | | | |
| 325480 | EPA:300.0 | 1 | | | | |
| 325480 | EPA:310.1 | 1 | | | | |
| 325480 | EPA:350.1 | 1 | | | | |
| 325480 | EPA:351.2 | 1 | | | | |
| 325480 | EPA:353.2 | 1 | | | | |
| 325480 | EPA:365.4 | 1 | | | | |
| 325480 | SM:A2340B | 1 | | | | |
| 325480 | SW-846:6010B | 1 | | | | |
| 325480 | SW-846:6020 | 1 | | | | |
| 325480 | SW-846:6850 | 1 | | | | |
| 325480 | SW-846:8260B | 1 | | 1 | | |
| 325480 | SW-846:8270C | 1 | | | | |
| 325480 | SW-846:9060 | 1 | | | | |

| SDG | Analytical Method | Analysis Lot ID | Prep Lot ID | Regular Samples | Field Duplicates | Trip Blanks | Field Blanks | Equipment Blanks | Method Blanks | Matrix Spikes | Matrix Spike Dups |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 325480 | EPA:120.1 | 1304263 | 1304263 | 1 | | | | | | | |
| 325480 | EPA:150.1 | 1301230 | 1301230 | 1 | | | | | | | |
| 325480 | EPA:160.1 | 1301226 | 1301226 | 1 | | | | | 1 | | |
| 325480 | EPA:245.2 | 1302856 | 1302851 | 1 | | | | | 1 | 2 | |
| 325480 | EPA:300.0 | 1300945 | 1300945 | 1 | | | | | 1 | | |
| 325480 | EPA:310.1 | 1302919 | 1302919 | 1 | | | | | 2 | 1 | |
| 325480 | EPA:350.1 | 1301250 | 1301248 | 1 | | | | | 1 | 1 | |
| 325480 | EPA:351.2 | 1300635 | 1300634 | 1 | | | | | 1 | 2 | |
| 325480 | EPA:353.2 | 1301246 | 1301246 | 1 | | | | | 1 | | |
| 325480 | EPA:365.4 | 1300626 | 1300625 | 1 | | | | | 1 | 2 | |
| 325480 | SM:A2340B | 1305711 | 1305711 | 1 | | | | | | | |
| 325480 | SW-846:6010B | 1301065 | 1301064 | 1 | | | | | 1 | 1 | |
| 325480 | SW-846:6020 | 1301067 | 1301066 | 1 | | | | | 1 | 1 | |
| 325480 | SW-846:6850 | 1301785 | 1301783 | 1 | | | | | 1 | 1 | 1 |
| 325480 | SW-846:8260B | 1302977 | 1302977 | 1 | | 1 | | | 1 | | |
| 325480 | SW-846:8270C | 1300969 | 1300968 | 1 | | | | | 1 | 1 | 1 |
| 325480 | SW-846:9060 | 1302095 | 1302095 | 1 | | | | | 1 | | |

**2. Distribution Of Analytes In EDD.**

| Analytical Method | Method Category | Field Sample ID | Lab Sample ID | Sample Purpose | Target Analytes | Surrogates | Spikes | TICS |
|---|---|---|---|---|---|---|---|---|
| EPA:120.1 | GENERAL CHEMISTRY | CAMO-13-30589 | 1202882514 | DUP | 1 | 0 | 0 | 0 |
| EPA:120.1 | GENERAL CHEMISTRY | CAMO-13-30589 | 325480002 | REG | 1 | 0 | 0 | 0 |
| EPA:120.1 | GENERAL CHEMISTRY | LCS | 1202882513 | LCS | 0 | 0 | 1 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | CAMO-13-30589 | 325480002 | REG | 1 | 0 | 0 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | CAMO-13-30602 | 1202874544 | DUP | 1 | 0 | 0 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | LCS | 1202874545 | LCS | 0 | 0 | 1 | 0 |

| Analytical Spikes | Post-Digestion Spikes | Lab Control Samples | Lab Control Sample Dups | Blank Spikes | Blank Spike Dups | Lab Duplicates | Storage Blanks | Preparation Blanks | Reagent Blanks |
|---|---|---|---|---|---|---|---|---|---|
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 2 | | | |
| | | 1 | | | | 1 | | | |
| | | 2 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 2 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 2 | | | |
| | | | | | | | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | | | | |
| | | 2 | | | | | | | |
| | | 1 | | | | | | | |
| | | 1 | | | | 1 | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| EPA:160.1 | GENERAL CHEMISTRY | CAMO-13-30564 | 1202874535 | DUP | 1 | 0 | 0 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | CAMO-13-30589 | 325480002 | REG | 1 | 0 | 0 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | LCS | 1202874536 | LCS | 0 | 0 | 1 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | MB | 1202874534 | MB | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30589 | 325480002 | REG | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30598 | 1202878661 | DUP | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30598 | 1202878665 | MS | 0 | 0 | 1 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30602 | 1202878662 | DUP | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30602 | 1202878666 | MS | 0 | 0 | 1 | 0 |
| EPA:245.2 | INORGANIC | LCS | 1202878667 | LCS | 0 | 0 | 1 | 0 |
| EPA:245.2 | INORGANIC | MB | 1202878660 | MB | 1 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | CAMO-13-30589 | 325480002 | REG | 4 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | CAMO-13-30602 | 1202873936 | DUP | 4 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | LCS | 1202873938 | LCS | 0 | 0 | 4 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | MB | 1202873935 | MB | 4 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CAMO-13-30589 | 325480002 | REG | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CAMO-13-30594 | 1202878878 | DUP | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CAMO-13-30594 | 1202878879 | MS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | LCS | 1202878877 | LCS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | LCS | 1202879028 | LCS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | MB | 1202878876 | MB | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | MB | 1202879027 | MB | 2 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30589 | 325480002 | REG | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30602 | 1202874617 | DUP | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30602 | 1202874619 | MS | 0 | 0 | 1 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | LCS | 1202874620 | LCS | 0 | 0 | 1 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | MB | 1202874615 | MB | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30573 | 325480001 | REG | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30574 | 1202873059 | DUP | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30574 | 1202873061 | MS | 0 | 0 | 1 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30577 | 1202873060 | DUP | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30577 | 1202873062 | MS | 0 | 0 | 1 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | LCS | 1202873063 | LCS | 0 | 0 | 1 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | MB | 1202873058 | MB | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CAMO-13-30589 | 325480002 | REG | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CAMO-13-30591 | 1202874599 | DUP | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | LCS | 1202874605 | LCS | 0 | 0 | 1 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | MB | 1202874598 | MB | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CAMO-13-30589 | 325480002 | REG | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CAMO-13-30590 | 1202873040 | DUP | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CAMO-13-30590 | 1202873042 | MS | 0 | 0 | 1 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | LCS | 1202873044 | LCS | 0 | 0 | 1 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | MB | 1202873039 | MB | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | NP027-13-30514 | 1202873041 | DUP | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | NP027-13-30514 | 1202873043 | MS | 0 | 0 | 1 | 0 |
| SM:A2340B | INORGANIC | CAMO-13-30589 | 325480002 | REG | 1 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30589 | 1202874204 | DUP | 17 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30589 | 1202874205 | MS | 0 | 0 | 17 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30589 | 325480002 | REG | 17 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | LCS | 1202874203 | LCS | 0 | 0 | 17 | 0 |
| SW-846:6010B | INORGANIC | MB | 1202874202 | MB | 17 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30589 | 1202874212 | DUP | 11 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30589 | 1202874213 | MS | 0 | 0 | 11 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30589 | 325480002 | REG | 11 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | LCS | 1202874211 | LCS | 0 | 0 | 11 | 0 |
| SW-846:6020 | INORGANIC | MB | 1202874210 | MB | 11 | 0 | 0 | 0 |

Data Validation Report for:

Chain Of Custody No. 2013-823

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| SW-846:6850 | LCMS/MS PERCHLORATE | CAMO-13-30589 | 325480002 | REG | 1 | 0 | 0 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | CAMO-13-30592 | 1202876022 | MS | 0 | 0 | 1 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | CAMO-13-30592 | 1202876023 | MSD | 0 | 0 | 1 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | LCS | 1202876021 | LCS | 0 | 0 | 1 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | MB | 1202876020 | MB | 1 | 0 | 0 | 0 |
| SW-846:8260B | VOC | CAMO-13-30567 | 325480003 | FTB | 80 | 3 | 0 | 0 |
| SW-846:8260B | VOC | CAMO-13-30573 | 325480001 | REG | 80 | 3 | 0 | 0 |
| SW-846:8260B | VOC | LCS | 1202879077 | LCS | 0 | 3 | 70 | 0 |
| SW-846:8260B | VOC | LCS | 1202879078 | LCS | 0 | 3 | 10 | 0 |
| SW-846:8260B | VOC | MB | 1202879074 | MB | 80 | 3 | 0 | 0 |
| SW-846:8270C | SVOC | CAMO-13-30573 | 325480001 | REG | 80 | 6 | 0 | 0 |
| SW-846:8270C | SVOC | LCS | 1202873989 | LCS | 0 | 6 | 76 | 0 |
| SW-846:8270C | SVOC | MB | 1202873988 | MB | 80 | 6 | 0 | 0 |
| SW-846:8270C | SVOC | WST55-13-32015 | 1202873990 | MS | 0 | 6 | 76 | 0 |
| SW-846:8270C | SVOC | WST55-13-32015 | 1202873991 | MSD | 0 | 6 | 76 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | CAMO-13-30573 | 325480001 | REG | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | CAMO-13-30586 | 1202876781 | DUP | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | LCS | 1202876785 | LCS | 0 | 0 | 1 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | MB | 1202876780 | MB | 1 | 0 | 0 | 0 |

**3. Are any analytes missing?**

No.

**4. Were any holding times exceeded?**

No.

**5. Any contaminants in blanks?**

| Field Sample ID | Lab Sample ID | Type Of Blank | Analytical Method | Sample Matrix | Parameter Name | Lab Result | Lab Qualifier | Units | Lab Detection Limit |
|---|---|---|---|---|---|---|---|---|---|
| MB | 1202874202 | METHOD BLANK | SW-846:6010B | W | Potassium | 64.3 | J | ug/L | 150 |
| MB | 1202874202 | METHOD BLANK | SW-846:6010B | W | Strontium | 2.05 | J | ug/L | 5 |
| MB | 1202874615 | METHOD BLANK | EPA:350.1 | W | Ammonia as Nitrogen | 0.0235 | J | mg/L | 0.05 |
| MB | 1202878660 | METHOD BLANK | EPA:245.2 | W | Mercury | -0.074 | J | ug/L | 0.2 |

**Any samples affected by the presence of contaminants in blanks?**

| Field Sample ID | Blank Field Sample ID | Blank Lab Sample ID | Blank Type | Analytical Method | Parameter Name | Units | Blank Result | Sample Result | Lab Qualifier | Detect Limit | Detected |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAMO-13-30589 | MB | 1202878660 | METHOD BLANK | EPA:245.2 | Mercury | ug/L | -0.074 | 0.2 | U | 0.2 | N |
| CAMO-13-30589 | MB | 1202874615 | METHOD BLANK | EPA:350.1 | Ammonia as Nitrogen | mg/L | 0.0235 | 0.0941 | | 0.05 | Y |

**6. Any surrogate recoveries outside the control limits?**

No.

**7. Any MS/MSD recoveries or RPDs outside the control limits?**

Data Validation Report for:

Chain Of Custody No. 2013-823

| Correction Factor (ND) | Correction Factor (J) | Use Factors |
|---|---|---|
| 5 | | Y |
| 5 | | Y |

| Field Sample ID | Matrix Spike ID | Matrix Spike Dup ID | Analytical Method | Parameter Name | Analysis Lot ID | Analysis Date | Sample Matrix | MS % Recvry | MSD % Recvry | Upper Limit | Lower Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAMO-13-30589 | 1202874213 | | SW-846:6020 | Nickel | 1301066 | 6/1/2013 | W | 126 | | 125 | 75 |
| CAMO-13-30589 | 1202874213 | | SW-846:6020 | Nickel | 1301066 | 6/1/2013 | W | 126 | | 125 | 75 |

**8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?**

| LCS Sample ID | LCSD Sample ID | Analytical Method | Parameter Name | Lab Lot ID | Analysis Date | Sample Matrix | LCS Recovery | LCSD Recovery | Upper Limit | Lower Limit | Lower Reject Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1202873989 | | SW-846:8270C | Atrazine | 1300968 | 5/13/2013 | W | 31 | | 115 | 47 | 10 |
| 1202873989 | | SW-846:8270C | Nitrophenol[4-] | 1300968 | 5/13/2013 | W | 9 | | 77 | 16 | 10 |

**9. Any Field Duplicate RPDs outside the desired limits?**

No.

**10. Any Lab Duplicate RPDs outside the desired limits?**

No.

**11. Any required reporting limits exceeded?**

No.

**12. Additional Validator's Coments.**

None.

**13. Display Flagged Data.**

| Location ID | Chain Of Custody No | Field Sample ID | Sample Purpose | Analysis Type Code | Analytical Suite | Analytical Method | Parameter Name | Lab Qualifier | Validation Qualifier | Validation Reason Codes | Detected |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MCOI-6 | 2013-823 | CAMO-13-30573 | REG | INIT | SVOC | SW-846:8270C | Atrazine | U | UJ | SV12a | N |
| MCOI-6 | 2013-823 | CAMO-13-30573 | REG | INIT | SVOC | SW-846:8270C | Nitrophenol[4-] | U | R | SV12 | N |
| MCOI-6 | 2013-823 | CAMO-13-30589 | REG | INIT | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | | U | I4 | N |
| MCOI-6 | 2013-823 | CAMO-13-30589 | REG | INIT | INORGANIC | SW-846:6020 | Nickel | N | J+ | I6b | Y |

| Reason Code | Description |
|---|---|
| I4 | the sample result is =<5x the concentration of related analyte in the method blank. |
| I6b | The associated matrix spike recovery was above the Upper Acceptance Limit (UAL). Follow the external laboratory limits located within the associated data package. |
| J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL |
| NQ | The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample. |
| SV12 | The LCS percent recovery was <10%. Follow the external laboratory limits located within the associated data package. |
| SV12a | The LCS percent recovery was < the LAL but >10%. Follow the external laboratory limits located within the associated data package. |
| U_LAB | The analytical laboratory qualified the analyte as not detected. |

**14. Useable Result Count.**

| Field Sample ID | Location ID | Sample Purpose | Analytical Method | No. Unuseable Records | Total No. Of Records |
|---|---|---|---|---|---|

Data Validation Report for:

Chain Of Custody No. 2013-823

| Rejection Limit | RPD | RPD Limit |
|---|---|---|
| 10 | | |
| 10 | | |

| Upper Reject Limit | RPD | RPD Limit |
|---|---|---|
| | | |
| | | |

| Lab Result | Lab Units | Report Result | Report Units | Report MDA | Report Uncertainty | Lab Matrix | Sample Date | Percent Moisture | Analysis Lot ID | Validation Status Code | Use Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10.5 | ug/L | 10.5 | ug/L | | | W | 5/8/2013 | | 1300969 | VAL | Y |
| 10.5 | ug/L | 10.5 | ug/L | | | W | 5/8/2013 | | 1300969 | VAL | Y |
| 0.0941 | mg/L | 0.0941 | mg/L | | | W | 5/8/2013 | | 1301250 | VAL | Y |
| 41.3 | ug/L | 41.3 | ug/L | | | W | 5/8/2013 | | 1301067 | VAL | Y |

| | | | | | |
|---|---|---|---|---|---|
| CAMO-13-30567 | MCOI-6 | FTB | SW-846:8260B | 0 | 80 |
| CAMO-13-30573 | MCOI-6 | REG | EPA:351.2 | 0 | 1 |
| CAMO-13-30573 | MCOI-6 | REG | SW-846:8260B | 0 | 80 |
| CAMO-13-30573 | MCOI-6 | REG | SW-846:8270C | 0 | 80 |
| CAMO-13-30573 | MCOI-6 | REG | SW-846:9060 | 0 | 1 |
| CAMO-13-30589 | MCOI-6 | REG | EPA:120.1 | 0 | 1 |
| CAMO-13-30589 | MCOI-6 | REG | EPA:150.1 | 0 | 1 |
| CAMO-13-30589 | MCOI-6 | REG | EPA:160.1 | 0 | 1 |
| CAMO-13-30589 | MCOI-6 | REG | EPA:245.2 | 0 | 1 |
| CAMO-13-30589 | MCOI-6 | REG | EPA:300.0 | 0 | 4 |
| CAMO-13-30589 | MCOI-6 | REG | EPA:310.1 | 0 | 2 |
| CAMO-13-30589 | MCOI-6 | REG | EPA:350.1 | 0 | 1 |
| CAMO-13-30589 | MCOI-6 | REG | EPA:353.2 | 0 | 1 |
| CAMO-13-30589 | MCOI-6 | REG | EPA:365.4 | 0 | 1 |
| CAMO-13-30589 | MCOI-6 | REG | SM:A2340B | 0 | 1 |
| CAMO-13-30589 | MCOI-6 | REG | SW-846:6010B | 0 | 17 |
| CAMO-13-30589 | MCOI-6 | REG | SW-846:6020 | 0 | 11 |
| CAMO-13-30589 | MCOI-6 | REG | SW-846:6850 | 0 | 1 |

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178
www.gel.com

June 06, 2013

Keith Greene
Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Re: LANL-WQH Water Samples
Work Order: 325480
SDG: 2013-823

Dear Keith Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on May 10, 2013, and analyzed for GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals and Perchlorates by LCMSMS. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,

Joanne Harley for
Valerie Davis
Project Manager

Purchase Order: 63641-10
Chain of Custody: 2013-823
Enclosures

**ARS International (63641-10)**
**LANL-WQH Water Samples**
**Work Order #: 325480**
**SDG: 2013-823**

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# Case Narrative

**Case Narrative for**
**ARS International (63641-10)**
**LANL-WQH Water Samples**
**Workorder #: 325480**
**SDG # : 2013-823**

**June 06, 2013**

**Laboratory Identification:**

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

**Summary**

**Sample receipt** The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on May 10, 2013 for analysis. Please see attached email for discrepancies. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. Containers were checked for pH, where appropriate, and matched the preservative as documented on the accompanying chain of custody. Shipping container temperature was within specification (0 - 6C). Shipping container temperatures were checked, documented, and within specifications. There are no additional comments concerning sample receipt.

**Sample Identification** The laboratory received the following samples:

| Laboratory ID | Client ID |
|---|---|
| 325480001 | CAMO-13-30573 |
| 325480002 | CAMO-13-30589 |
| 325480003 | CAMO-13-30567 |

**Case Narrative**

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

**Data Package**

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals and Perchlorates by LCMSMS.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.

Joanne Harley for
Valerie Davis
Project Manager

**List of current GEL Certifications as of 06 June 2013**

| State | Certification |
|---|---|
| Alaska | UST−110 |
| Arkansas | 88−0651 |
| CLIA | 42D0904046 |
| California NELAP | 01151CA |
| Colorado | SC00012 |
| Connecticut | PH−0169 |
| Delaware | SC00012 |
| DoD ELAP A2LA ISO 17025 | 2567.01 |
| Florida NELAP | E87156 |
| Foreign Soils Permit | P330−12−00283, P330−12−00284 |
| Georgia | SC00012 |
| Georgia SDWA | 967 |
| Hawaii | SC00012 |
| Idaho | SC00012 |
| Illinois NELAP | 200029 |
| Indiana | C−SC−01 |
| Kansas NELAP | E−10332 |
| Kentucky | 90129 |
| Louisiana NELAP | 03046 (AI33904) |
| Louisiana SDWA | LA130005 |
| Maryland | 270 |
| Massachusetts | M−SC012 |
| Nevada | SC000122011−1 |
| New Hampshire NELAP | 2054 |
| New Jersey NELAP | SC002 |
| New Mexico | SC00012 |
| New York NELAP | 11501 |
| North Carolina | 233 |
| North Carolina SDWA | 45709 |
| Oklahoma | 9904 |
| Pennsylvania NELAP | 68−00485 |
| Plant Material Permit | PDEP−12−00260 |
| South Carolina Chemistry | 10120001 |
| South Carolina Radiochemi | 10120002 |
| Tennessee | TN 02934 |
| Texas NELAP | T104704235−13−8 |
| Utah NELAP | SC000122013−8 |
| Vermont | VT87156 |
| Virginia NELAP | 460202 |
| Washington | C780−12 |
| Wisconsin | 999887790 |

# Chain of Custody and Supporting Documentation

General Engineering Laboratories, Inc., Charleston, SC.
2040 Savage Rd
Charleston SC 29407

# Chain of Custody/Analysis Request

325480

COC/Lab Request #: 2013-823

Page 1 of 1

Client Contact:

Lab Agreement # : 126310011

Project Number :

Analysis Turnaround Time:
24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | WSP-8260B-VOA | WSP-8270C-SVOA | WSP-CL04 | WSP-GENINORG | WSP-Met+B+SN+SR+U | WSP-NH3+NO3/NO2+PO4 | WSP-TKN+TOC |
|---|---|---|---|---|---|---|---|---|---|---|
| CAMO-13-30573 | May 8 2013 | 12:13 | W | 2 | 3 | | | | | 1 |
| CAMO-13-30589 | May 8 2013 | 12:13 | W | | | 1 | 1 | 1 | 1 | |
| CAMO-13-30567 | May 8 2013 | 12:13 | W | 2 | | | | | | |

Special Instructions:

Special Instructions:

| | | | | |
|---|---|---|---|---|
| Relinquished by: Melissa Montoya | | Date/Time: 5/9/13 3:00 | Received by: P. Nlent | 5-10-13 09:00 |
| Relinquished by: | | Date/Time: | Received by: | |
| Relinquished by: | | Date/Time: | Received by: | |

GEL Laboratories LLC

# SAMPLE RECEIPT & REVIEW FORM

| | |
|---|---|
| **Client: LANL** | **SDG/AR/COC/Work Order: 2013-823** |
| **Received By: Patricia Dent** | **Date Received: May 10, 2013** |

| **Suspected Hazard Information** | **Yes** | **No** | *If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation. |
|---|---|---|---|
| COC/Samples marked as radioactive? | | X | Maximum Net Counts Observed* (Observed Counts - Area Background Counts): **0 CPM** |
| Classified Radioactive II or III by RSO? | | X | If yes, Were swipes taken of sample contatiners < action levels? |
| COC/Samples marked containing PCBs? | | X | |
| Package, COC, and/or Samples marked as beryllium or asbestos containing? | | X | If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group. |
| Shipped as a DOT Hazardous? | | X | Hazard Class Shipped: UN#: |
| Samples identified as Foreign Soil? | | X | |

| | **Sample Receipt Criteria** | **Yes** | **NA** | **No** | **Comments/Qualifiers (Required for Non-Conforming Items)** |
|---|---|---|---|---|---|
| 1 | Shipping containers received intact and sealed? | X | | | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 2 | Samples requiring cold preservation within (0 ≤ 6 deg. C)?* | X | | | Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius **3,4C** |
| 2a | Daily check performed and passed on IR temperature gun? | X | | | Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable):**61524649** |
| 3 | Chain of custody documents included with shipment? | X | | | |
| 4 | Sample containers intact and sealed? | X | | | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 5 | Samples requiring chemical preservation at proper pH? | X | | | Sample ID's, containers affected and observed Ph If Preservation added, Lot# |
| 6 | VOA vials free of headspace (defined as < 6mm bubble)? | X | | | Sample ID's and containers affected: |
| 7 | Are Encore containers present? | | | X | (If yes, immediately deliver to Volatiles laboratory) |
| 8 | Samples received within holding time? | X | | | ID's and tests affected: |
| 9 | Sample ID's on COC match ID's on bottles? | X | | | Sample ID's and containers affected: |
| 10 | Date & time on COC match date & time on bottles? | X | | | Sample ID's affected: |
| 11 | Number of containers received match number indicated on COC? | | | X | Sample ID's affected:**CAMO-13-30573, the lab rec'd 1 8270C contr. chain indicates 3. CAMO-13-30567 for 8260b the lab rec'd 1 contr. chain indicates 2** |
| 12 | Are sample containers identifiable as GEL provided? | | | X | **Client** |
| 13 | COC form is properly signed in relinquished/received sections? | X | | | |
| 14 | Carrier and tracking number. | X | | | Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other **5462 9832 9980 4C 5462 9833 0001 3C 5462 9832 9990 4C** |

JP 5-13-13

**Subject:** Re: Today's Issues 05/10/13
**From:** Pat Dent <Pat.Dent@gel.com>
**Date:** 5/10/2013 4:09 PM
**To:** "Keith R. Greene" <kgreene@lanl.gov>
**CC:** "team.davis" <team.davis@gel.com>, LANL@amrad.com

Containers received for Gross A/B was preserved prior to analysis

Patricia Dent
Project Manager Assistant
GEL Laboratories, LLC
2040 Savage Rd.
Charleston, S.C. 29407
Main: 843-556-8171 Ext 4264
Fax: 843-766-1178
Email: pad@gel.com
Web: www.gel.com

On 5/10/2013 3:48 PM, Pat Dent wrote:

> Good afternoon all listed below are today's issues
>
> RN#2013-822
> CAMO-13-30570 for 8260b the lab received 1container chain indicates 2.
> CAMO-13-30562, 30560, 30586 for 8270C-SVOA the lab received 1 container each chain indicates 3 each.
>
> RN#2013-823
> CAMO-13-30567 for 8260b the lab received 1 container chain indicates 2
> CAMO-13-30573 for 8270C-SVOA the lab received 1 container chain indicates 3.
>
> Thanks!!

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 09MAY13
ACTWGT: 46.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWKO

4C

5BDC1/9981/10BC

FedEx Express

J1113110606G0125

1 of 3

TRK# 0201 5462 9832 9980

FRI - 10 MAY 10:30A
PRIORITY OVERNIGHT

## MASTER ##

XX CHSA 4C

29407
SC-US CHS

Part # 156148-434 RITS 08/10 ©

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 09MAY13
ACTWGT: 40.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWKO

3E

50DC1/9983/10BC

FedEx Express

J111311060125

3 of 3
MPS# 0263 5462 9833 0001
Mstr# 5462 9832 9980

FRI - 10 MAY 10:30A
PRIORITY OVERNIGHT

0201

XX CHSA 3C

29407
SC-US CHS

Part # 1561148-434 RITZ 08/10

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 09MAY13
ACTWGT: 53.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWKO

50DC1/9983/10BC

FedEx Express

J111311060125

2 of 3
MPS# 0263 5462 9832 9990
Mstr# 5462 9832 9980

FRI - 10 MAY 10:30A
PRIORITY OVERNIGHT

0201

XX CHSA 4C

29407
SC-US CHS

Part # 1561148-434 RITZ 08/10

# Data Review Qualifier Flag Definition Sheet

## Data Review Qualifier Definitions

| Qualifier | Explanation |
|---|---|
| * | A quality control analyte recovery is outside of specified acceptance criteria |
| ** | Analyte is a surrogate compound |
| < | Result is less than value reported |
| > | Result is greater than value reported |
| ^ | RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL |
| A | The TIC is a suspected aldol-condensation product |
| B | Target analyte was detected in the associated blank |
| B | Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL |
| BD | Results are either below the MDC or tracer recovery is low |
| C | Analyte has been confirmed by GC/MS analysis |
| D | Results are reported from a diluted aliquot of the sample |
| d | 5-day BOD-The 2:1 depletion requirement was not met for this sample |
| E | Organics-Concentration of the target analyte exceeds the instrument calibration range |
| E | Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria |
| H | Analytical holding time was exceeded |
| h | Preparation or preservation holding time was exceeded |
| J | Value is estimated |
| N | Metals-The Matrix spike sample recovery is not within specified control limits |
| N | Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N/A | Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more |
| ND | Analyte concentration is not detected above the reporting limit |
| UI | Gamma Spectroscopy-Uncertain identification |
| X | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| Y | QC Samples were not spiked with this compound |
| Z | Paint Filter Test-Particulates passed through the filter, however no free liquids were observed. |

# Volatile Analysis

# Case Narrative

**ChemStation Case Narrative**
**ARS International (ARSL)**
**SDG 2013-823**

## Method/Analysis Information

| | |
|---|---|
| **Procedure:** | **Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer** |
| Analytical Method: | SW846 8260B DOE-AL |
| Analytical Batch Number: | 1302977 |

## Sample Analysis

The following client and quality control samples were analyzed to complete this SDG using the methods referenced in the Analysis Information section:

| Sample ID | Client ID |
|---|---|
| 325480001 | CAMO-13-30573 |
| 325480003 | CAMO-13-30567 |
| 1202879074 | Method Blank (MB) |
| 1202879075 | 325479001(CAMO-13-30586) Post Spike (PS) |
| 1202879076 | 325479001(CAMO-13-30586) Post Spike Duplicate (PSD) |
| 1202879077 | Laboratory Control Sample (LCS) |
| 1202879078 | Laboratory Control Sample (LCS) |

NOTE: For volatile organic analyses the matrix spike designations may be indicated as "PS" or "PSD". The "PS" designation (post spike) indicates that the matrix was fortified prior to analysis but after applying any prep factors, such as a dilution. The laboratory considers the MS/MSD and PS/PSD designations interchangeable.

The samples in this SDG were analyzed on an "as received" basis.

## Preparation/Analytical Method Verification

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-038 REV# 19.

Raw data reports are processed and reviewed by the analyst using the Chemstation software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP) section 19.1.2. False positive analytes are designated on the quantitation report with a ’d’ qualifier.

## Calibration Information

A complete list of the initial calibration data files with the correct dates and times of analysis are shown in the Calibration History report located in the Standard Data section of the data package.

The surrogate compounds were calibrated using a minimum five-point calibration curve. The surrogates were

added by the auto sampler at a concentration of 50 ug/L or 20 ug/L for low level analyses. GEL Laboratories LLC will not have surrogate recoveries reported for Dibromofluoromethane. This is due to increased regulations for this analyte and an industry shortage.

**Initial Calibration**
All initial calibration requirements have been met for this sample delivery group (SDG).

**Continuing Calibration Verification Requirements**
All associated calibration verification standard(s) (CCV) met the acceptance criteria.

**Quality Control (QC) Information**

**Blank (MB) Statement**
The blank analyzed with this SDG met the acceptance criteria.

**Surrogate Recoveries**
Surrogate recoveries in all client and quality control samples were within the acceptance limits.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recoveries met the acceptance limits.

**QC Sample Designation**
Sample 325479001 (CAMO-13-30586) was designated for spike analysis.

**Matrix Spike (PS) Recovery Statement**
The spike recoveries were within the required acceptance limits.

**Matrix Spike Duplicate (PSD) Recovery Statement**
The spike duplicate recoveries were within the required acceptance limits.

**Relative Percent Difference (RPD) Statement**
The RPDs between the matrix spike pair met the acceptance limits.

**Internal Standard (ISTD) Acceptance**
The internal standard responses in all client and quality control samples met the required acceptance criteria.

**Technical Information**

**Holding Time Specifications**
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection or sample receipt. Those holding times expressed in hours are calculated in the ALPHALIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

**Sample Preservation and Integrity**
All samples met the sample preservation and integrity requirements.

**Sample Dilutions/Methanol Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-extraction/Re-analysis**
Re-analyses were not required for samples in this SDG.

**Miscellaneous Information**

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Manual Integrations**
Data files associated with the initial calibration, continuing calibration check, and samples did not require manual integrations.

**TIC Comment**
Tentatively identified compounds (TIC) may be requested for this sample delivery group/work order. Please note that non-requested target analytes that are reported on the quantitation reports will be present on the Form I. These detected analytes are included in the calibrated method and as a result will be reported on the Sample Data Summary (Form I) or Certificate of Analysis (C of A). TIC data, if requested, are included on the Sample Data Summary (Form I) and are also included with the sample raw data.

**Additional Comments**
Additional comments were not required for this SDG.

**Residual Chlorine**
Residual Chlorine was not detected in any of the samples in this SDG.

**System Configuration**

The Volatile-GC/MS analysis was performed on the following instrument configuration:

| Instrument ID | Instrument | System Configuration | Column ID | Column Description | P & T Trap |
|---|---|---|---|---|---|
| VOA4.I | Agilent 6890/5973 GC/MS w/ OI 4560/Archon Autosampler | HP6890/HP5973 | DB-624 | J&W, 60m x 0.25mm x 1.4um | Trap 10 |

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-823  GEL Work Order: 325480

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

**  Analyte is a surrogate compound

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL  Indicates that sample is diluted.
RA  Indicates that sample is re-analyzed without re-extraction.
RE  Indicates that sample is re-extracted.

**Review/Validation**

GEL requires all analytical data to be verified by a qualified data reviewer.  In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

**Signature:** Erin Haubert  **Name:** **Erin Haubert**

**Date:** **05 JUN 2013**  **Title:** **Data Validator**

# Sample Data Summary

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-823** | **Date Collected:** | **05/08/2013 12:13** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325480001** | **Date Received:** | **05/10/2013 09:05** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30573** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 17:47** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 17:47** | | | | |
| **Data File:** | **052013V4\4L115.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 75-71-8 | Dichlorodifluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-01-4 | Vinyl chloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-83-9 | Bromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-64-1 | Acetone | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | U | 25.0 | ug/L | 8.00 | 25.0 |
| 75-35-4 | 1,1-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-15-0 | Carbon disulfide | U | 5.00 | ug/L | 1.50 | 5.00 |
| 1634-04-4 | tert-Butyl methyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-05-4 | Vinyl acetate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-34-3 | 1,1-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | U | 5.00 | ug/L | 2.00 | 5.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-36-3 | n-Butyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 56-23-5 | Carbon tetrachloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-43-2 | Benzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | U | 5.00 | ug/L | 2.20 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-823** | **Date Collected:** | **05/08/2013 12:13** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325480001** | **Date Received:** | **05/10/2013 09:05** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30573** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 17:47** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 17:47** | | | | |
| **Data File:** | **052013V4\4L115.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 142-28-9 | 1,3-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-41-4 | Ethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | U | 2.00 | ug/L | 0.300 | 2.00 |
| 95-47-6 | o-Xylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-42-5 | Styrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-82-8 | Isopropylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-43-4 | 4-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 104-51-8 | n-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.400 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-823** | **Date Collected:** | **05/08/2013 12:13** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325480001** | **Date Received:** | **05/10/2013 09:05** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30573** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 17:47** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 17:47** | | | | |
| **Data File:** | **052013V4\4L115.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 46.3 | 50.0 | ug/L | 92.6 | (78%-124%) |
| Bromofluorobenzene | 49.3 | 50.0 | ug/L | 98.6 | (80%-120%) |
| Toluene-d8 | 51.0 | 50.0 | ug/L | 102 | (80%-120%) |

**Tentatively Identified Compound Summary**

| CAS No. | Tentatively Identified Compound (TIC) | RT | Estimated | Units | Fit | Qual |
|---|---|---|---|---|---|---|
| | unknown hydrocarbon | 4.56 | 32.3 | ug/L | 0 | J |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-823** | **Date Collected:** | **05/08/2013 12:13** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325480003** | **Date Received:** | **05/10/2013 09:05** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30567** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 18:14** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 18:14** | | | | |
| **Data File:** | **052013V4\4L116.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 75-71-8 | Dichlorodifluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-01-4 | Vinyl chloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-83-9 | Bromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-64-1 | Acetone | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | U | 25.0 | ug/L | 8.00 | 25.0 |
| 75-35-4 | 1,1-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-15-0 | Carbon disulfide | U | 5.00 | ug/L | 1.50 | 5.00 |
| 1634-04-4 | tert-Butyl methyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-05-4 | Vinyl acetate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-34-3 | 1,1-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | U | 5.00 | ug/L | 2.00 | 5.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-36-3 | n-Butyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 56-23-5 | Carbon tetrachloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-43-2 | Benzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | U | 5.00 | ug/L | 2.20 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-823** | **Date Collected:** | **05/08/2013 12:13** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325480003** | **Date Received:** | **05/10/2013 09:05** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30567** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 18:14** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 18:14** | | | | |
| **Data File:** | **052013V4\4L116.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 142-28-9 | 1,3-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-41-4 | Ethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | U | 2.00 | ug/L | 0.300 | 2.00 |
| 95-47-6 | o-Xylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-42-5 | Styrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-82-8 | Isopropylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-43-4 | 4-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 104-51-8 | n-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.400 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-823** | **Date Collected:** | **05/08/2013 12:13** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325480003** | **Date Received:** | **05/10/2013 09:05** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30567** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 18:14** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 18:14** | | | | |
| **Data File:** | **052013V4\4L116.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 47.2 | 50.0 | ug/L | 94.4 | (78%-124%) |
| Bromofluorobenzene | 49.9 | 50.0 | ug/L | 99.7 | (80%-120%) |
| Toluene-d8 | 51.4 | 50.0 | ug/L | 103 | (80%-120%) |

**Tentatively Identified Compound Summary**

| CAS No. | Tentatively Identified Compound (TIC) | RT | Estimated | Units | Fit | Qual |
|---|---|---|---|---|---|---|
| | unknown hydrocarbon | 4.482 | 14.1 | ug/L | 0 | J |

# Quality Control Summary

**Volatile**

## Surrogate Recovery Report

**SDG Number: 2013-823**

**Matrix Type: LIQUID**

| Sample ID | Client ID | DCED4 %REC | TOL %REC | BFB %REC |
|---|---|---|---|---|
| 1202879077 | LCS for batch 1302977 | 93 | 102 | 92 |
| 1202879078 | LCS for batch 1302977 | 95 | 102 | 102 |
| 1202879074 | MB for batch 1302977 | 95 | 102 | 97 |
| 325480001 | CAMO-13-30573 | 93 | 102 | 99 |
| 325480003 | CAMO-13-30567 | 94 | 103 | 100 |
| 1202879075 | CAMO-13-30586PS | 92 | 100 | 93 |
| 1202879076 | CAMO-13-30586PSD | 94 | 100 | 94 |

| Surrogate | | | Acceptance Limits |
|---|---|---|---|
| DCED4 | = | 1,2-Dichloroethane-d4 | (78%-124%) |
| TOL | = | Toluene-d8 | (80%-120%) |
| BFB | = | Bromofluorobenzene | (80%-120%) |

* Recovery outside Acceptance Limits
\# Column to be used to flag recovery values
D Sample Diluted

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-823** **Sample Type:** **Post Spike**
**Client ID:** **CAMO-13-30586PS** **Matrix:** **W**
**Lab Sample ID:** **1202879075**
**Instrument:** **VOA4.I** **Analysis Date:** **05/20/2013 22:00** **Dilution: 1**
**Analyst:** **ACJ**
**Purge Vol:** **5 mL** **Batch ID:** **1302977**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 179601-23-1 | PS | m,p-Xylenes | 100 | 0.00 | U | 98.4 | 98 | 56-134 |
| 75-05-8 | PS | Acetonitrile | 1250 | 0.00 | U | 1410 | 113 | 60-133 |
| 67-64-1 | PS | Acetone | 250 | 0.00 | U | 133 | 53 | 30-143 |
| 74-88-4 | PS | Iodomethane | 250 | 0.00 | U | 240 | 96 | 69-147 |
| 75-15-0 | PS | Carbon disulfide | 250 | 0.00 | U | 284 | 113 | 65-153 |
| 108-05-4 | PS | Vinyl acetate | 250 | 0.00 | U | 241 | 97 | 50-143 |
| 78-93-3 | PS | 2-Butanone | 250 | 0.00 | U | 201 | 80 | 30-140 |
| 108-10-1 | PS | 4-Methyl-2-pentanone | 250 | 0.00 | U | 268 | 107 | 68-136 |
| 591-78-6 | PS | 2-Hexanone | 250 | 0.00 | U | 243 | 97 | 31-132 |
| 75-71-8 | PS | Dichlorodifluoromethane | 50.0 | 0.00 | U | 46.0 | 92 | 36-123 |
| 74-87-3 | PS | Chloromethane | 50.0 | 0.00 | U | 49.3 | 99 | 47-134 |
| 75-01-4 | PS | Vinyl chloride | 50.0 | 0.00 | U | 47.4 | 95 | 49-129 |
| 74-83-9 | PS | Bromomethane | 50.0 | 0.00 | U | 53.7 | 107 | 56-127 |
| 75-00-3 | PS | Chloroethane | 50.0 | 0.00 | U | 48.6 | 97 | 67-122 |
| 75-69-4 | PS | Trichlorofluoromethane | 50.0 | 0.00 | U | 45.1 | 90 | 60-123 |
| 60-29-7 | PS | Ethyl ether | 50.0 | 0.00 | U | 44.0 | 88 | 69-121 |
| 75-35-4 | PS | 1,1-Dichloroethylene | 50.0 | 0.00 | U | 50.9 | 102 | 67-132 |
| 75-09-2 | PS | Methylene chloride | 50.0 | 0.00 | U | 49.4 | 99 | 56-135 |
| 1634-04-4 | PS | tert-Butyl methyl ether | 50.0 | 0.00 | U | 46.5 | 93 | 73-126 |
| 156-60-5 | PS | trans-1,2-Dichloroethylene | 50.0 | 0.00 | U | 50.6 | 101 | 69-128 |
| 75-34-3 | PS | 1,1-Dichloroethane | 50.0 | 0.00 | U | 50.3 | 101 | 75-124 |
| 156-59-2 | PS | cis-1,2-Dichloroethylene | 50.0 | 0.00 | U | 51.5 | 103 | 52-147 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-823** **Sample Type:** **Post Spike**
**Client ID:** **CAMO-13-30586PS** **Matrix:** **W**
**Lab Sample ID:** **1202879075**
**Instrument:** **VOA4.I** **Analysis Date:** **05/20/2013 22:00** **Dilution: 1**
**Analyst:** **ACJ**
**Purge Vol:** **5 mL** **Batch ID:** **1302977**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 594-20-7 | PS | 2,2-Dichloropropane | 50.0 | 0.00 | U | 47.0 | 94 | 67-143 |
| 67-66-3 | PS | Chloroform | 50.0 | 0.00 | U | 49.7 | 99 | 75-125 |
| 74-97-5 | PS | Bromochloromethane | 50.0 | 0.00 | U | 49.9 | 100 | 80-120 |
| 71-55-6 | PS | 1,1,1-Trichloroethane | 50.0 | 0.00 | U | 49.6 | 99 | 69-140 |
| 563-58-6 | PS | 1,1-Dichloropropene | 50.0 | 0.00 | U | 50.7 | 101 | 71-130 |
| 56-23-5 | PS | Carbon tetrachloride | 50.0 | 0.00 | U | 48.6 | 97 | 69-142 |
| 107-06-2 | PS | 1,2-Dichloroethane | 50.0 | 0.00 | U | 46.8 | 94 | 72-126 |
| 71-43-2 | PS | Benzene | 50.0 | 0.00 | U | 50.2 | 100 | 73-119 |
| 79-01-6 | PS | Trichloroethylene | 50.0 | 0.00 | U | 49.0 | 98 | 54-147 |
| 78-87-5 | PS | 1,2-Dichloropropane | 50.0 | 0.00 | U | 48.4 | 97 | 78-123 |
| 75-27-4 | PS | Bromodichloromethane | 50.0 | 0.00 | U | 48.5 | 97 | 76-131 |
| 74-95-3 | PS | Dibromomethane | 50.0 | 0.00 | U | 49.2 | 98 | 79-120 |
| 10061-01-5 | PS | cis-1,3-Dichloropropylene | 50.0 | 0.00 | U | 48.5 | 97 | 72-134 |
| 108-88-3 | PS | Toluene | 50.0 | 0.00 | U | 49.4 | 99 | 62-126 |
| 10061-02-6 | PS | trans-1,3-Dichloropropylene | 50.0 | 0.00 | U | 47.8 | 96 | 72-133 |
| 79-00-5 | PS | 1,1,2-Trichloroethane | 50.0 | 0.00 | U | 49.9 | 100 | 74-120 |
| 142-28-9 | PS | 1,3-Dichloropropane | 50.0 | 0.00 | U | 49.5 | 99 | 73-121 |
| 127-18-4 | PS | Tetrachloroethylene | 50.0 | 0.00 | U | 47.3 | 95 | 54-139 |
| 124-48-1 | PS | Dibromochloromethane | 50.0 | 0.00 | U | 51.4 | 103 | 74-128 |
| 106-93-4 | PS | 1,2-Dibromoethane | 50.0 | 0.00 | U | 50.3 | 101 | 80-120 |
| 108-90-7 | PS | Chlorobenzene | 50.0 | 0.00 | U | 48.3 | 97 | 73-119 |
| 100-41-4 | PS | Ethylbenzene | 50.0 | 0.00 | U | 48.7 | 97 | 66-125 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-823** **Sample Type:** **Post Spike**
**Client ID:** **CAMO-13-30586PS** **Matrix:** **W**
**Lab Sample ID:** **1202879075**
**Instrument:** **VOA4.I** **Analysis Date:** **05/20/2013 22:00** **Dilution: 1**
**Analyst:** **ACJ**
**Purge Vol:** **5 mL** **Batch ID:** **1302977**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 95-47-6 | PS | o-Xylene | 50.0 | 0.00 | U | 49.0 | 98 | 68-126 |
| 100-42-5 | PS | Styrene | 50.0 | 0.00 | U | 50.9 | 102 | 57-138 |
| 75-25-2 | PS | Bromoform | 50.0 | 0.00 | U | 49.4 | 99 | 66-129 |
| 79-34-5 | PS | 1,1,2,2-Tetrachloroethane | 50.0 | 0.00 | U | 49.9 | 100 | 44-146 |
| 96-18-4 | PS | 1,2,3-Trichloropropane | 50.0 | 0.00 | U | 48.2 | 96 | 68-129 |
| 108-86-1 | PS | Bromobenzene | 50.0 | 0.00 | U | 46.1 | 92 | 70-122 |
| 103-65-1 | PS | n-Propylbenzene | 50.0 | 0.00 | U | 46.8 | 94 | 61-131 |
| 95-49-8 | PS | 2-Chlorotoluene | 50.0 | 0.00 | U | 46.7 | 93 | 66-126 |
| 98-82-8 | PS | Isopropylbenzene | 50.0 | 0.00 | U | 47.7 | 95 | 65-130 |
| 108-67-8 | PS | 1,3,5-Trimethylbenzene | 50.0 | 0.00 | U | 48.4 | 97 | 58-134 |
| 106-43-4 | PS | 4-Chlorotoluene | 50.0 | 0.00 | U | 46.6 | 93 | 63-125 |
| 98-06-6 | PS | tert-Butylbenzene | 50.0 | 0.00 | U | 46.8 | 94 | 66-129 |
| 95-63-6 | PS | 1,2,4-Trimethylbenzene | 50.0 | 0.00 | U | 48.0 | 96 | 60-131 |
| 135-98-8 | PS | sec-Butylbenzene | 50.0 | 0.00 | U | 49.4 | 99 | 62-130 |
| 99-87-6 | PS | 4-Isopropyltoluene | 50.0 | 0.00 | U | 48.0 | 96 | 62-132 |
| 541-73-1 | PS | 1,3-Dichlorobenzene | 50.0 | 0.00 | U | 46.9 | 94 | 66-121 |
| 106-46-7 | PS | 1,4-Dichlorobenzene | 50.0 | 0.00 | U | 46.5 | 93 | 65-119 |
| 104-51-8 | PS | n-Butylbenzene | 50.0 | 0.00 | U | 49.4 | 99 | 55-134 |
| 96-12-8 | PS | 1,2-Dibromo-3-chloropropane | 50.0 | 0.00 | U | 46.7 | 93 | 58-137 |
| 87-68-3 | PS | Hexachlorobutadiene | 50.0 | 0.00 | U | 43.4 | 87 | 49-139 |
| 91-20-3 | PS | Naphthalene | 50.0 | 0.00 | U | 43.8 | 88 | 46-145 |
| 87-61-6 | PS | 1,2,3-Trichlorobenzene | 50.0 | 0.00 | U | 40.5 | 81 | 54-134 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-823**
**Sample Type:** **Post Spike**
**Client ID:** **CAMO-13-30586PS**
**Matrix:** **W**
**Lab Sample ID:** **1202879075**
**Instrument:** **VOA4.I**
**Analysis Date:** **05/20/2013 22:00**
**Dilution: 1**
**Analyst:** **ACJ**
**Purge Vol:** **5 mL**
**Batch ID:** **1302977**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 120-82-1 | PS | 1,2,4-Trichlorobenzene | 50.0 | 0.00 | U | 41.0 | 82 | 55-128 |
| 630-20-6 | PS | 1,1,1,2-Tetrachloroethane | 50.0 | 0.00 | U | 49.8 | 100 | 79-128 |
| 95-50-1 | PS | 1,2-Dichlorobenzene | 50.0 | 0.00 | U | 47.0 | 94 | 68-121 |
| 71-36-3 | PS | n-Butyl alcohol | 5000 | 0.00 | U | 5390 | 108 | 53-150 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-823** **Sample Type:** **Post Spike Duplicate**

**Client ID:** **CAMO-13-30586PSD** **Matrix:** **W**

**Lab Sample ID:** **1202879076**

**Instrument:** **VOA4.I** **Analysis Date:** **05/20/2013 22:28** **Dilution: 1**

**Analyst:** **ACJ**

**Purge Vol:** **5 mL** **Batch ID:** **1302977**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 179601-23-1 | PSD | m,p-Xylenes | 100 | 0.00 | U | 96.2 | 96 | 56-134 | 2 | 0-20 |
| 75-05-8 | PSD | Acetonitrile | 1250 | 0.00 | U | 1360 | 109 | 60-133 | 4 | 0-20 |
| 67-64-1 | PSD | Acetone | 250 | 0.00 | U | 129 | 51 | 30-143 | 3 | 0-20 |
| 74-88-4 | PSD | Iodomethane | 250 | 0.00 | U | 233 | 93 | 69-147 | 3 | 0-20 |
| 75-15-0 | PSD | Carbon disulfide | 250 | 0.00 | U | 276 | 110 | 65-153 | 3 | 0-20 |
| 108-05-4 | PSD | Vinyl acetate | 250 | 0.00 | U | 237 | 95 | 50-143 | 2 | 0-20 |
| 78-93-3 | PSD | 2-Butanone | 250 | 0.00 | U | 194 | 77 | 30-140 | 4 | 0-20 |
| 108-10-1 | PSD | 4-Methyl-2-pentanone | 250 | 0.00 | U | 256 | 102 | 68-136 | 5 | 0-20 |
| 591-78-6 | PSD | 2-Hexanone | 250 | 0.00 | U | 232 | 93 | 31-132 | 5 | 0-20 |
| 75-71-8 | PSD | Dichlorodifluoromethane | 50.0 | 0.00 | U | 45.1 | 90 | 36-123 | 2 | 0-20 |
| 74-87-3 | PSD | Chloromethane | 50.0 | 0.00 | U | 48.0 | 96 | 47-134 | 3 | 0-20 |
| 75-01-4 | PSD | Vinyl chloride | 50.0 | 0.00 | U | 46.1 | 92 | 49-129 | 3 | 0-20 |
| 74-83-9 | PSD | Bromomethane | 50.0 | 0.00 | U | 53.1 | 106 | 56-127 | 1 | 0-20 |
| 75-00-3 | PSD | Chloroethane | 50.0 | 0.00 | U | 48.0 | 96 | 67-122 | 1 | 0-20 |
| 75-69-4 | PSD | Trichlorofluoromethane | 50.0 | 0.00 | U | 44.1 | 88 | 60-123 | 2 | 0-20 |
| 60-29-7 | PSD | Ethyl ether | 50.0 | 0.00 | U | 45.0 | 90 | 69-121 | 2 | 0-20 |
| 75-35-4 | PSD | 1,1-Dichloroethylene | 50.0 | 0.00 | U | 48.7 | 97 | 67-132 | 4 | 0-20 |
| 75-09-2 | PSD | Methylene chloride | 50.0 | 0.00 | U | 48.0 | 96 | 56-135 | 3 | 0-20 |
| 1634-04-4 | PSD | tert-Butyl methyl ether | 50.0 | 0.00 | U | 46.5 | 93 | 73-126 | 0 | 0-20 |
| 156-60-5 | PSD | trans-1,2-Dichloroethylene | 50.0 | 0.00 | U | 50.5 | 101 | 69-128 | 0 | 0-20 |
| 75-34-3 | PSD | 1,1-Dichloroethane | 50.0 | 0.00 | U | 50.4 | 101 | 75-124 | 0 | 0-20 |
| 156-59-2 | PSD | cis-1,2-Dichloroethylene | 50.0 | 0.00 | U | 51.6 | 103 | 52-147 | 0 | 0-20 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-823** **Sample Type:** **Post Spike Duplicate**

**Client ID:** **CAMO-13-30586PSD** **Matrix:** **W**

**Lab Sample ID:** **1202879076**

**Instrument:** **VOA4.I** **Analysis Date:** **05/20/2013 22:28** **Dilution: 1**

**Analyst:** **ACJ**

**Purge Vol:** **5 mL** **Batch ID:** **1302977**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 594-20-7 | PSD | 2,2-Dichloropropane | 50.0 | 0.00 | U | 47.5 | 95 | 67-143 | 1 | 0-20 |
| 67-66-3 | PSD | Chloroform | 50.0 | 0.00 | U | 49.5 | 99 | 75-125 | 0 | 0-20 |
| 74-97-5 | PSD | Bromochloromethane | 50.0 | 0.00 | U | 49.6 | 99 | 80-120 | 1 | 0-20 |
| 71-55-6 | PSD | 1,1,1-Trichloroethane | 50.0 | 0.00 | U | 48.9 | 98 | 69-140 | 1 | 0-20 |
| 563-58-6 | PSD | 1,1-Dichloropropene | 50.0 | 0.00 | U | 50.4 | 101 | 71-130 | 1 | 0-20 |
| 56-23-5 | PSD | Carbon tetrachloride | 50.0 | 0.00 | U | 48.6 | 97 | 69-142 | 0 | 0-20 |
| 107-06-2 | PSD | 1,2-Dichloroethane | 50.0 | 0.00 | U | 47.0 | 94 | 72-126 | 0 | 0-20 |
| 71-43-2 | PSD | Benzene | 50.0 | 0.00 | U | 50.7 | 101 | 73-119 | 1 | 0-20 |
| 79-01-6 | PSD | Trichloroethylene | 50.0 | 0.00 | U | 48.9 | 98 | 54-147 | 0 | 0-20 |
| 78-87-5 | PSD | 1,2-Dichloropropane | 50.0 | 0.00 | U | 49.2 | 98 | 78-123 | 2 | 0-20 |
| 75-27-4 | PSD | Bromodichloromethane | 50.0 | 0.00 | U | 49.1 | 98 | 76-131 | 1 | 0-20 |
| 74-95-3 | PSD | Dibromomethane | 50.0 | 0.00 | U | 49.2 | 98 | 79-120 | 0 | 0-20 |
| 10061-01-5 | PSD | cis-1,3-Dichloropropylene | 50.0 | 0.00 | U | 48.4 | 97 | 72-134 | 0 | 0-20 |
| 108-88-3 | PSD | Toluene | 50.0 | 0.00 | U | 48.6 | 97 | 62-126 | 2 | 0-20 |
| 10061-02-6 | PSD | trans-1,3-Dichloropropylene | 50.0 | 0.00 | U | 47.7 | 95 | 72-133 | 0 | 0-20 |
| 79-00-5 | PSD | 1,1,2-Trichloroethane | 50.0 | 0.00 | U | 49.5 | 99 | 74-120 | 1 | 0-20 |
| 142-28-9 | PSD | 1,3-Dichloropropane | 50.0 | 0.00 | U | 49.3 | 99 | 73-121 | 0 | 0-20 |
| 127-18-4 | PSD | Tetrachloroethylene | 50.0 | 0.00 | U | 46.3 | 93 | 54-139 | 2 | 0-20 |
| 124-48-1 | PSD | Dibromochloromethane | 50.0 | 0.00 | U | 51.1 | 102 | 74-128 | 1 | 0-20 |
| 106-93-4 | PSD | 1,2-Dibromoethane | 50.0 | 0.00 | U | 49.5 | 99 | 80-120 | 1 | 0-20 |
| 108-90-7 | PSD | Chlorobenzene | 50.0 | 0.00 | U | 47.3 | 95 | 73-119 | 2 | 0-20 |
| 100-41-4 | PSD | Ethylbenzene | 50.0 | 0.00 | U | 47.8 | 96 | 66-125 | 2 | 0-20 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-823** **Sample Type:** **Post Spike Duplicate**

**Client ID:** **CAMO-13-30586PSD** **Matrix:** **W**

**Lab Sample ID:** **1202879076**

**Instrument:** **VOA4.I** **Analysis Date:** **05/20/2013 22:28** **Dilution: 1**

**Analyst:** **ACJ**

**Purge Vol:** **5 mL** **Batch ID:** **1302977**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 95-47-6 | PSD | o-Xylene | 50.0 | 0.00 | U | 48.2 | 96 | 68-126 | 2 | 0-20 |
| 100-42-5 | PSD | Styrene | 50.0 | 0.00 | U | 49.6 | 99 | 57-138 | 3 | 0-20 |
| 75-25-2 | PSD | Bromoform | 50.0 | 0.00 | U | 49.6 | 99 | 66-129 | 0 | 0-20 |
| 79-34-5 | PSD | 1,1,2,2-Tetrachloroethane | 50.0 | 0.00 | U | 49.0 | 98 | 44-146 | 2 | 0-20 |
| 96-18-4 | PSD | 1,2,3-Trichloropropane | 50.0 | 0.00 | U | 46.5 | 93 | 68-129 | 3 | 0-20 |
| 108-86-1 | PSD | Bromobenzene | 50.0 | 0.00 | U | 46.1 | 92 | 70-122 | 0 | 0-20 |
| 103-65-1 | PSD | n-Propylbenzene | 50.0 | 0.00 | U | 46.5 | 93 | 61-131 | 1 | 0-20 |
| 95-49-8 | PSD | 2-Chlorotoluene | 50.0 | 0.00 | U | 46.3 | 93 | 66-126 | 1 | 0-20 |
| 98-82-8 | PSD | Isopropylbenzene | 50.0 | 0.00 | U | 47.2 | 94 | 65-130 | 1 | 0-20 |
| 108-67-8 | PSD | 1,3,5-Trimethylbenzene | 50.0 | 0.00 | U | 47.6 | 95 | 58-134 | 2 | 0-20 |
| 106-43-4 | PSD | 4-Chlorotoluene | 50.0 | 0.00 | U | 45.8 | 92 | 63-125 | 2 | 0-20 |
| 98-06-6 | PSD | tert-Butylbenzene | 50.0 | 0.00 | U | 46.7 | 93 | 66-129 | 0 | 0-20 |
| 95-63-6 | PSD | 1,2,4-Trimethylbenzene | 50.0 | 0.00 | U | 47.5 | 95 | 60-131 | 1 | 0-20 |
| 135-98-8 | PSD | sec-Butylbenzene | 50.0 | 0.00 | U | 47.9 | 96 | 62-130 | 3 | 0-20 |
| 99-87-6 | PSD | 4-Isopropyltoluene | 50.0 | 0.00 | U | 46.8 | 94 | 62-132 | 2 | 0-20 |
| 541-73-1 | PSD | 1,3-Dichlorobenzene | 50.0 | 0.00 | U | 46.5 | 93 | 66-121 | 1 | 0-20 |
| 106-46-7 | PSD | 1,4-Dichlorobenzene | 50.0 | 0.00 | U | 46.4 | 93 | 65-119 | 0 | 0-20 |
| 104-51-8 | PSD | n-Butylbenzene | 50.0 | 0.00 | U | 49.0 | 98 | 55-134 | 1 | 0-20 |
| 96-12-8 | PSD | 1,2-Dibromo-3-chloropropane | 50.0 | 0.00 | U | 46.0 | 92 | 58-137 | 2 | 0-20 |
| 87-68-3 | PSD | Hexachlorobutadiene | 50.0 | 0.00 | U | 43.0 | 86 | 49-139 | 1 | 0-20 |
| 91-20-3 | PSD | Naphthalene | 50.0 | 0.00 | U | 43.8 | 88 | 46-145 | 0 | 0-20 |
| 87-61-6 | PSD | 1,2,3-Trichlorobenzene | 50.0 | 0.00 | U | 41.2 | 82 | 54-134 | 2 | 0-20 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-823**
**Sample Type:** **Post Spike Duplicate**
**Client ID:** **CAMO-13-30586PSD**
**Matrix:** **W**
**Lab Sample ID:** **1202879076**
**Instrument:** **VOA4.I**
**Analysis Date:** **05/20/2013 22:28**
**Dilution: 1**
**Analyst:** **ACJ**
**Purge Vol:** **5 mL**
**Batch ID:** **1302977**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 120-82-1 | PSD | 1,2,4-Trichlorobenzene | 50.0 | 0.00 | U | 40.6 | 81 | 55-128 | 1 | 0-20 |
| 630-20-6 | PSD | 1,1,1,2-Tetrachloroethane | 50.0 | 0.00 | U | 48.9 | 98 | 79-128 | 2 | 0-20 |
| 95-50-1 | PSD | 1,2-Dichlorobenzene | 50.0 | 0.00 | U | 47.7 | 95 | 68-121 | 2 | 0-20 |
| 71-36-3 | PSD | n-Butyl alcohol | 5000 | 0.00 | U | 5380 | 108 | 53-150 | 0 | 0-20 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-823**
**Sample Type:** **Laboratory Control Sample**
**Client ID:** **LCS for batch 1302977**
**Matrix:** **WATER**
**Lab Sample ID:** **1202879077**
**Instrument:** **VOA4.I**
**Analysis Date:** **05/20/2013 12:09**
**Dilution: 1**
**Analyst:** **ACJ**
**Purge Vol:** **5 mL**
**Batch ID:** **1302977**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 179601-23-1 | LCS | m,p-Xylenes | 100 | 0.0 | 106 | 106 | 79-120 |
| 75-05-8 | LCS | Acetonitrile | 1250 | 0.0 | 1370 | 109 | 64-127 |
| 67-64-1 | LCS | Acetone | 250 | 0.0 | 311 | 124 | 36-163 |
| 74-88-4 | LCS | Iodomethane | 250 | 0.0 | 252 | 101 | 80-134 |
| 75-15-0 | LCS | Carbon disulfide | 250 | 0.0 | 306 | 122 | 80-143 |
| 108-05-4 | LCS | Vinyl acetate | 250 | 0.0 | 273 | 109 | 75-144 |
| 78-93-3 | LCS | 2-Butanone | 250 | 0.0 | 340 | 136 | 46-158 |
| 108-10-1 | LCS | 4-Methyl-2-pentanone | 250 | 0.0 | 276 | 110 | 76-131 |
| 591-78-6 | LCS | 2-Hexanone | 250 | 0.0 | 374 | 150 | 53-158 |
| 75-71-8 | LCS | Dichlorodifluoromethane | 50.0 | 0.0 | 49.0 | 98 | 39-124 |
| 74-87-3 | LCS | Chloromethane | 50.0 | 0.0 | 50.9 | 102 | 57-126 |
| 75-01-4 | LCS | Vinyl chloride | 50.0 | 0.0 | 49.3 | 99 | 62-121 |
| 74-83-9 | LCS | Bromomethane | 50.0 | 0.0 | 57.0 | 114 | 68-120 |
| 75-00-3 | LCS | Chloroethane | 50.0 | 0.0 | 52.0 | 104 | 73-120 |
| 75-69-4 | LCS | Trichlorofluoromethane | 50.0 | 0.0 | 47.7 | 95 | 65-123 |
| 60-29-7 | LCS | Ethyl ether | 50.0 | 0.0 | 45.3 | 91 | 74-120 |
| 75-35-4 | LCS | 1,1-Dichloroethylene | 50.0 | 0.0 | 54.3 | 109 | 76-127 |
| 75-09-2 | LCS | Methylene chloride | 50.0 | 0.0 | 50.9 | 102 | 72-121 |
| 1634-04-4 | LCS | tert-Butyl methyl ether | 50.0 | 0.0 | 47.1 | 94 | 76-123 |
| 156-60-5 | LCS | trans-1,2-Dichloroethylene | 50.0 | 0.0 | 53.7 | 107 | 77-123 |
| 75-34-3 | LCS | 1,1-Dichloroethane | 50.0 | 0.0 | 53.7 | 107 | 79-120 |
| 156-59-2 | LCS | cis-1,2-Dichloroethylene | 50.0 | 0.0 | 53.9 | 108 | 80-122 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-823**
**Sample Type:** **Laboratory Control Sample**
**Client ID:** **LCS for batch 1302977**
**Matrix:** **WATER**
**Lab Sample ID:** **1202879077**
**Instrument:** **VOA4.I**
**Analysis Date:** **05/20/2013 12:09**
**Dilution: 1**
**Analyst:** **ACJ**
**Purge Vol:** **5 mL**
**Batch ID:** **1302977**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 594-20-7 | LCS | 2,2-Dichloropropane | 50.0 | 0.0 | 50.5 | 101 | 76-145 |
| 67-66-3 | LCS | Chloroform | 50.0 | 0.0 | 51.8 | 104 | 80-120 |
| 74-97-5 | LCS | Bromochloromethane | 50.0 | 0.0 | 52.4 | 105 | 83-120 |
| 71-55-6 | LCS | 1,1,1-Trichloroethane | 50.0 | 0.0 | 52.3 | 105 | 80-133 |
| 563-58-6 | LCS | 1,1-Dichloropropene | 50.0 | 0.0 | 53.8 | 108 | 80-127 |
| 56-23-5 | LCS | Carbon tetrachloride | 50.0 | 0.0 | 51.8 | 104 | 77-139 |
| 107-06-2 | LCS | 1,2-Dichloroethane | 50.0 | 0.0 | 48.1 | 96 | 75-121 |
| 71-43-2 | LCS | Benzene | 50.0 | 0.0 | 53.5 | 107 | 79-120 |
| 79-01-6 | LCS | Trichloroethylene | 50.0 | 0.0 | 52.2 | 104 | 80-121 |
| 78-87-5 | LCS | 1,2-Dichloropropane | 50.0 | 0.0 | 51.6 | 103 | 80-120 |
| 75-27-4 | LCS | Bromodichloromethane | 50.0 | 0.0 | 50.6 | 101 | 80-127 |
| 74-95-3 | LCS | Dibromomethane | 50.0 | 0.0 | 50.2 | 100 | 80-120 |
| 10061-01-5 | LCS | cis-1,3-Dichloropropylene | 50.0 | 0.0 | 51.8 | 104 | 80-127 |
| 108-88-3 | LCS | Toluene | 50.0 | 0.0 | 52.9 | 106 | 77-120 |
| 10061-02-6 | LCS | trans-1,3-Dichloropropylene | 50.0 | 0.0 | 51.2 | 102 | 80-128 |
| 79-00-5 | LCS | 1,1,2-Trichloroethane | 50.0 | 0.0 | 52.3 | 105 | 79-120 |
| 142-28-9 | LCS | 1,3-Dichloropropane | 50.0 | 0.0 | 51.9 | 104 | 77-120 |
| 127-18-4 | LCS | Tetrachloroethylene | 50.0 | 0.0 | 52.0 | 104 | 77-125 |
| 124-48-1 | LCS | Dibromochloromethane | 50.0 | 0.0 | 52.7 | 105 | 77-126 |
| 106-93-4 | LCS | 1,2-Dibromoethane | 50.0 | 0.0 | 51.7 | 103 | 80-120 |
| 108-90-7 | LCS | Chlorobenzene | 50.0 | 0.0 | 51.6 | 103 | 80-120 |
| 100-41-4 | LCS | Ethylbenzene | 50.0 | 0.0 | 52.5 | 105 | 78-120 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-823**
**Sample Type:** **Laboratory Control Sample**
**Client ID:** **LCS for batch 1302977**
**Matrix:** **WATER**
**Lab Sample ID:** **1202879077**
**Instrument:** **VOA4.I**
**Analysis Date:** **05/20/2013 12:09**
**Dilution: 1**
**Analyst:** **ACJ**
**Purge Vol:** **5 mL**
**Batch ID:** **1302977**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 95-47-6 | LCS | o-Xylene | 50.0 | 0.0 | 52.5 | 105 | 80-120 |
| 100-42-5 | LCS | Styrene | 50.0 | 0.0 | 54.4 | 109 | 80-121 |
| 75-25-2 | LCS | Bromoform | 50.0 | 0.0 | 50.3 | 101 | 72-125 |
| 79-34-5 | LCS | 1,1,2,2-Tetrachloroethane | 50.0 | 0.0 | 50.4 | 101 | 73-120 |
| 96-18-4 | LCS | 1,2,3-Trichloropropane | 50.0 | 0.0 | 48.0 | 96 | 74-121 |
| 108-86-1 | LCS | Bromobenzene | 50.0 | 0.0 | 48.5 | 97 | 79-120 |
| 103-65-1 | LCS | n-Propylbenzene | 50.0 | 0.0 | 50.0 | 100 | 75-125 |
| 95-49-8 | LCS | 2-Chlorotoluene | 50.0 | 0.0 | 49.6 | 99 | 77-121 |
| 98-82-8 | LCS | Isopropylbenzene | 50.0 | 0.0 | 49.7 | 99 | 76-125 |
| 108-67-8 | LCS | 1,3,5-Trimethylbenzene | 50.0 | 0.0 | 51.5 | 103 | 77-123 |
| 106-43-4 | LCS | 4-Chlorotoluene | 50.0 | 0.0 | 49.1 | 98 | 75-120 |
| 98-06-6 | LCS | tert-Butylbenzene | 50.0 | 0.0 | 49.8 | 100 | 79-123 |
| 95-63-6 | LCS | 1,2,4-Trimethylbenzene | 50.0 | 0.0 | 50.8 | 102 | 77-121 |
| 135-98-8 | LCS | sec-Butylbenzene | 50.0 | 0.0 | 52.4 | 105 | 76-124 |
| 99-87-6 | LCS | 4-Isopropyltoluene | 50.0 | 0.0 | 51.5 | 103 | 79-125 |
| 541-73-1 | LCS | 1,3-Dichlorobenzene | 50.0 | 0.0 | 50.8 | 102 | 78-120 |
| 106-46-7 | LCS | 1,4-Dichlorobenzene | 50.0 | 0.0 | 50.4 | 101 | 77-120 |
| 104-51-8 | LCS | n-Butylbenzene | 50.0 | 0.0 | 54.6 | 109 | 75-127 |
| 96-12-8 | LCS | 1,2-Dibromo-3-chloropropane | 50.0 | 0.0 | 46.4 | 93 | 69-128 |
| 87-68-3 | LCS | Hexachlorobutadiene | 50.0 | 0.0 | 46.0 | 92 | 75-128 |
| 91-20-3 | LCS | Naphthalene | 50.0 | 0.0 | 43.0 | 86 | 71-125 |
| 87-61-6 | LCS | 1,2,3-Trichlorobenzene | 50.0 | 0.0 | 41.6 | 83 | 73-125 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-823**
**Sample Type:** **Laboratory Control Sample**
**Client ID:** **LCS for batch 1302977**
**Matrix:** **WATER**
**Lab Sample ID:** **1202879077**
**Instrument:** **VOA4.I**
**Analysis Date:** **05/20/2013 12:09**
**Dilution: 1**
**Analyst:** **ACJ**
**Purge Vol:** **5 mL**
**Batch ID:** **1302977**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 120-82-1 | LCS | 1,2,4-Trichlorobenzene | 50.0 | 0.0 | 43.7 | 87 | 75-123 |
| 630-20-6 | LCS | 1,1,1,2-Tetrachloroethane | 50.0 | 0.0 | 52.7 | 105 | 80-124 |
| 95-50-1 | LCS | 1,2-Dichlorobenzene | 50.0 | 0.0 | 51.1 | 102 | 79-120 |
| 71-36-3 | LCS | n-Butyl alcohol | 5000 | 0.0 | 5640 | 113 | 66-138 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-823**
**Sample Type:** **Laboratory Control Sample**
**Client ID:** **LCS for batch 1302977**
**Matrix:** **WATER**
**Lab Sample ID:** **1202879078**
**Instrument:** **VOA4.I**
**Analysis Date:** **05/20/2013 13:34**
**Dilution: 1**
**Analyst:** **ACJ**
**Purge Vol:** **5 mL**
**Batch ID:** **1302977**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 107-02-8 | LCS | Acrolein | 250 | 0.0 | 236 | 94 | 28-152 |
| 76-13-1 | LCS | Trichlorotrifluoroethane | 250 | 0.0 | 214 | 86 | 65-157 |
| 107-05-1 | LCS | Allyl chloride | 250 | 0.0 | 219 | 88 | 60-135 |
| 107-13-1 | LCS | Acrylonitrile | 250 | 0.0 | 207 | 83 | 64-131 |
| 107-12-0 | LCS | Propionitrile | 250 | 0.0 | 202 | 81 | 67-135 |
| 126-98-7 | LCS | Methacrylonitrile | 250 | 0.0 | 203 | 81 | 64-132 |
| 80-62-6 | LCS | Methyl methacrylate | 250 | 0.0 | 204 | 82 | 66-129 |
| 97-63-2 | LCS | Ethyl methacrylate | 250 | 0.0 | 213 | 85 | 66-132 |
| 78-83-1 | LCS | Isobutyl alcohol | 2500 | 0.0 | 2060 | 83 | 60-136 |
| 126-99-8 | LCS | 2-Chloro-1,3-butadiene | 50.0 | 0.0 | 31.6 | 63 | 45-159 |

# Method Blank Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-823** | **Client:** | **ARSL001** | **Matrix:** | **WATER** |
| **Client ID:** | **MB for batch 1302977** | **Instrument ID:** | **VOA4.I** | **Data File:** | **052013V4\4L108BA.D** |
| **Lab Sample ID:** | **1202879074** | **Prep Date:** | **05/20/2013 14:30** | **Analyzed:** | **05/20/13 14:30** |
| **Column:** | **DB-624** | | | | |

**This method blank applies to the following samples and quality control samples:**

| Client Sample ID | Lab Sample ID | File ID | Date Analyzed | Time Analyzed |
|---|---|---|---|---|
| 01 LCS for batch 1302977 | 1202879077 | 052013V4\4L103LA.D | 05/20/13 | 1209 |
| 02 LCS for batch 1302977 | 1202879078 | 052013V4\4L106SA.D | 05/20/13 | 1334 |
| 03 CAMO-13-30573 | 325480001 | 052013V4\4L115.D | 05/20/13 | 1747 |
| 04 CAMO-13-30567 | 325480003 | 052013V4\4L116.D | 05/20/13 | 1814 |
| 05 CAMO-13-30586PS | 1202879075 | 052013V4\4L124.D | 05/20/13 | 2200 |
| 06 CAMO-13-30586PSD | 1202879076 | 052013V4\4L125.D | 05/20/13 | 2228 |

# Quality Control Data

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-823** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202879074** | | | | |
| **Client Sample:** | **QC for batch 1302977** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **MB for batch 1302977** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 14:30** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 14:30** | | | | |
| **Data File:** | **052013V4\4L108BA.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 75-71-8 | Dichlorodifluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-01-4 | Vinyl chloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-83-9 | Bromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-64-1 | Acetone | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | U | 25.0 | ug/L | 8.00 | 25.0 |
| 75-35-4 | 1,1-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-15-0 | Carbon disulfide | U | 5.00 | ug/L | 1.50 | 5.00 |
| 1634-04-4 | tert-Butyl methyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-05-4 | Vinyl acetate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-34-3 | 1,1-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | U | 5.00 | ug/L | 2.00 | 5.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-36-3 | n-Butyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 56-23-5 | Carbon tetrachloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-43-2 | Benzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | U | 5.00 | ug/L | 2.20 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-823** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202879074** | | | | |
| **Client Sample:** | **QC for batch 1302977** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **MB for batch 1302977** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 14:30** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 14:30** | | | | |
| **Data File:** | **052013V4\4L108BA.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 142-28-9 | 1,3-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-41-4 | Ethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | U | 2.00 | ug/L | 0.300 | 2.00 |
| 95-47-6 | o-Xylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-42-5 | Styrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-82-8 | Isopropylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-43-4 | 4-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 104-51-8 | n-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.400 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-823** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202879074** | | | | |
| **Client Sample:** | **QC for batch 1302977** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **MB for batch 1302977** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 14:30** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 14:30** | | | | |
| **Data File:** | **052013V4\4L108BA.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 47.5 | 50.0 | ug/L | 94.9 | (78%-124%) |
| Bromofluorobenzene | 48.5 | 50.0 | ug/L | 97.0 | (80%-120%) |
| Toluene-d8 | 51.2 | 50.0 | ug/L | 102 | (80%-120%) |

**Tentatively Identified Compound Summary**

| CAS No. | Tentatively Identified Compound (TIC) | RT | Estimated | Units | Fit | Qual |
|---|---|---|---|---|---|---|
| | unknown hydrocarbon | 4.482 | 6.84 | ug/L | 0 | J |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-823** | **Date Collected:** | **05/08/2013 12:40** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202879075** | **Date Received:** | **05/10/2013 09:05** | | |
| **Client Sample:** | **QC for batch 1302977** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **CAMO-13-30586PS** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 22:00** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 22:00** | | | | |
| **Data File:** | **052013V4\4L124.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 75-71-8 | Dichlorodifluoromethane | | 46.0 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | | 49.3 | ug/L | 0.300 | 1.00 |
| 75-01-4 | Vinyl chloride | | 47.4 | ug/L | 0.300 | 1.00 |
| 74-83-9 | Bromomethane | | 53.7 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | | 48.6 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | | 45.1 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | | 44.0 | ug/L | 0.300 | 1.00 |
| 67-64-1 | Acetone | | 133 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | | 1410 | ug/L | 8.00 | 25.0 |
| 75-35-4 | 1,1-Dichloroethylene | | 50.9 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | | 240 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | | 49.4 | ug/L | 3.00 | 10.0 |
| 75-15-0 | Carbon disulfide | | 284 | ug/L | 1.50 | 5.00 |
| 1634-04-4 | tert-Butyl methyl ether | | 46.5 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | | 50.6 | ug/L | 0.300 | 1.00 |
| 108-05-4 | Vinyl acetate | | 241 | ug/L | 1.50 | 5.00 |
| 75-34-3 | 1,1-Dichloroethane | | 50.3 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | | 201 | ug/L | 2.00 | 5.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | | 51.5 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | | 47.0 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | | 49.7 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | | 49.9 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | | 49.6 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | | 50.7 | ug/L | 0.300 | 1.00 |
| 71-36-3 | n-Butyl alcohol | | 5390 | ug/L | 15.0 | 50.0 |
| 56-23-5 | Carbon tetrachloride | | 48.6 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | | 46.8 | ug/L | 0.300 | 1.00 |
| 71-43-2 | Benzene | | 50.2 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | | 49.0 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | | 48.4 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | | 48.5 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | | 49.2 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | | 268 | ug/L | 1.50 | 5.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | | 48.5 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | | 49.4 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | | 47.8 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | | 49.9 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | | 243 | ug/L | 2.20 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-823** | **Date Collected:** | **05/08/2013 12:40** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202879075** | **Date Received:** | **05/10/2013 09:05** | | |
| **Client Sample:** | **QC for batch 1302977** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **CAMO-13-30586PS** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 22:00** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 22:00** | | | | |
| **Data File:** | **052013V4\4L124.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 142-28-9 | 1,3-Dichloropropane | | 49.5 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | | 47.3 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | | 51.4 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | | 50.3 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | | 48.3 | ug/L | 0.300 | 1.00 |
| 100-41-4 | Ethylbenzene | | 48.7 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | | 98.4 | ug/L | 0.300 | 2.00 |
| 95-47-6 | o-Xylene | | 49.0 | ug/L | 0.300 | 1.00 |
| 100-42-5 | Styrene | | 50.9 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | | 49.4 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | | 49.9 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | | 48.2 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | | 46.1 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | | 46.8 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | | 46.7 | ug/L | 0.300 | 1.00 |
| 98-82-8 | Isopropylbenzene | | 47.7 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | | 48.4 | ug/L | 0.300 | 1.00 |
| 106-43-4 | 4-Chlorotoluene | | 46.6 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | | 46.8 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | | 48.0 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | | 49.4 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | | 48.0 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | | 46.9 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | | 46.5 | ug/L | 0.300 | 1.00 |
| 104-51-8 | n-Butylbenzene | | 49.4 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | | 46.7 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | | 43.4 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | | 43.8 | ug/L | 0.400 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | | 40.5 | ug/L | 0.300 | 1.00 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-823** | **Date Collected:** | **05/08/2013 12:40** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202879075** | **Date Received:** | **05/10/2013 09:05** | | |
| **Client Sample:** | **QC for batch 1302977** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **CAMO-13-30586PS** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 22:00** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 22:00** | | | | |
| **Data File:** | **052013V4\4L124.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | | 49.8 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | | 41.0 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | | 47.0 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 46.2 | 50.0 | ug/L | 92.4 | (78%-124%) |
| Bromofluorobenzene | 46.6 | 50.0 | ug/L | 93.2 | (80%-120%) |
| Toluene-d8 | 49.9 | 50.0 | ug/L | 99.7 | (80%-120%) |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-823** | **Date Collected:** | **05/08/2013 12:40** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202879076** | **Date Received:** | **05/10/2013 09:05** | | |
| **Client Sample:** | **QC for batch 1302977** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **CAMO-13-30586PSD** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 22:28** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 22:28** | | | | |
| **Data File:** | **052013V4\4L125.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 75-71-8 | Dichlorodifluoromethane | | 45.1 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | | 48.0 | ug/L | 0.300 | 1.00 |
| 75-01-4 | Vinyl chloride | | 46.1 | ug/L | 0.300 | 1.00 |
| 74-83-9 | Bromomethane | | 53.1 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | | 48.0 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | | 44.1 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | | 45.0 | ug/L | 0.300 | 1.00 |
| 67-64-1 | Acetone | | 129 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | | 1360 | ug/L | 8.00 | 25.0 |
| 75-35-4 | 1,1-Dichloroethylene | | 48.7 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | | 233 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | | 48.0 | ug/L | 3.00 | 10.0 |
| 75-15-0 | Carbon disulfide | | 276 | ug/L | 1.50 | 5.00 |
| 1634-04-4 | tert-Butyl methyl ether | | 46.5 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | | 50.5 | ug/L | 0.300 | 1.00 |
| 108-05-4 | Vinyl acetate | | 237 | ug/L | 1.50 | 5.00 |
| 75-34-3 | 1,1-Dichloroethane | | 50.4 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | | 194 | ug/L | 2.00 | 5.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | | 51.6 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | | 47.5 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | | 49.5 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | | 49.6 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | | 48.9 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | | 50.4 | ug/L | 0.300 | 1.00 |
| 71-36-3 | n-Butyl alcohol | | 5380 | ug/L | 15.0 | 50.0 |
| 56-23-5 | Carbon tetrachloride | | 48.6 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | | 47.0 | ug/L | 0.300 | 1.00 |
| 71-43-2 | Benzene | | 50.7 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | | 48.9 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | | 49.2 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | | 49.1 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | | 49.2 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | | 256 | ug/L | 1.50 | 5.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | | 48.4 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | | 48.6 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | | 47.7 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | | 49.5 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | | 232 | ug/L | 2.20 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-823** | **Date Collected:** | **05/08/2013 12:40** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202879076** | **Date Received:** | **05/10/2013 09:05** | | |
| **Client Sample:** | **QC for batch 1302977** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **CAMO-13-30586PSD** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 22:28** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 22:28** | | | | |
| **Data File:** | **052013V4\4L125.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 142-28-9 | 1,3-Dichloropropane | | 49.3 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | | 46.3 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | | 51.1 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | | 49.5 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | | 47.3 | ug/L | 0.300 | 1.00 |
| 100-41-4 | Ethylbenzene | | 47.8 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | | 96.2 | ug/L | 0.300 | 2.00 |
| 95-47-6 | o-Xylene | | 48.2 | ug/L | 0.300 | 1.00 |
| 100-42-5 | Styrene | | 49.6 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | | 49.6 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | | 49.0 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | | 46.5 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | | 46.1 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | | 46.5 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | | 46.3 | ug/L | 0.300 | 1.00 |
| 98-82-8 | Isopropylbenzene | | 47.2 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | | 47.6 | ug/L | 0.300 | 1.00 |
| 106-43-4 | 4-Chlorotoluene | | 45.8 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | | 46.7 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | | 47.5 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | | 47.9 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | | 46.8 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | | 46.5 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | | 46.4 | ug/L | 0.300 | 1.00 |
| 104-51-8 | n-Butylbenzene | | 49.0 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | | 46.0 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | | 43.0 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | | 43.8 | ug/L | 0.400 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | | 41.2 | ug/L | 0.300 | 1.00 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-823** | **Date Collected:** | **05/08/2013 12:40** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202879076** | **Date Received:** | **05/10/2013 09:05** | | |
| **Client Sample:** | **QC for batch 1302977** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **CAMO-13-30586PSD** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 22:28** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 22:28** | | | | |
| **Data File:** | **052013V4\4L125.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | | 48.9 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | | 40.6 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | | 47.7 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 46.8 | 50.0 | ug/L | 93.6 | (78%-124%) |
| Bromofluorobenzene | 46.9 | 50.0 | ug/L | 93.8 | (80%-120%) |
| Toluene-d8 | 49.8 | 50.0 | ug/L | 99.6 | (80%-120%) |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-823** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202879077** | | | | |
| **Client Sample:** | **QC for batch 1302977** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1302977** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 12:09** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 12:09** | | | | |
| **Data File:** | **052013V4\4L103LA.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 75-71-8 | Dichlorodifluoromethane | | 49.0 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | | 50.9 | ug/L | 0.300 | 1.00 |
| 75-01-4 | Vinyl chloride | | 49.3 | ug/L | 0.300 | 1.00 |
| 74-83-9 | Bromomethane | | 57.0 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | | 52.0 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | | 47.7 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | | 45.3 | ug/L | 0.300 | 1.00 |
| 67-64-1 | Acetone | | 311 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | | 1370 | ug/L | 8.00 | 25.0 |
| 75-35-4 | 1,1-Dichloroethylene | | 54.3 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | | 252 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | | 50.9 | ug/L | 3.00 | 10.0 |
| 75-15-0 | Carbon disulfide | | 306 | ug/L | 1.50 | 5.00 |
| 1634-04-4 | tert-Butyl methyl ether | | 47.1 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | | 53.7 | ug/L | 0.300 | 1.00 |
| 108-05-4 | Vinyl acetate | | 273 | ug/L | 1.50 | 5.00 |
| 75-34-3 | 1,1-Dichloroethane | | 53.7 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | | 340 | ug/L | 2.00 | 5.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | | 53.9 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | | 50.5 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | | 51.8 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | | 52.4 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | | 52.3 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | | 53.8 | ug/L | 0.300 | 1.00 |
| 71-36-3 | n-Butyl alcohol | | 5640 | ug/L | 15.0 | 50.0 |
| 56-23-5 | Carbon tetrachloride | | 51.8 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | | 48.1 | ug/L | 0.300 | 1.00 |
| 71-43-2 | Benzene | | 53.5 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | | 52.2 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | | 51.6 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | | 50.6 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | | 50.2 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | | 276 | ug/L | 1.50 | 5.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | | 51.8 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | | 52.9 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | | 51.2 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | | 52.3 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | | 374 | ug/L | 2.20 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-823** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202879077** | | | | |
| **Client Sample:** | **QC for batch 1302977** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1302977** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 12:09** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 12:09** | | | | |
| **Data File:** | **052013V4\4L103LA.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 142-28-9 | 1,3-Dichloropropane | | 51.9 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | | 52.0 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | | 52.7 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | | 51.7 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | | 51.6 | ug/L | 0.300 | 1.00 |
| 100-41-4 | Ethylbenzene | | 52.5 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | | 106 | ug/L | 0.300 | 2.00 |
| 95-47-6 | o-Xylene | | 52.5 | ug/L | 0.300 | 1.00 |
| 100-42-5 | Styrene | | 54.4 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | | 50.3 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | | 50.4 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | | 48.0 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | | 48.5 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | | 50.0 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | | 49.6 | ug/L | 0.300 | 1.00 |
| 98-82-8 | Isopropylbenzene | | 49.7 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | | 51.5 | ug/L | 0.300 | 1.00 |
| 106-43-4 | 4-Chlorotoluene | | 49.1 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | | 49.8 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | | 50.8 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | | 52.4 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | | 51.5 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | | 50.8 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | | 50.4 | ug/L | 0.300 | 1.00 |
| 104-51-8 | n-Butylbenzene | | 54.6 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | | 46.4 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | | 46.0 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | | 43.0 | ug/L | 0.400 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | | 41.6 | ug/L | 0.300 | 1.00 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-823** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202879077** | | | | |
| **Client Sample:** | **QC for batch 1302977** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1302977** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 12:09** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 12:09** | | | | |
| **Data File:** | **052013V4\4L103LA.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | | 52.7 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | | 43.7 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | | 51.1 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 46.3 | 50.0 | ug/L | 92.5 | (78%-124%) |
| Bromofluorobenzene | 45.8 | 50.0 | ug/L | 91.5 | (80%-120%) |
| Toluene-d8 | 51.0 | 50.0 | ug/L | 102 | (80%-120%) |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-823** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202879078** | | | | |
| **Client Sample:** | **QC for batch 1302977** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1302977** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 13:34** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 13:34** | | | | |
| **Data File:** | **052013V4\4L106SA.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 75-71-8 | Dichlorodifluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-01-4 | Vinyl chloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-83-9 | Bromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-64-1 | Acetone | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | U | 25.0 | ug/L | 8.00 | 25.0 |
| 75-35-4 | 1,1-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-15-0 | Carbon disulfide | U | 5.00 | ug/L | 1.50 | 5.00 |
| 1634-04-4 | tert-Butyl methyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-05-4 | Vinyl acetate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-34-3 | 1,1-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | U | 5.00 | ug/L | 2.00 | 5.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-36-3 | n-Butyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 56-23-5 | Carbon tetrachloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-43-2 | Benzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | U | 5.00 | ug/L | 2.20 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-823** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202879078** | | | | |
| **Client Sample:** | **QC for batch 1302977** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1302977** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 13:34** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 13:34** | | | | |
| **Data File:** | **052013V4\4L106SA.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 142-28-9 | 1,3-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-41-4 | Ethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | U | 2.00 | ug/L | 0.300 | 2.00 |
| 95-47-6 | o-Xylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-42-5 | Styrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-82-8 | Isopropylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-43-4 | 4-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 104-51-8 | n-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.400 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-02-8 | Acrolein | | 236 | ug/L | 1.50 | 5.00 |
| 76-13-1 | Trichlorotrifluoroethane | | 214 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | | 219 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | | 207 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | | 31.6 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | | 202 | ug/L | 1.50 | 5.00 |
| 126-98-7 | Methacrylonitrile | | 203 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | | 2060 | ug/L | 15.0 | 50.0 |
| 80-62-6 | Methyl methacrylate | | 204 | ug/L | 1.50 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-823** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202879078** | | | | |
| **Client Sample:** | **QC for batch 1302977** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1302977** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 13:34** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 13:34** | | | | |
| **Data File:** | **052013V4\4L106SA.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 97-63-2 | Ethyl methacrylate | | 213 | ug/L | 1.50 | 5.00 |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 47.6 | 50.0 | ug/L | 95.2 | (78%-124%) |
| Bromofluorobenzene | 51.2 | 50.0 | ug/L | 102 | (80%-120%) |
| Toluene-d8 | 50.8 | 50.0 | ug/L | 102 | (80%-120%) |

# Semi-Volatile Analysis

# Case Narrative

**Semi-Volatile Case Narrative**
**ARS International (ARSL)**
**SDG 2013-823**

## Method/Analysis Information

| | |
|---|---|
| **Procedure:** | **Analysis of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry** |
| Analytical Method: | SW846 8270C |
| Prep Method: | SW846 3510C |
| Analytical Batch Number: | 1300969 |
| Prep Batch Number: | 1300968 |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 8270C:

| Sample ID | Client ID |
|---|---|
| 325480001 | CAMO-13-30573 |
| 1202873988 | Method Blank (MB) |
| 1202873989 | Laboratory Control Sample (LCS) |
| 1202873990 | 325285001(WST55-13-32015) Matrix Spike (MS) |
| 1202873991 | 325285001(WST55-13-32015) Matrix Spike Duplicate (MSD) |

The samples in this SDG were analyzed on an "as received" basis.

## Preparation/Analytical Method Verification

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-009 REV# 30.

Raw data reports are processed and reviewed by the analyst using the data analysis software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP).

## Calibration Information

A complete list of the initial calibration data files are shown in the Calibration History report located in the Standard Data section of the data package. The various calibration mixes may not be calibrated using all of the calibration levels. In addition, not all of the mixes are calibrated using the same levels.

Diphenylamine has now superseded N-Nitroso-diphenylamine on Quantitation Reports, Initial Calibration Reports, Calibration Check Standard Reports, etc. Previous versions of EPA Methodologies referenced N-Nitroso-diphenylamine. However, as stated in EPA Methodology, "N-Nitroso-diphenylamine decomposes in the gas chromatographic inlet and cannot be separated from Diphenylamine." Studies of these two compounds at

GEL, both independent of each other and together, showed that they not only co-elute, but also have similar mass spectra. N-Nitroso-diphenylamine and Diphenylamine will be reported as Diphenylamine on all reports and forms.

**Initial Calibration**
All initial calibration requirements have been met for this sample delivery group (SDG) in this batch. A second source initial calibration verification (ICV) was included in the standard section directly behind the initial calibration.

**CCV Requirements**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG in this batch met the acceptance criteria.

**Surrogate Recoveries**
Samples 1202873990 (WST55-13-32015) and 1202873991 (WST55-13-32015) failed surrogate recovery limits. Please see the QC Summary/Spike Recovery Report for specific failures. The samples were analyzed at a dilution due to the presence of non-target analytes. As a result, some surrogates were diluted out of the acceptance criteria and the data results have been reported.

**Laboratory Control Sample (LCS) Recovery**
The LCS(1202873989) did not meet spike recovery limits for 4-Nitrophenol at 9% (limits: 16%-77%) and Atrazine at 31% (limits: 47%-115%). The 4-Nitrophenol and Atrazine failures represent less than 5% of the total requested spike analyte list. That satisfied the acceptance criteria for the client and the data results have been reported.

**QC Sample Designation**
Sample 325285001 (WST55-13-32015) was selected for analysis as the matrix spike and matrix spike duplicate.

**Matrix Spike (MS) Recovery Statement**
The MS, 1202873990 (WST55-13-32015), failed multiple spike recovery limits. Please see the QC Summary/Spike Recovery Report for specific failures. The samples were analyzed at a dilution due to the presence of non-target analytes. As a result, some spike analytes were diluted out of the acceptance criteria and the data results have been reported.

**Matrix Spike Duplicate (MSD) Recovery Statement**
The MSD, 1202873991 (WST55-13-32015), failed multiple spike recovery limits. Please see the QC Summary/Spike Recovery Report for specific failures. The samples were analyzed at a dilution due to the presence of non-target analytes. As a result, some spike analytes were diluted out of the acceptance criteria and the data results have been reported.

**MS/MSD Relative Percent Difference (RPD) Statement**
The RPD values between the MS and MSD met the acceptance limits.

**Internal Standard (ISTD) Acceptance**
Samples 1202873990 (WST55-13-32015) and 1202873991 (WST55-13-32015) failed ISTD acceptance criteria. As the MS and MSD displayed similar responses as the parent sample, the failures were attributed to sample matrix interference and the data results have been reported.

**Technical Information:**

**Holding Time Specifications**

All samples in this SDG in this batch met the specified holding time. GEL assigns holding times based on the associated methodology that assigns the date and time from sample collection or sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

**Preparation/Analytical Method Verification**
All procedures were performed as stated in the SOP. All reported compound mass spectra met the detection specifications in the method.

**Sample Dilutions**
Samples 1202873990 (WST55-13-32015) and 1202873991 (WST55-13-32015) were diluted due to the presence of non-target analytes. The data from the dilutions have been reported.

**Sample Re-extraction/Re-analysis**
Re-extractions or re-analyses were not required in this SDG in this analytical batch unless confirmations or dilutions were required.

**Miscellaneous Information:**

**Data Exception (DER) Documentation**
Data exception report 1185859 was generated for the samples in this batch for this SDG.

**Manual Integrations**
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations. Manual integrations, if any, are included with the raw data.

**TIC Comment**
Tentatively identified compounds (TIC) may be requested for samples 1202873988 (MB) and 325480001 (CAMO-13-30573) in this delivery group/work order. Please note that non-requested calibrated analytes detected in a client sample may be reported on the Form 1/Certificate of Analysis as TICs. TIC data, if requested, are included on the Sample Data Summary (Form 1) and are also included with the sample raw data.

**Additional Comments**
The additional comments field is used to address special issues associated with each analysis, clarify method/contractual issues pertaining to the analysis, and to list any report documents generated as a result of sample analysis or review. The following additional comments were required:

Due to rounding differences in the calculation, the data reported in the Surrogate Recovery Report may differ slightly from the raw data. Due to software issue, the raw data may not correctly display the updated SPC limits. Please see Sample Data Summary Report and Surrogate Recovery Report for the correct surrogate acceptance limits.

**Electronic Package Comment**

The following package was generated using an electronic data processing program referred to as "virtual packaging". In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from "traditional" packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative of each electronic package will indicate the reviewer name associated with the generation of the data and package. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**System Configuration**

The Semi-Volatile-GC/MS analysis was performed on the following instrument configuration:

| Instrument ID | Instrument | System Configuration | Column ID | Column Description |
|---|---|---|---|---|
| MSD4.I | Agilent 7890A/5975C GC/MS w/ 7683 Autosampler | HP6890/HP5973 | DB-5MS | 25m x 0.2mm, 0.33um (5% Phenylmethylpolysiloxane) |

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-823  GEL Work Order: 325480

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

**  Analyte is a surrogate compound

J  Value is estimated

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL  Indicates that sample is diluted.
RA  Indicates that sample is re-analyzed without re-extraction.
RE  Indicates that sample is re-extracted.

**Review/Validation**

GEL requires all analytical data to be verified by a qualified data reviewer.  In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

**Signature:** Barbara Bailey  **Name: Barbara Bailey**

**Date: 04 JUN 2013**  **Title: Data Validator**

# Sample Data Summary

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-823** | **Date Collected:** | **05/08/2013 12:13** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325480001** | **Date Received:** | **05/10/2013 09:05** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30573** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 23:48** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **950 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1325.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 62-75-9 | N-Methyl-N-nitrosomethylamine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 110-86-1 | Pyridine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 62-53-3 | Aniline | U | 10.5 | ug/L | 3.16 | 10.5 |
| 108-95-2 | Phenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 111-44-4 | bis(2-Chloroethyl) ether | U | 10.5 | ug/L | 3.16 | 10.5 |
| 95-57-8 | 2-Chlorophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 39638-32-9 | bis(2-Chloroisopropyl)ether | U | 10.5 | ug/L | 3.16 | 10.5 |
| 100-51-6 | Benzyl alcohol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 95-48-7 | o-Cresol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 65794-96-9 | m,p-Cresols | U | 10.5 | ug/L | 3.16 | 10.5 |
| 621-64-7 | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | U | 10.5 | ug/L | 3.16 | 10.5 |
| 67-72-1 | Hexachloroethane | U | 10.5 | ug/L | 3.16 | 10.5 |
| 98-95-3 | Nitrobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 78-59-1 | Isophorone | U | 10.5 | ug/L | 3.16 | 10.5 |
| 88-75-5 | 2-Nitrophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 105-67-9 | 2,4-Dimethylphenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 111-91-1 | bis(2-Chloroethoxy)methane | U | 10.5 | ug/L | 3.16 | 10.5 |
| 120-83-2 | 2,4-Dichlorophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 65-85-0 | Benzoic acid | U | 21.1 | ug/L | 6.32 | 21.1 |
| 106-47-8 | 4-Chloroaniline | U | 10.5 | ug/L | 3.47 | 10.5 |
| 87-68-3 | Hexachlorobutadiene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 59-50-7 | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | U | 10.5 | ug/L | 3.16 | 10.5 |
| 91-57-6 | 2-Methylnaphthalene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 91-20-3 | Naphthalene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 90-12-0 | 1-Methylnaphthalene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 77-47-4 | Hexachlorocyclopentadiene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 88-06-2 | 2,4,6-Trichlorophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 95-95-4 | 2,4,5-Trichlorophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 91-58-7 | 2-Chloronaphthalene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 88-74-4 | 2-Nitroaniline<br>*o-Nitroaniline* | U | 10.5 | ug/L | 3.16 | 10.5 |
| 99-09-2 | 3-Nitroaniline<br>*m-Nitroaniline* | U | 10.5 | ug/L | 3.16 | 10.5 |
| 131-11-3 | Dimethylphthalate | U | 10.5 | ug/L | 3.16 | 10.5 |
| 606-20-2 | 2,6-Dinitrotoluene | U | 10.5 | ug/L | 3.16 | 10.5 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-823** | **Date Collected:** | **05/08/2013 12:13** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325480001** | **Date Received:** | **05/10/2013 09:05** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30573** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 23:48** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **950 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1325.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 121-14-2 | 2,4-Dinitrotoluene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 208-96-8 | Acenaphthylene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 83-32-9 | Acenaphthene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 51-28-5 | 2,4-Dinitrophenol | U | 21.1 | ug/L | 5.26 | 21.1 |
| 132-64-9 | Dibenzofuran | U | 10.5 | ug/L | 3.16 | 10.5 |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 84-66-2 | Diethylphthalate | U | 10.5 | ug/L | 3.16 | 10.5 |
| 100-02-7 | 4-Nitrophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 86-73-7 | Fluorene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 7005-72-3 | 4-Chlorophenylphenylether | U | 10.5 | ug/L | 3.16 | 10.5 |
| 100-01-6 | 4-Nitroaniline | U | 10.5 | ug/L | 3.16 | 10.5 |
| | *p-Nitroaniline* | | | | | |
| 534-52-1 | 2-Methyl-4,6-dinitrophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 122-39-4 | Diphenylamine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 122-66-7 | Azobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| | *1,2-Diphenylhydrazine* | | | | | |
| 101-55-3 | 4-Bromophenylphenylether | U | 10.5 | ug/L | 3.16 | 10.5 |
| 118-74-1 | Hexachlorobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 87-86-5 | Pentachlorophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 88-85-7 | Dinoseb | U | 10.5 | ug/L | 3.16 | 10.5 |
| 85-01-8 | Phenanthrene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 120-12-7 | Anthracene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 84-74-2 | Di-n-butylphthalate | U | 10.5 | ug/L | 3.16 | 10.5 |
| 206-44-0 | Fluoranthene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 129-00-0 | Pyrene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 85-68-7 | Butylbenzylphthalate | U | 10.5 | ug/L | 3.16 | 10.5 |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | U | 10.5 | ug/L | 3.16 | 10.5 |
| 56-55-3 | Benzo(a)anthracene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 218-01-9 | Chrysene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 117-84-0 | Di-n-octylphthalate | U | 10.5 | ug/L | 3.16 | 10.5 |
| 205-99-2 | Benzo(b)fluoranthene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 207-08-9 | Benzo(k)fluoranthene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 50-32-8 | Benzo(a)pyrene | U | 1.05 | ug/L | 0.463 | 1.05 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 53-70-3 | Dibenzo(a,h)anthracene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 191-24-2 | Benzo(ghi)perylene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 123-91-1 | 1,4-Dioxane | J | 7.57 | ug/L | 3.16 | 10.5 |
| 55-18-5 | N-Nitrosodiethylamine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 930-55-2 | N-Nitrosopyrrolidine | U | 10.5 | ug/L | 3.16 | 10.5 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-823** | **Date Collected:** | **05/08/2013 12:13** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325480001** | **Date Received:** | **05/10/2013 09:05** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30573** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 23:48** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **950 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1325.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 924-16-3 | N-Nitrosodi-n-butylamine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 608-93-5 | Pentachlorobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 1912-24-9 | Atrazine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 92-87-5 | Benzidine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 91-94-1 | 3,3'-Dichlorobenzidine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 2,4,6-Tribromophenol | 62.9 | 105 | ug/L | 59.8 | (26%-129%) |
| 2-Fluorobiphenyl | 24.9 | 52.6 | ug/L | 47.4 | (32%-102%) |
| 2-Fluorophenol | 39.1 | 105 | ug/L | 37.2 | (10%-78%) |
| Nitrobenzene-d5 | 26.0 | 52.6 | ug/L | 49.4 | (36%-125%) |
| Phenol-d5 | 26.2 | 105 | ug/L | 24.9 | (10%-104%) |
| p-Terphenyl-d14 | 32.8 | 52.6 | ug/L | 62.4 | (34%-135%) |

**Tentatively Identified Compound Summary**

| CAS No. | Tentatively Identified Compound (TIC) | RT | Estimated | Units | Fit | Qual |
|---|---|---|---|---|---|---|
| | unknown | 2.027 | 25 | ug/L | 0 | J |

# Quality Control Summary

**Semi-Volatile**

## Surrogate Recovery Report

**SDG Number: 2013-823**

**Matrix Type: LIQUID**

| Sample ID | Client ID | 2FP %REC | | PHL %REC | | NBZ %REC | | FBP %REC | | TBP %REC | | TPH %REC | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1202873988 | MB for batch 1300968 | 44 | | 26 | | 67 | | 38 | | 61 | | 104 | |
| 1202873989 | LCS for batch 1300968 | 38 | | 25 | | 61 | | 51 | | 66 | | 75 | |
| 325480001 | CAMO-13-30573 | 37 | | 25 | | 49 | | 47 | | 60 | | 62 | |
| 1202873990 | WST55-13-32015MS | 0 * | D | 0 * | D | 32 * | D | 34 | D | 0 * | D | 60 | D |
| 1202873991 | WST55-13-32015MSD | 0 * | D | 0 * | D | 30 * | D | 30 * | D | 0 * | D | 51 | D |

| Surrogate | | | Acceptance Limits |
|---|---|---|---|
| 2FP | = | 2-Fluorophenol | (10%-78%) |
| PHL | = | Phenol-d5 | (10%-104%) |
| NBZ | = | Nitrobenzene-d5 | (36%-125%) |
| FBP | = | 2-Fluorobiphenyl | (32%-102%) |
| TBP | = | 2,4,6-Tribromophenol | (26%-129%) |
| TPH | = | p-Terphenyl-d14 | (34%-135%) |

* Recovery outside Acceptance Limits

\# Column to be used to flag recovery values

D Sample Diluted

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-823**
**Client ID:** **LCS for batch 1300968**
**Lab Sample ID:** **1202873989**
**Instrument:** **MSD4.I**
**Analyst:** **JMB3**
**Inj. Vol:** **1 uL**

**Sample Type:** **Laboratory Control Sample**
**Matrix:** **WATER**
**Analysis Date:** **05/13/2013 19:20**
**Prep Batch ID:** **1300968**
**Batch ID:** **1300969**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 62-75-9 | LCS | N-Methyl-N-nitrosomethylam | 50.0 | 0.0 | 17.7 | 35 | 18-75 |
| 110-86-1 | LCS | Pyridine | 50.0 | 0.0 | 25.5 | 51 | 11-88 |
| 62-53-3 | LCS | Aniline | 50.0 | 0.0 | 35.3 | 71 | 35-107 |
| 108-95-2 | LCS | Phenol | 50.0 | 0.0 | 12.2 | 24 | 13-77 |
| 111-44-4 | LCS | bis(2-Chloroethyl) ether | 50.0 | 0.0 | 27.8 | 56 | 35-111 |
| 95-57-8 | LCS | 2-Chlorophenol | 50.0 | 0.0 | 30.3 | 61 | 39-99 |
| 541-73-1 | LCS | 1,3-Dichlorobenzene | 50.0 | 0.0 | 26.9 | 54 | 25-100 |
| 106-46-7 | LCS | 1,4-Dichlorobenzene | 50.0 | 0.0 | 25.7 | 51 | 24-88 |
| 95-50-1 | LCS | 1,2-Dichlorobenzene | 50.0 | 0.0 | 25.8 | 52 | 27-87 |
| 39638-32-9 | LCS | bis(2-Chloroisopropyl)ether | 50.0 | 0.0 | 30.8 | 62 | 23-120 |
| 100-51-6 | LCS | Benzyl alcohol | 50.0 | 0.0 | 28.8 | 58 | 33-90 |
| 95-48-7 | LCS | o-Cresol | 50.0 | 0.0 | 27.2 | 54 | 32-90 |
| 65794-96-9 | LCS | m,p-Cresols | 50.0 | 0.0 | 29.8 | 60 | 28-100 |
| 621-64-7 | LCS | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | 50.0 | 0.0 | 35.9 | 72 | 39-113 |
| 67-72-1 | LCS | Hexachloroethane | 50.0 | 0.0 | 26.0 | 52 | 20-85 |
| 98-95-3 | LCS | Nitrobenzene | 50.0 | 0.0 | 30.2 | 60 | 41-119 |
| 78-59-1 | LCS | Isophorone | 50.0 | 0.0 | 33.9 | 68 | 49-133 |
| 88-75-5 | LCS | 2-Nitrophenol | 50.0 | 0.0 | 29.8 | 60 | 42-111 |
| 105-67-9 | LCS | 2,4-Dimethylphenol | 50.0 | 0.0 | 34.9 | 70 | 43-99 |
| 111-91-1 | LCS | bis(2-Chloroethoxy)methane | 50.0 | 0.0 | 34.6 | 69 | 44-109 |
| 120-83-2 | LCS | 2,4-Dichlorophenol | 50.0 | 0.0 | 32.1 | 64 | 45-106 |
| 65-85-0 | LCS | Benzoic acid | 100 | 0.0 | 21.4 | 21 | 10-81 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-823**
**Client ID:** **LCS for batch 1300968**
**Lab Sample ID:** **1202873989**
**Instrument:** **MSD4.I**
**Analyst:** **JMB3**
**Inj. Vol:** **1 uL**

**Sample Type:** **Laboratory Control Sample**
**Matrix:** **WATER**
**Analysis Date:** **05/13/2013 19:20**
**Prep Batch ID:** **1300968**
**Batch ID:** **1300969**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 106-47-8 | LCS | 4-Chloroaniline | 50.0 | 0.0 | 40.1 | 80 | 50-122 |
| 87-68-3 | LCS | Hexachlorobutadiene | 50.0 | 0.0 | 25.9 | 52 | 19-92 |
| 59-50-7 | LCS | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | 50.0 | 0.0 | 32.5 | 65 | 46-111 |
| 91-57-6 | LCS | 2-Methylnaphthalene | 50.0 | 0.0 | 25.8 | 52 | 33-102 |
| 91-20-3 | LCS | Naphthalene | 50.0 | 0.0 | 28.5 | 57 | 31-98 |
| 90-12-0 | LCS | 1-Methylnaphthalene | 50.0 | 0.0 | 25.2 | 50 | 35-106 |
| 77-47-4 | LCS | Hexachlorocyclopentadiene | 50.0 | 0.0 | 15.5 | 31 | 15-72 |
| 88-06-2 | LCS | 2,4,6-Trichlorophenol | 50.0 | 0.0 | 30.2 | 60 | 41-109 |
| 95-95-4 | LCS | 2,4,5-Trichlorophenol | 50.0 | 0.0 | 34.1 | 68 | 41-111 |
| 91-58-7 | LCS | 2-Chloronaphthalene | 50.0 | 0.0 | 27.6 | 55 | 36-98 |
| 88-74-4 | LCS | 2-Nitroaniline<br>*o-Nitroaniline* | 50.0 | 0.0 | 39.4 | 79 | 44-117 |
| 99-09-2 | LCS | 3-Nitroaniline<br>*m-Nitroaniline* | 50.0 | 0.0 | 37.3 | 75 | 45-124 |
| 131-11-3 | LCS | Dimethylphthalate | 50.0 | 0.0 | 35.1 | 70 | 53-112 |
| 606-20-2 | LCS | 2,6-Dinitrotoluene | 50.0 | 0.0 | 34.7 | 69 | 52-117 |
| 121-14-2 | LCS | 2,4-Dinitrotoluene | 50.0 | 0.0 | 38.9 | 78 | 45-124 |
| 208-96-8 | LCS | Acenaphthylene | 50.0 | 0.0 | 28.0 | 56 | 37-107 |
| 83-32-9 | LCS | Acenaphthene | 50.0 | 0.0 | 25.3 | 51 | 40-104 |
| 51-28-5 | LCS | 2,4-Dinitrophenol | 50.0 | 0.0 | 13.9 | 28 | 19-110 |
| 132-64-9 | LCS | Dibenzofuran | 50.0 | 0.0 | 31.4 | 63 | 45-107 |
| 58-90-2 | LCS | 2,3,4,6-Tetrachlorophenol | 50.0 | 0.0 | 37.3 | 75 | 45-120 |
| 84-66-2 | LCS | Diethylphthalate | 50.0 | 0.0 | 38.4 | 77 | 51-116 |
| 100-02-7 | LCS | 4-Nitrophenol | 50.0 | 0.0 | 4.72 | 9 * | 16-77 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-823**
**Client ID:** **LCS for batch 1300968**
**Lab Sample ID:** **1202873989**
**Instrument:** **MSD4.I**
**Analyst:** **JMB3**
**Inj. Vol:** **1 uL**

**Sample Type:** **Laboratory Control Sample**
**Matrix:** **WATER**
**Analysis Date:** **05/13/2013 19:20**
**Prep Batch ID:** **1300968**
**Batch ID:** **1300969**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 86-73-7 | LCS | Fluorene | 50.0 | 0.0 | 33.2 | 66 | 43-110 |
| 7005-72-3 | LCS | 4-Chlorophenylphenylether | 50.0 | 0.0 | 32.1 | 64 | 40-114 |
| 100-01-6 | LCS | 4-Nitroaniline<br>*p-Nitroaniline* | 50.0 | 0.0 | 44.9 | 90 | 38-133 |
| 534-52-1 | LCS | 2-Methyl-4,6-dinitrophenol | 50.0 | 0.0 | 36.3 | 73 | 34-114 |
| 122-39-4 | LCS | Diphenylamine | 50.0 | 0.0 | 40.9 | 82 | 47-111 |
| 122-66-7 | LCS | Azobenzene<br>*1,2-Diphenylhydrazine* | 50.0 | 0.0 | 36.4 | 73 | 40-112 |
| 101-55-3 | LCS | 4-Bromophenylphenylether | 50.0 | 0.0 | 32.7 | 65 | 41-113 |
| 118-74-1 | LCS | Hexachlorobenzene | 50.0 | 0.0 | 33.5 | 67 | 43-116 |
| 87-86-5 | LCS | Pentachlorophenol | 50.0 | 0.0 | 21.4 | 43 | 27-102 |
| 85-01-8 | LCS | Phenanthrene | 50.0 | 0.0 | 32.0 | 64 | 47-111 |
| 120-12-7 | LCS | Anthracene | 50.0 | 0.0 | 35.0 | 70 | 46-110 |
| 84-74-2 | LCS | Di-n-butylphthalate | 50.0 | 0.0 | 34.9 | 70 | 49-116 |
| 206-44-0 | LCS | Fluoranthene | 50.0 | 0.0 | 33.4 | 67 | 45-118 |
| 129-00-0 | LCS | Pyrene | 50.0 | 0.0 | 29.6 | 59 | 38-127 |
| 85-68-7 | LCS | Butylbenzylphthalate | 50.0 | 0.0 | 29.6 | 59 | 40-122 |
| 117-81-7 | LCS | bis(2-Ethylhexyl)phthalate | 50.0 | 0.0 | 30.0 | 60 | 37-124 |
| 56-55-3 | LCS | Benzo(a)anthracene | 50.0 | 0.0 | 32.4 | 65 | 49-111 |
| 218-01-9 | LCS | Chrysene | 50.0 | 0.0 | 32.6 | 65 | 44-117 |
| 117-84-0 | LCS | Di-n-octylphthalate | 50.0 | 0.0 | 25.4 | 51 | 33-122 |
| 205-99-2 | LCS | Benzo(b)fluoranthene | 50.0 | 0.0 | 33.8 | 68 | 47-117 |
| 207-08-9 | LCS | Benzo(k)fluoranthene | 50.0 | 0.0 | 36.4 | 73 | 46-119 |
| 50-32-8 | LCS | Benzo(a)pyrene | 50.0 | 0.0 | 31.1 | 62 | 47-110 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-823**
**Client ID:** **LCS for batch 1300968**
**Lab Sample ID:** **1202873989**
**Instrument:** **MSD4.I**
**Analyst:** **JMB3**
**Inj. Vol:** **1 uL**

**Sample Type:** **Laboratory Control Sample**
**Matrix:** **WATER**
**Analysis Date:** **05/13/2013 19:20**
**Prep Batch ID:** **1300968**
**Batch ID:** **1300969**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 193-39-5 | LCS | Indeno(1,2,3-cd)pyrene | 50.0 | 0.0 | 28.0 | 56 | 37-125 |
| 53-70-3 | LCS | Dibenzo(a,h)anthracene | 50.0 | 0.0 | 30.4 | 61 | 36-125 |
| 191-24-2 | LCS | Benzo(ghi)perylene | 50.0 | 0.0 | 29.4 | 59 | 33-126 |
| 123-91-1 | LCS | 1,4-Dioxane | 50.0 | 0.0 | 19.4 | 39 | 26-73 |
| 930-55-2 | LCS | N-Nitrosopyrrolidine | 50.0 | 0.0 | 33.9 | 68 | 42-106 |
| 95-94-3 | LCS | 1,2,4,5-Tetrachlorobenzene | 50.0 | 0.0 | 24.0 | 48 | 36-95 |
| 1912-24-9 | LCS | Atrazine | 50.0 | 0.0 | 15.6 | 31 * | 47-115 |
| 92-87-5 | LCS | Benzidine | 100 | 0.0 | 80.6 | 81 | 10-124 |
| 91-94-1 | LCS | 3,3'-Dichlorobenzidine | 50.0 | 0.0 | 31.6 | 63 | 31-113 |
| 120-82-1 | LCS | 1,2,4-Trichlorobenzene | 50.0 | 0.0 | 26.3 | 53 | 26-92 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-823**
**Client ID:** **WST55-13-32015MS**
**Lab Sample ID:** **1202873990**
**Instrument:** **MSD4.I**
**Analyst:** **JMB3**
**Inj. Vol:** **1 uL**

**Sample Type:** **Matrix Spike**
**Matrix:** **W**
**Analysis Date:** **05/14/2013 00:47**
**Prep Batch ID:** **1300968**
**Batch ID:** **1300969**
**Dilution: 20**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 62-75-9 | MS | N-Methyl-N-nitrosomethylam | 116 | 0.00 | U | 0.00 | 0 * | 21-88 |
| 110-86-1 | MS | Pyridine | 116 | 0.00 | U | 0.00 | 0 * | 14-94 |
| 62-53-3 | MS | Aniline | 116 | 0.00 | U | 0.00 | 0 * | 24-109 |
| 108-95-2 | MS | Phenol | 116 | 0.00 | U | 0.00 | 0 * | 10-88 |
| 111-44-4 | MS | bis(2-Chloroethyl) ether | 116 | 0.00 | U | 0.00 | 0 * | 25-114 |
| 95-57-8 | MS | 2-Chlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 31-103 |
| 541-73-1 | MS | 1,3-Dichlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 18-83 |
| 106-46-7 | MS | 1,4-Dichlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 20-86 |
| 95-50-1 | MS | 1,2-Dichlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 21-85 |
| 39638-32-9 | MS | bis(2-Chloroisopropyl)ether | 116 | 0.00 | U | 0.00 | 0 * | 16-121 |
| 100-51-6 | MS | Benzyl alcohol | 116 | 0.00 | U | 0.00 | 0 * | 31-100 |
| 95-48-7 | MS | o-Cresol | 116 | 0.00 | U | 0.00 | 0 * | 26-97 |
| 65794-96-9 | MS | m,p-Cresols | 116 | 0.00 | U | 0.00 | 0 * | 24-110 |
| 621-64-7 | MS | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | 116 | 0.00 | U | 0.00 | 0 * | 29-116 |
| 67-72-1 | MS | Hexachloroethane | 116 | 0.00 | U | 0.00 | 0 * | 17-82 |
| 98-95-3 | MS | Nitrobenzene | 116 | 0.00 | U | 0.00 | 0 * | 32-126 |
| 78-59-1 | MS | Isophorone | 116 | 0.00 | U | 0.00 | 0 * | 36-139 |
| 88-75-5 | MS | 2-Nitrophenol | 116 | 0.00 | U | 0.00 | 0 * | 29-117 |
| 105-67-9 | MS | 2,4-Dimethylphenol | 116 | 0.00 | U | 0.00 | 0 * | 28-107 |
| 111-91-1 | MS | bis(2-Chloroethoxy)methane | 116 | 0.00 | U | 0.00 | 0 * | 34-112 |
| 120-83-2 | MS | 2,4-Dichlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 34-111 |
| 65-85-0 | MS | Benzoic acid | 233 | 0.00 | U | 0.00 | 0 * | 10-105 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-823**
**Client ID:** **WST55-13-32015MS**
**Lab Sample ID:** **1202873990**
**Instrument:** **MSD4.I**
**Analyst:** **JMB3**
**Inj. Vol:** **1 uL**

**Sample Type:** **Matrix Spike**
**Matrix:** **W**
**Analysis Date:** **05/14/2013 00:47**
**Prep Batch ID:** **1300968**
**Batch ID:** **1300969**
**Dilution: 20**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 106-47-8 | MS | 4-Chloroaniline | 116 | 0.00 | U | 0.00 | 0 * | 28-123 |
| 87-68-3 | MS | Hexachlorobutadiene | 116 | 0.00 | U | 0.00 | 0 * | 11-97 |
| 59-50-7 | MS | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | 116 | 0.00 | U | 0.00 | 0 * | 31-119 |
| 91-57-6 | MS | 2-Methylnaphthalene | 116 | 0.00 | U | 47.9 | 41 | 26-103 |
| 91-20-3 | MS | Naphthalene | 116 | 0.00 | U | 41.9 | 36 | 25-100 |
| 90-12-0 | MS | 1-Methylnaphthalene | 116 | 0.00 | U | 46.5 | 40 | 27-107 |
| 77-47-4 | MS | Hexachlorocyclopentadiene | 116 | 0.00 | U | 0.00 | 0 * | 14-73 |
| 88-06-2 | MS | 2,4,6-Trichlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 31-113 |
| 95-95-4 | MS | 2,4,5-Trichlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 30-117 |
| 91-58-7 | MS | 2-Chloronaphthalene | 116 | 0.00 | U | 43.7 | 38 | 30-97 |
| 88-74-4 | MS | 2-Nitroaniline<br>*o-Nitroaniline* | 116 | 0.00 | U | 0.00 | 0 * | 28-122 |
| 99-09-2 | MS | 3-Nitroaniline<br>*m-Nitroaniline* | 116 | 0.00 | U | 0.00 | 0 * | 29-125 |
| 131-11-3 | MS | Dimethylphthalate | 116 | 0.00 | U | 0.00 | 0 * | 41-116 |
| 606-20-2 | MS | 2,6-Dinitrotoluene | 116 | 0.00 | U | 0.00 | 0 * | 40-123 |
| 121-14-2 | MS | 2,4-Dinitrotoluene | 116 | 0.00 | U | 0.00 | 0 * | 34-126 |
| 208-96-8 | MS | Acenaphthylene | 116 | 0.00 | U | 43.7 | 38 | 33-104 |
| 83-32-9 | MS | Acenaphthene | 116 | 0.00 | U | 44.2 | 38 | 31-103 |
| 51-28-5 | MS | 2,4-Dinitrophenol | 116 | 0.00 | U | 0.00 | 0 * | 17-110 |
| 132-64-9 | MS | Dibenzofuran | 116 | 0.00 | U | 0.00 | 0 * | 36-107 |
| 58-90-2 | MS | 2,3,4,6-Tetrachlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 29-126 |
| 84-66-2 | MS | Diethylphthalate | 116 | 0.00 | U | 0.00 | 0 * | 41-117 |
| 100-02-7 | MS | 4-Nitrophenol | 116 | 0.00 | U | 0.00 | 0 * | 16-71 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-823** **Sample Type:** **Matrix Spike**

**Client ID:** **WST55-13-32015MS** **Matrix:** **W**

**Lab Sample ID:** **1202873990**

**Instrument:** **MSD4.I** **Analysis Date:** **05/14/2013 00:47** **Dilution: 20**

**Analyst:** **JMB3** **Prep Batch ID:** **1300968**

**Inj. Vol:** **1 uL** **Batch ID:** **1300969**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 86-73-7 | MS | Fluorene | 116 | 0.00 | U | 43.7 | 38 | 32-111 |
| 7005-72-3 | MS | 4-Chlorophenylphenylether | 116 | 0.00 | U | 0.00 | 0 * | 30-112 |
| 100-01-6 | MS | 4-Nitroaniline<br>*p-Nitroaniline* | 116 | 0.00 | U | 0.00 | 0 * | 25-133 |
| 534-52-1 | MS | 2-Methyl-4,6-dinitrophenol | 116 | 0.00 | U | 0.00 | 0 * | 22-118 |
| 122-39-4 | MS | Diphenylamine | 116 | 0.00 | U | 0.00 | 0 * | 34-111 |
| 122-66-7 | MS | Azobenzene<br>*1,2-Diphenylhydrazine* | 116 | 0.00 | U | 0.00 | 0 * | 30-112 |
| 101-55-3 | MS | 4-Bromophenylphenylether | 116 | 0.00 | U | 0.00 | 0 * | 32-111 |
| 118-74-1 | MS | Hexachlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 33-115 |
| 87-86-5 | MS | Pentachlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 19-112 |
| 85-01-8 | MS | Phenanthrene | 116 | 0.00 | U | 44.2 | 38 | 34-112 |
| 120-12-7 | MS | Anthracene | 116 | 0.00 | U | 42.3 | 36 | 33-108 |
| 84-74-2 | MS | Di-n-butylphthalate | 116 | 0.00 | U | 0.00 | 0 * | 35-118 |
| 206-44-0 | MS | Fluoranthene | 116 | 0.00 | U | 39.5 | 34 | 31-118 |
| 129-00-0 | MS | Pyrene | 116 | 0.00 | U | 53.0 | 46 | 27-126 |
| 85-68-7 | MS | Butylbenzylphthalate | 116 | 0.00 | U | 0.00 | 0 * | 29-121 |
| 117-81-7 | MS | bis(2-Ethylhexyl)phthalate | 116 | 0.00 | U | 0.00 | 0 * | 29-120 |
| 56-55-3 | MS | Benzo(a)anthracene | 116 | 0.00 | U | 42.3 | 36 | 35-112 |
| 218-01-9 | MS | Chrysene | 116 | 0.00 | U | 41.9 | 36 | 32-116 |
| 117-84-0 | MS | Di-n-octylphthalate | 116 | 0.00 | U | 0.00 | 0 * | 25-118 |
| 205-99-2 | MS | Benzo(b)fluoranthene | 116 | 0.00 | U | 50.7 | 44 | 34-116 |
| 207-08-9 | MS | Benzo(k)fluoranthene | 116 | 0.00 | U | 52.1 | 45 | 34-119 |
| 50-32-8 | MS | Benzo(a)pyrene | 116 | 0.00 | U | 36.7 | 32 * | 34-110 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-823**
**Client ID:** **WST55-13-32015MS**
**Lab Sample ID:** **1202873990**
**Instrument:** **MSD4.I**
**Analyst:** **JMB3**
**Inj. Vol:** **1 uL**

**Sample Type:** **Matrix Spike**
**Matrix:** **W**
**Analysis Date:** **05/14/2013 00:47**
**Prep Batch ID:** **1300968**
**Batch ID:** **1300969**
**Dilution: 20**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 193-39-5 | MS | Indeno(1,2,3-cd)pyrene | 116 | 0.00 | U | 23.7 | 20 * | 25-122 |
| 53-70-3 | MS | Dibenzo(a,h)anthracene | 116 | 0.00 | U | 23.7 | 20 * | 24-123 |
| 191-24-2 | MS | Benzo(ghi)perylene | 116 | 0.00 | U | 24.7 | 21 * | 22-122 |
| 123-91-1 | MS | 1,4-Dioxane | 116 | 0.00 | U | 0.00 | 0 * | 26-88 |
| 930-55-2 | MS | N-Nitrosopyrrolidine | 116 | 0.00 | U | 0.00 | 0 * | 42-110 |
| 95-94-3 | MS | 1,2,4,5-Tetrachlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 29-96 |
| 1912-24-9 | MS | Atrazine | 116 | 0.00 | U | 0.00 | 0 * | 33-121 |
| 92-87-5 | MS | Benzidine | 233 | 0.00 | U | 0.00 | 0 * | 10-117 |
| 91-94-1 | MS | 3,3'-Dichlorobenzidine | 116 | 0.00 | U | 0.00 | 0 * | 22-111 |
| 120-82-1 | MS | 1,2,4-Trichlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 20-90 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-823** **Sample Type:** **Matrix Spike Duplicate**

**Client ID:** **WST55-13-32015MSD** **Matrix:** **W**

**Lab Sample ID:** **1202873991**

**Instrument:** **MSD4.I** **Analysis Date:** **05/14/2013 01:17** **Dilution: 20**

**Analyst:** **JMB3** **Prep Batch ID:** **1300968**

**Inj. Vol:** **1 uL** **Batch ID:** **1300969**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 62-75-9 | MSD | N-Methyl-N-nitrosomethylam | 116 | 0.00 | U | 0.00 | 0 * | 21-88 | 0 | 0-30 |
| 110-86-1 | MSD | Pyridine | 116 | 0.00 | U | 0.00 | 0 * | 14-94 | 0 | 0-30 |
| 62-53-3 | MSD | Aniline | 116 | 0.00 | U | 0.00 | 0 * | 24-109 | 0 | 0-30 |
| 108-95-2 | MSD | Phenol | 116 | 0.00 | U | 0.00 | 0 * | 10-88 | 0 | 0-30 |
| 111-44-4 | MSD | bis(2-Chloroethyl) ether | 116 | 0.00 | U | 0.00 | 0 * | 25-114 | 0 | 0-30 |
| 95-57-8 | MSD | 2-Chlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 31-103 | 0 | 0-30 |
| 541-73-1 | MSD | 1,3-Dichlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 18-83 | 0 | 0-30 |
| 106-46-7 | MSD | 1,4-Dichlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 20-86 | 0 | 0-30 |
| 95-50-1 | MSD | 1,2-Dichlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 21-85 | 0 | 0-30 |
| 39638-32-9 | MSD | bis(2-Chloroisopropyl)ether | 116 | 0.00 | U | 0.00 | 0 * | 16-121 | 0 | 0-30 |
| 100-51-6 | MSD | Benzyl alcohol | 116 | 0.00 | U | 0.00 | 0 * | 31-100 | 0 | 0-30 |
| 95-48-7 | MSD | o-Cresol | 116 | 0.00 | U | 0.00 | 0 * | 26-97 | 0 | 0-30 |
| 65794-96-9 | MSD | m,p-Cresols | 116 | 0.00 | U | 0.00 | 0 * | 24-110 | 0 | 0-30 |
| 621-64-7 | MSD | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | 116 | 0.00 | U | 0.00 | 0 * | 29-116 | 0 | 0-30 |
| 67-72-1 | MSD | Hexachloroethane | 116 | 0.00 | U | 0.00 | 0 * | 17-82 | 0 | 0-30 |
| 98-95-3 | MSD | Nitrobenzene | 116 | 0.00 | U | 0.00 | 0 * | 32-126 | 0 | 0-30 |
| 78-59-1 | MSD | Isophorone | 116 | 0.00 | U | 0.00 | 0 * | 36-139 | 0 | 0-30 |
| 88-75-5 | MSD | 2-Nitrophenol | 116 | 0.00 | U | 0.00 | 0 * | 29-117 | 0 | 0-30 |
| 105-67-9 | MSD | 2,4-Dimethylphenol | 116 | 0.00 | U | 0.00 | 0 * | 28-107 | 0 | 0-30 |
| 111-91-1 | MSD | bis(2-Chloroethoxy)methane | 116 | 0.00 | U | 0.00 | 0 * | 34-112 | 0 | 0-30 |
| 120-83-2 | MSD | 2,4-Dichlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 34-111 | 0 | 0-30 |
| 65-85-0 | MSD | Benzoic acid | 233 | 0.00 | U | 0.00 | 0 * | 10-105 | 0 | 0-30 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-823**
**Client ID:** **WST55-13-32015MSD**
**Lab Sample ID:** **1202873991**
**Instrument:** **MSD4.I**
**Analyst:** **JMB3**
**Inj. Vol:** **1 uL**

**Sample Type:** **Matrix Spike Duplicate**
**Matrix:** **W**
**Analysis Date:** **05/14/2013 01:17**
**Prep Batch ID:** **1300968**
**Batch ID:** **1300969**
**Dilution: 20**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 106-47-8 | MSD | 4-Chloroaniline | 116 | 0.00 | U | 0.00 | 0 * | 28-123 | 0 | 0-30 |
| 87-68-3 | MSD | Hexachlorobutadiene | 116 | 0.00 | U | 0.00 | 0 * | 11-97 | 0 | 0-30 |
| 59-50-7 | MSD | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | 116 | 0.00 | U | 0.00 | 0 * | 31-119 | 0 | 0-30 |
| 91-57-6 | MSD | 2-Methylnaphthalene | 116 | 0.00 | U | 45.1 | 39 | 26-103 | 6 | 0-30 |
| 91-20-3 | MSD | Naphthalene | 116 | 0.00 | U | 40.9 | 35 | 25-100 | 2 | 0-30 |
| 90-12-0 | MSD | 1-Methylnaphthalene | 116 | 0.00 | U | 41.9 | 36 | 27-107 | 11 | 0-30 |
| 77-47-4 | MSD | Hexachlorocyclopentadiene | 116 | 0.00 | U | 0.00 | 0 * | 14-73 | 0 | 0-30 |
| 88-06-2 | MSD | 2,4,6-Trichlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 31-113 | 0 | 0-30 |
| 95-95-4 | MSD | 2,4,5-Trichlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 30-117 | 0 | 0-30 |
| 91-58-7 | MSD | 2-Chloronaphthalene | 116 | 0.00 | U | 42.3 | 36 | 30-97 | 3 | 0-30 |
| 88-74-4 | MSD | 2-Nitroaniline<br>*o-Nitroaniline* | 116 | 0.00 | U | 0.00 | 0 * | 28-122 | 0 | 0-30 |
| 99-09-2 | MSD | 3-Nitroaniline<br>*m-Nitroaniline* | 116 | 0.00 | U | 0.00 | 0 * | 29-125 | 0 | 0-30 |
| 131-11-3 | MSD | Dimethylphthalate | 116 | 0.00 | U | 0.00 | 0 * | 41-116 | 0 | 0-30 |
| 606-20-2 | MSD | 2,6-Dinitrotoluene | 116 | 0.00 | U | 0.00 | 0 * | 40-123 | 0 | 0-30 |
| 121-14-2 | MSD | 2,4-Dinitrotoluene | 116 | 0.00 | U | 0.00 | 0 * | 34-126 | 0 | 0-30 |
| 208-96-8 | MSD | Acenaphthylene | 116 | 0.00 | U | 44.2 | 38 | 33-104 | 1 | 0-30 |
| 83-32-9 | MSD | Acenaphthene | 116 | 0.00 | U | 42.3 | 36 | 31-103 | 4 | 0-30 |
| 51-28-5 | MSD | 2,4-Dinitrophenol | 116 | 0.00 | U | 0.00 | 0 * | 17-110 | 0 | 0-30 |
| 132-64-9 | MSD | Dibenzofuran | 116 | 0.00 | U | 0.00 | 0 * | 36-107 | 0 | 0-30 |
| 58-90-2 | MSD | 2,3,4,6-Tetrachlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 29-126 | 0 | 0-30 |
| 84-66-2 | MSD | Diethylphthalate | 116 | 0.00 | U | 0.00 | 0 * | 41-117 | 0 | 0-30 |
| 100-02-7 | MSD | 4-Nitrophenol | 116 | 0.00 | U | 0.00 | 0 * | 16-71 | 0 | 0-30 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-823** **Sample Type:** **Matrix Spike Duplicate**

**Client ID:** **WST55-13-32015MSD** **Matrix:** **W**

**Lab Sample ID:** **1202873991**

**Instrument:** **MSD4.I** **Analysis Date:** **05/14/2013 01:17** **Dilution: 20**

**Analyst:** **JMB3** **Prep Batch ID:** **1300968**

**Inj. Vol:** **1 uL** **Batch ID:** **1300969**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 86-73-7 | MSD | Fluorene | 116 | 0.00 | U | 41.9 | 36 | 32-111 | 4 | 0-30 |
| 7005-72-3 | MSD | 4-Chlorophenylphenylether | 116 | 0.00 | U | 0.00 | 0 * | 30-112 | 0 | 0-30 |
| 100-01-6 | MSD | 4-Nitroaniline<br>*p-Nitroaniline* | 116 | 0.00 | U | 0.00 | 0 * | 25-133 | 0 | 0-30 |
| 534-52-1 | MSD | 2-Methyl-4,6-dinitrophenol | 116 | 0.00 | U | 0.00 | 0 * | 22-118 | 0 | 0-30 |
| 122-39-4 | MSD | Diphenylamine | 116 | 0.00 | U | 0.00 | 0 * | 34-111 | 0 | 0-30 |
| 122-66-7 | MSD | Azobenzene<br>*1,2-Diphenylhydrazine* | 116 | 0.00 | U | 0.00 | 0 * | 30-112 | 0 | 0-30 |
| 101-55-3 | MSD | 4-Bromophenylphenylether | 116 | 0.00 | U | 0.00 | 0 * | 32-111 | 0 | 0-30 |
| 118-74-1 | MSD | Hexachlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 33-115 | 0 | 0-30 |
| 87-86-5 | MSD | Pentachlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 19-112 | 0 | 0-30 |
| 85-01-8 | MSD | Phenanthrene | 116 | 0.00 | U | 42.3 | 36 | 34-112 | 4 | 0-30 |
| 120-12-7 | MSD | Anthracene | 116 | 0.00 | U | 41.4 | 36 | 33-108 | 2 | 0-30 |
| 84-74-2 | MSD | Di-n-butylphthalate | 116 | 0.00 | U | 0.00 | 0 * | 35-118 | 0 | 0-30 |
| 206-44-0 | MSD | Fluoranthene | 116 | 0.00 | U | 40.9 | 35 | 31-118 | 3 | 0-30 |
| 129-00-0 | MSD | Pyrene | 116 | 0.00 | U | 44.7 | 38 | 27-126 | 17 | 0-30 |
| 85-68-7 | MSD | Butylbenzylphthalate | 116 | 0.00 | U | 0.00 | 0 * | 29-121 | 0 | 0-30 |
| 117-81-7 | MSD | bis(2-Ethylhexyl)phthalate | 116 | 0.00 | U | 0.00 | 0 * | 29-120 | 0 | 0-30 |
| 56-55-3 | MSD | Benzo(a)anthracene | 116 | 0.00 | U | 41.9 | 36 | 35-112 | 1 | 0-30 |
| 218-01-9 | MSD | Chrysene | 116 | 0.00 | U | 39.5 | 34 | 32-116 | 6 | 0-30 |
| 117-84-0 | MSD | Di-n-octylphthalate | 116 | 0.00 | U | 0.00 | 0 * | 25-118 | 0 | 0-30 |
| 205-99-2 | MSD | Benzo(b)fluoranthene | 116 | 0.00 | U | 45.1 | 39 | 34-116 | 12 | 0-30 |
| 207-08-9 | MSD | Benzo(k)fluoranthene | 116 | 0.00 | U | 59.1 | 51 | 34-119 | 13 | 0-30 |
| 50-32-8 | MSD | Benzo(a)pyrene | 116 | 0.00 | U | 39.1 | 34 | 34-110 | 6 | 0-30 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-823**
**Client ID:** **WST55-13-32015MSD**
**Lab Sample ID:** **1202873991**
**Instrument:** **MSD4.I**
**Analyst:** **JMB3**
**Inj. Vol:** **1 uL**

**Sample Type:** **Matrix Spike Duplicate**
**Matrix:** **W**
**Analysis Date:** **05/14/2013 01:17**
**Prep Batch ID:** **1300968**
**Batch ID:** **1300969**
**Dilution:** **20**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 193-39-5 | MSD | Indeno(1,2,3-cd)pyrene | 116 | 0.00 | U | 30.2 | 26 | 25-122 | 24 | 0-30 |
| 53-70-3 | MSD | Dibenzo(a,h)anthracene | 116 | 0.00 | U | 25.1 | 22 * | 24-123 | 6 | 0-30 |
| 191-24-2 | MSD | Benzo(ghi)perylene | 116 | 0.00 | U | 27.4 | 24 | 22-122 | 11 | 0-30 |
| 123-91-1 | MSD | 1,4-Dioxane | 116 | 0.00 | U | 0.00 | 0 * | 26-88 | 0 | 0-30 |
| 930-55-2 | MSD | N-Nitrosopyrrolidine | 116 | 0.00 | U | 0.00 | 0 * | 42-110 | 0 | 0-30 |
| 95-94-3 | MSD | 1,2,4,5-Tetrachlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 29-96 | 0 | 0-30 |
| 1912-24-9 | MSD | Atrazine | 116 | 0.00 | U | 0.00 | 0 * | 33-121 | 0 | 0-30 |
| 92-87-5 | MSD | Benzidine | 233 | 0.00 | U | 0.00 | 0 * | 10-117 | 0 | 0-30 |
| 91-94-1 | MSD | 3,3'-Dichlorobenzidine | 116 | 0.00 | U | 0.00 | 0 * | 22-111 | 0 | 0-30 |
| 120-82-1 | MSD | 1,2,4-Trichlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 20-90 | 0 | 0-30 |

# Method Blank Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-823** | **Client:** | **ARSL001** | **Matrix:** | **WATER** |
| **Client ID:** | **MB for batch 1300968** | **Instrument ID:** | **MSD4.I** | **Data File:** | **s051313a.B\s4e1315.D** |
| **Lab Sample ID:** | **1202873988** | **Prep Date:** | **05/13/2013 10:10** | **Analyzed:** | **05/13/13 18:50** |
| **Column:** | **DB-5ms** | | | | |

**This method blank applies to the following samples and quality control samples:**

| Client Sample ID | Lab Sample ID | File ID | Date Analyzed | Time Analyzed |
|---|---|---|---|---|
| 01 LCS for batch 1300968 | 1202873989 | s051313a.B\s4e1316.D | 05/13/13 | 1920 |
| 02 CAMO-13-30573 | 325480001 | s051313a.B\s4e1325.D | 05/13/13 | 2348 |
| 03 WST55-13-32015MS | 1202873990 | s051313a.B\s4e1327.D | 05/14/13 | 0047 |
| 04 WST55-13-32015MSD | 1202873991 | s051313a.B\s4e1328.D | 05/14/13 | 0117 |

# Quality Control Data

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-823** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202873988** | | | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **MB for batch 1300968** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 18:50** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **1000 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1315.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 62-75-9 | N-Methyl-N-nitrosomethylamine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 110-86-1 | Pyridine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 62-53-3 | Aniline | U | 10.0 | ug/L | 3.00 | 10.0 |
| 108-95-2 | Phenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 111-44-4 | bis(2-Chloroethyl) ether | U | 10.0 | ug/L | 3.00 | 10.0 |
| 95-57-8 | 2-Chlorophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 39638-32-9 | bis(2-Chloroisopropyl)ether | U | 10.0 | ug/L | 3.00 | 10.0 |
| 100-51-6 | Benzyl alcohol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 95-48-7 | o-Cresol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 65794-96-9 | m,p-Cresols | U | 10.0 | ug/L | 3.00 | 10.0 |
| 621-64-7 | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | U | 10.0 | ug/L | 3.00 | 10.0 |
| 67-72-1 | Hexachloroethane | U | 10.0 | ug/L | 3.00 | 10.0 |
| 98-95-3 | Nitrobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 78-59-1 | Isophorone | U | 10.0 | ug/L | 3.00 | 10.0 |
| 88-75-5 | 2-Nitrophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 105-67-9 | 2,4-Dimethylphenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 111-91-1 | bis(2-Chloroethoxy)methane | U | 10.0 | ug/L | 3.00 | 10.0 |
| 120-83-2 | 2,4-Dichlorophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 65-85-0 | Benzoic acid | U | 20.0 | ug/L | 6.00 | 20.0 |
| 106-47-8 | 4-Chloroaniline | U | 10.0 | ug/L | 3.30 | 10.0 |
| 87-68-3 | Hexachlorobutadiene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 59-50-7 | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | U | 10.0 | ug/L | 3.00 | 10.0 |
| 91-57-6 | 2-Methylnaphthalene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 90-12-0 | 1-Methylnaphthalene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 77-47-4 | Hexachlorocyclopentadiene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 88-06-2 | 2,4,6-Trichlorophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 95-95-4 | 2,4,5-Trichlorophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 91-58-7 | 2-Chloronaphthalene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 88-74-4 | 2-Nitroaniline<br>*o-Nitroaniline* | U | 10.0 | ug/L | 3.00 | 10.0 |
| 99-09-2 | 3-Nitroaniline<br>*m-Nitroaniline* | U | 10.0 | ug/L | 3.00 | 10.0 |
| 131-11-3 | Dimethylphthalate | U | 10.0 | ug/L | 3.00 | 10.0 |
| 606-20-2 | 2,6-Dinitrotoluene | U | 10.0 | ug/L | 3.00 | 10.0 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-823** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202873988** | | | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **MB for batch 1300968** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 18:50** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **1000 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1315.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 121-14-2 | 2,4-Dinitrotoluene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 208-96-8 | Acenaphthylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 83-32-9 | Acenaphthene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 51-28-5 | 2,4-Dinitrophenol | U | 20.0 | ug/L | 5.00 | 20.0 |
| 132-64-9 | Dibenzofuran | U | 10.0 | ug/L | 3.00 | 10.0 |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 84-66-2 | Diethylphthalate | U | 10.0 | ug/L | 3.00 | 10.0 |
| 100-02-7 | 4-Nitrophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 86-73-7 | Fluorene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 7005-72-3 | 4-Chlorophenylphenylether | U | 10.0 | ug/L | 3.00 | 10.0 |
| 100-01-6 | 4-Nitroaniline | U | 10.0 | ug/L | 3.00 | 10.0 |
| | *p-Nitroaniline* | | | | | |
| 534-52-1 | 2-Methyl-4,6-dinitrophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 122-39-4 | Diphenylamine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 122-66-7 | Azobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| | *1,2-Diphenylhydrazine* | | | | | |
| 101-55-3 | 4-Bromophenylphenylether | U | 10.0 | ug/L | 3.00 | 10.0 |
| 118-74-1 | Hexachlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 87-86-5 | Pentachlorophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 88-85-7 | Dinoseb | U | 10.0 | ug/L | 3.00 | 10.0 |
| 85-01-8 | Phenanthrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 120-12-7 | Anthracene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 84-74-2 | Di-n-butylphthalate | U | 10.0 | ug/L | 3.00 | 10.0 |
| 206-44-0 | Fluoranthene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 129-00-0 | Pyrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 85-68-7 | Butylbenzylphthalate | U | 10.0 | ug/L | 3.00 | 10.0 |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | U | 10.0 | ug/L | 3.00 | 10.0 |
| 56-55-3 | Benzo(a)anthracene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 218-01-9 | Chrysene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 117-84-0 | Di-n-octylphthalate | U | 10.0 | ug/L | 3.00 | 10.0 |
| 205-99-2 | Benzo(b)fluoranthene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 207-08-9 | Benzo(k)fluoranthene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 50-32-8 | Benzo(a)pyrene | U | 1.00 | ug/L | 0.440 | 1.00 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 53-70-3 | Dibenzo(a,h)anthracene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 191-24-2 | Benzo(ghi)perylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 123-91-1 | 1,4-Dioxane | U | 10.0 | ug/L | 3.00 | 10.0 |
| 55-18-5 | N-Nitrosodiethylamine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 930-55-2 | N-Nitrosopyrrolidine | U | 10.0 | ug/L | 3.00 | 10.0 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-823** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202873988** | | | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **MB for batch 1300968** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 18:50** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **1000 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1315.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 924-16-3 | N-Nitrosodi-n-butylamine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 608-93-5 | Pentachlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 1912-24-9 | Atrazine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 92-87-5 | Benzidine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 91-94-1 | 3,3'-Dichlorobenzidine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 2,4,6-Tribromophenol | 61.2 | 100 | ug/L | 61.2 | (26%-129%) |
| 2-Fluorobiphenyl | 18.8 | 50.0 | ug/L | 37.7 | (32%-102%) |
| 2-Fluorophenol | 44.0 | 100 | ug/L | 44.0 | (10%-78%) |
| Nitrobenzene-d5 | 33.3 | 50.0 | ug/L | 66.6 | (36%-125%) |
| Phenol-d5 | 26.5 | 100 | ug/L | 26.5 | (10%-104%) |
| p-Terphenyl-d14 | 51.9 | 50.0 | ug/L | 104 | (34%-135%) |

**Tentatively Identified Compound Summary**

| CAS No. | Tentatively Identified Compound (TIC) | RT | Estimated | Units | Fit | Qual |
|---|---|---|---|---|---|---|
| | unknown | 2.028 | 30.2 | ug/L | 0 | J |
| | unknown | 23.7 | 5.44 | ug/L | 0 | J |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-823** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202873989** | | | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1300968** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 19:20** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **1000 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1316.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 62-75-9 | N-Methyl-N-nitrosomethylamine | | 17.7 | ug/L | 3.00 | 10.0 |
| 110-86-1 | Pyridine | | 25.5 | ug/L | 3.00 | 10.0 |
| 62-53-3 | Aniline | | 35.3 | ug/L | 3.00 | 10.0 |
| 108-95-2 | Phenol | | 12.2 | ug/L | 3.00 | 10.0 |
| 111-44-4 | bis(2-Chloroethyl) ether | | 27.8 | ug/L | 3.00 | 10.0 |
| 95-57-8 | 2-Chlorophenol | | 30.3 | ug/L | 3.00 | 10.0 |
| 541-73-1 | 1,3-Dichlorobenzene | | 26.9 | ug/L | 3.00 | 10.0 |
| 106-46-7 | 1,4-Dichlorobenzene | | 25.7 | ug/L | 3.00 | 10.0 |
| 95-50-1 | 1,2-Dichlorobenzene | | 25.8 | ug/L | 3.00 | 10.0 |
| 39638-32-9 | bis(2-Chloroisopropyl)ether | | 30.8 | ug/L | 3.00 | 10.0 |
| 100-51-6 | Benzyl alcohol | | 28.8 | ug/L | 3.00 | 10.0 |
| 95-48-7 | o-Cresol | | 27.2 | ug/L | 3.00 | 10.0 |
| 65794-96-9 | m,p-Cresols | | 29.8 | ug/L | 3.00 | 10.0 |
| 621-64-7 | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | | 35.9 | ug/L | 3.00 | 10.0 |
| 67-72-1 | Hexachloroethane | | 26.0 | ug/L | 3.00 | 10.0 |
| 98-95-3 | Nitrobenzene | | 30.2 | ug/L | 3.00 | 10.0 |
| 78-59-1 | Isophorone | | 33.9 | ug/L | 3.00 | 10.0 |
| 88-75-5 | 2-Nitrophenol | | 29.8 | ug/L | 3.00 | 10.0 |
| 105-67-9 | 2,4-Dimethylphenol | | 34.9 | ug/L | 3.00 | 10.0 |
| 111-91-1 | bis(2-Chloroethoxy)methane | | 34.6 | ug/L | 3.00 | 10.0 |
| 120-83-2 | 2,4-Dichlorophenol | | 32.1 | ug/L | 3.00 | 10.0 |
| 65-85-0 | Benzoic acid | | 21.4 | ug/L | 6.00 | 20.0 |
| 106-47-8 | 4-Chloroaniline | | 40.1 | ug/L | 3.30 | 10.0 |
| 87-68-3 | Hexachlorobutadiene | | 25.9 | ug/L | 3.00 | 10.0 |
| 59-50-7 | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | | 32.5 | ug/L | 3.00 | 10.0 |
| 91-57-6 | 2-Methylnaphthalene | | 25.8 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | | 28.5 | ug/L | 0.300 | 1.00 |
| 90-12-0 | 1-Methylnaphthalene | | 25.2 | ug/L | 0.300 | 1.00 |
| 77-47-4 | Hexachlorocyclopentadiene | | 15.5 | ug/L | 3.00 | 10.0 |
| 88-06-2 | 2,4,6-Trichlorophenol | | 30.2 | ug/L | 3.00 | 10.0 |
| 95-95-4 | 2,4,5-Trichlorophenol | | 34.1 | ug/L | 3.00 | 10.0 |
| 91-58-7 | 2-Chloronaphthalene | | 27.6 | ug/L | 0.300 | 1.00 |
| 88-74-4 | 2-Nitroaniline<br>*o-Nitroaniline* | | 39.4 | ug/L | 3.00 | 10.0 |
| 99-09-2 | 3-Nitroaniline<br>*m-Nitroaniline* | | 37.3 | ug/L | 3.00 | 10.0 |
| 131-11-3 | Dimethylphthalate | | 35.1 | ug/L | 3.00 | 10.0 |
| 606-20-2 | 2,6-Dinitrotoluene | | 34.7 | ug/L | 3.00 | 10.0 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-823** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202873989** | | | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1300968** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 19:20** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **1000 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1316.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 121-14-2 | 2,4-Dinitrotoluene | | 38.9 | ug/L | 3.00 | 10.0 |
| 208-96-8 | Acenaphthylene | | 28.0 | ug/L | 0.300 | 1.00 |
| 83-32-9 | Acenaphthene | | 25.3 | ug/L | 0.300 | 1.00 |
| 51-28-5 | 2,4-Dinitrophenol | J | 13.9 | ug/L | 5.00 | 20.0 |
| 132-64-9 | Dibenzofuran | | 31.4 | ug/L | 3.00 | 10.0 |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | | 37.3 | ug/L | 3.00 | 10.0 |
| 84-66-2 | Diethylphthalate | | 38.4 | ug/L | 3.00 | 10.0 |
| 100-02-7 | 4-Nitrophenol | J | 4.72 | ug/L | 3.00 | 10.0 |
| 86-73-7 | Fluorene | | 33.2 | ug/L | 0.300 | 1.00 |
| 7005-72-3 | 4-Chlorophenylphenylether | | 32.1 | ug/L | 3.00 | 10.0 |
| 100-01-6 | 4-Nitroaniline | | 44.9 | ug/L | 3.00 | 10.0 |
| | *p-Nitroaniline* | | | | | |
| 534-52-1 | 2-Methyl-4,6-dinitrophenol | | 36.3 | ug/L | 3.00 | 10.0 |
| 122-39-4 | Diphenylamine | | 40.9 | ug/L | 3.00 | 10.0 |
| 122-66-7 | Azobenzene | | 36.4 | ug/L | 3.00 | 10.0 |
| | *1,2-Diphenylhydrazine* | | | | | |
| 101-55-3 | 4-Bromophenylphenylether | | 32.7 | ug/L | 3.00 | 10.0 |
| 118-74-1 | Hexachlorobenzene | | 33.5 | ug/L | 3.00 | 10.0 |
| 87-86-5 | Pentachlorophenol | | 21.4 | ug/L | 3.00 | 10.0 |
| 88-85-7 | Dinoseb | U | 10.0 | ug/L | 3.00 | 10.0 |
| 85-01-8 | Phenanthrene | | 32.0 | ug/L | 0.300 | 1.00 |
| 120-12-7 | Anthracene | | 35.0 | ug/L | 0.300 | 1.00 |
| 84-74-2 | Di-n-butylphthalate | | 34.9 | ug/L | 3.00 | 10.0 |
| 206-44-0 | Fluoranthene | | 33.4 | ug/L | 0.300 | 1.00 |
| 129-00-0 | Pyrene | | 29.6 | ug/L | 0.300 | 1.00 |
| 85-68-7 | Butylbenzylphthalate | | 29.6 | ug/L | 3.00 | 10.0 |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | | 30.0 | ug/L | 3.00 | 10.0 |
| 56-55-3 | Benzo(a)anthracene | | 32.4 | ug/L | 0.300 | 1.00 |
| 218-01-9 | Chrysene | | 32.6 | ug/L | 0.300 | 1.00 |
| 117-84-0 | Di-n-octylphthalate | | 25.4 | ug/L | 3.00 | 10.0 |
| 205-99-2 | Benzo(b)fluoranthene | | 33.8 | ug/L | 0.300 | 1.00 |
| 207-08-9 | Benzo(k)fluoranthene | | 36.4 | ug/L | 0.300 | 1.00 |
| 50-32-8 | Benzo(a)pyrene | | 31.1 | ug/L | 0.440 | 1.00 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | | 28.0 | ug/L | 0.300 | 1.00 |
| 53-70-3 | Dibenzo(a,h)anthracene | | 30.4 | ug/L | 0.300 | 1.00 |
| 191-24-2 | Benzo(ghi)perylene | | 29.4 | ug/L | 0.300 | 1.00 |
| 123-91-1 | 1,4-Dioxane | | 19.4 | ug/L | 3.00 | 10.0 |
| 55-18-5 | N-Nitrosodiethylamine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 930-55-2 | N-Nitrosopyrrolidine | | 33.9 | ug/L | 3.00 | 10.0 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-823** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202873989** | | | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1300968** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 19:20** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **1000 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1316.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 924-16-3 | N-Nitrosodi-n-butylamine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | | 24.0 | ug/L | 3.00 | 10.0 |
| 608-93-5 | Pentachlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 1912-24-9 | Atrazine | | 15.6 | ug/L | 3.00 | 10.0 |
| 92-87-5 | Benzidine | | 80.6 | ug/L | 3.00 | 10.0 |
| 91-94-1 | 3,3'-Dichlorobenzidine | | 31.6 | ug/L | 3.00 | 10.0 |
| 120-82-1 | 1,2,4-Trichlorobenzene | | 26.3 | ug/L | 3.00 | 10.0 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 2,4,6-Tribromophenol | 65.7 | 100 | ug/L | 65.7 | (26%-129%) |
| 2-Fluorobiphenyl | 25.5 | 50.0 | ug/L | 51.0 | (32%-102%) |
| 2-Fluorophenol | 37.6 | 100 | ug/L | 37.6 | (10%-78%) |
| Nitrobenzene-d5 | 30.3 | 50.0 | ug/L | 60.7 | (36%-125%) |
| Phenol-d5 | 24.8 | 100 | ug/L | 24.8 | (10%-104%) |
| p-Terphenyl-d14 | 37.5 | 50.0 | ug/L | 74.9 | (34%-135%) |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-823** | **Date Collected:** | **05/07/2013 09:30** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202873990** | **Date Received:** | **05/08/2013 08:55** | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **WST55-13-32015MS** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **20** |
| **Run Date:** | **05/14/2013 00:47** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **430 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1327.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 62-75-9 | N-Methyl-N-nitrosomethylamine | U | 465 | ug/L | 140 | 465 |
| 110-86-1 | Pyridine | U | 465 | ug/L | 140 | 465 |
| 62-53-3 | Aniline | U | 465 | ug/L | 140 | 465 |
| 108-95-2 | Phenol | U | 465 | ug/L | 140 | 465 |
| 111-44-4 | bis(2-Chloroethyl) ether | U | 465 | ug/L | 140 | 465 |
| 95-57-8 | 2-Chlorophenol | U | 465 | ug/L | 140 | 465 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 465 | ug/L | 140 | 465 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 465 | ug/L | 140 | 465 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 465 | ug/L | 140 | 465 |
| 39638-32-9 | bis(2-Chloroisopropyl)ether | U | 465 | ug/L | 140 | 465 |
| 100-51-6 | Benzyl alcohol | U | 465 | ug/L | 140 | 465 |
| 95-48-7 | o-Cresol | U | 465 | ug/L | 140 | 465 |
| 65794-96-9 | m,p-Cresols | U | 465 | ug/L | 140 | 465 |
| 621-64-7 | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | U | 465 | ug/L | 140 | 465 |
| 67-72-1 | Hexachloroethane | U | 465 | ug/L | 140 | 465 |
| 98-95-3 | Nitrobenzene | U | 465 | ug/L | 140 | 465 |
| 78-59-1 | Isophorone | U | 465 | ug/L | 140 | 465 |
| 88-75-5 | 2-Nitrophenol | U | 465 | ug/L | 140 | 465 |
| 105-67-9 | 2,4-Dimethylphenol | U | 465 | ug/L | 140 | 465 |
| 111-91-1 | bis(2-Chloroethoxy)methane | U | 465 | ug/L | 140 | 465 |
| 120-83-2 | 2,4-Dichlorophenol | U | 465 | ug/L | 140 | 465 |
| 65-85-0 | Benzoic acid | U | 930 | ug/L | 279 | 930 |
| 106-47-8 | 4-Chloroaniline | U | 465 | ug/L | 153 | 465 |
| 87-68-3 | Hexachlorobutadiene | U | 465 | ug/L | 140 | 465 |
| 59-50-7 | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | U | 465 | ug/L | 140 | 465 |
| 91-57-6 | 2-Methylnaphthalene | | 47.9 | ug/L | 14.0 | 46.5 |
| 91-20-3 | Naphthalene | J | 41.9 | ug/L | 14.0 | 46.5 |
| 90-12-0 | 1-Methylnaphthalene | | 46.5 | ug/L | 14.0 | 46.5 |
| 77-47-4 | Hexachlorocyclopentadiene | U | 465 | ug/L | 140 | 465 |
| 88-06-2 | 2,4,6-Trichlorophenol | U | 465 | ug/L | 140 | 465 |
| 95-95-4 | 2,4,5-Trichlorophenol | U | 465 | ug/L | 140 | 465 |
| 91-58-7 | 2-Chloronaphthalene | J | 43.7 | ug/L | 14.0 | 46.5 |
| 88-74-4 | 2-Nitroaniline<br>*o-Nitroaniline* | U | 465 | ug/L | 140 | 465 |
| 99-09-2 | 3-Nitroaniline<br>*m-Nitroaniline* | U | 465 | ug/L | 140 | 465 |
| 131-11-3 | Dimethylphthalate | U | 465 | ug/L | 140 | 465 |
| 606-20-2 | 2,6-Dinitrotoluene | U | 465 | ug/L | 140 | 465 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-823** | **Date Collected:** | **05/07/2013 09:30** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202873990** | **Date Received:** | **05/08/2013 08:55** | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **WST55-13-32015MS** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **20** |
| **Run Date:** | **05/14/2013 00:47** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **430 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1327.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 121-14-2 | 2,4-Dinitrotoluene | U | 465 | ug/L | 140 | 465 |
| 208-96-8 | Acenaphthylene | J | 43.7 | ug/L | 14.0 | 46.5 |
| 83-32-9 | Acenaphthene | J | 44.2 | ug/L | 14.0 | 46.5 |
| 51-28-5 | 2,4-Dinitrophenol | U | 930 | ug/L | 233 | 930 |
| 132-64-9 | Dibenzofuran | U | 465 | ug/L | 140 | 465 |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | U | 465 | ug/L | 140 | 465 |
| 84-66-2 | Diethylphthalate | U | 465 | ug/L | 140 | 465 |
| 100-02-7 | 4-Nitrophenol | U | 465 | ug/L | 140 | 465 |
| 86-73-7 | Fluorene | J | 43.7 | ug/L | 14.0 | 46.5 |
| 7005-72-3 | 4-Chlorophenylphenylether | U | 465 | ug/L | 140 | 465 |
| 100-01-6 | 4-Nitroaniline | U | 465 | ug/L | 140 | 465 |
| | *p-Nitroaniline* | | | | | |
| 534-52-1 | 2-Methyl-4,6-dinitrophenol | U | 465 | ug/L | 140 | 465 |
| 122-39-4 | Diphenylamine | U | 465 | ug/L | 140 | 465 |
| 122-66-7 | Azobenzene | U | 465 | ug/L | 140 | 465 |
| | *1,2-Diphenylhydrazine* | | | | | |
| 101-55-3 | 4-Bromophenylphenylether | U | 465 | ug/L | 140 | 465 |
| 118-74-1 | Hexachlorobenzene | U | 465 | ug/L | 140 | 465 |
| 87-86-5 | Pentachlorophenol | U | 465 | ug/L | 140 | 465 |
| 88-85-7 | Dinoseb | U | 465 | ug/L | 140 | 465 |
| 85-01-8 | Phenanthrene | J | 44.2 | ug/L | 14.0 | 46.5 |
| 120-12-7 | Anthracene | J | 42.3 | ug/L | 14.0 | 46.5 |
| 84-74-2 | Di-n-butylphthalate | U | 465 | ug/L | 140 | 465 |
| 206-44-0 | Fluoranthene | J | 39.5 | ug/L | 14.0 | 46.5 |
| 129-00-0 | Pyrene | | 53.0 | ug/L | 14.0 | 46.5 |
| 85-68-7 | Butylbenzylphthalate | U | 465 | ug/L | 140 | 465 |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | U | 465 | ug/L | 140 | 465 |
| 56-55-3 | Benzo(a)anthracene | J | 42.3 | ug/L | 14.0 | 46.5 |
| 218-01-9 | Chrysene | J | 41.9 | ug/L | 14.0 | 46.5 |
| 117-84-0 | Di-n-octylphthalate | U | 465 | ug/L | 140 | 465 |
| 205-99-2 | Benzo(b)fluoranthene | | 50.7 | ug/L | 14.0 | 46.5 |
| 207-08-9 | Benzo(k)fluoranthene | | 52.1 | ug/L | 14.0 | 46.5 |
| 50-32-8 | Benzo(a)pyrene | J | 36.7 | ug/L | 20.5 | 46.5 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | J | 23.7 | ug/L | 14.0 | 46.5 |
| 53-70-3 | Dibenzo(a,h)anthracene | J | 23.7 | ug/L | 14.0 | 46.5 |
| 191-24-2 | Benzo(ghi)perylene | J | 24.7 | ug/L | 14.0 | 46.5 |
| 123-91-1 | 1,4-Dioxane | U | 465 | ug/L | 140 | 465 |
| 55-18-5 | N-Nitrosodiethylamine | U | 465 | ug/L | 140 | 465 |
| 930-55-2 | N-Nitrosopyrrolidine | U | 465 | ug/L | 140 | 465 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-823** | **Date Collected:** | **05/07/2013 09:30** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202873990** | **Date Received:** | **05/08/2013 08:55** | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **WST55-13-32015MS** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **20** |
| **Run Date:** | **05/14/2013 00:47** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **430 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1327.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 924-16-3 | N-Nitrosodi-n-butylamine | U | 465 | ug/L | 140 | 465 |
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | U | 465 | ug/L | 140 | 465 |
| 608-93-5 | Pentachlorobenzene | U | 465 | ug/L | 140 | 465 |
| 1912-24-9 | Atrazine | U | 465 | ug/L | 140 | 465 |
| 92-87-5 | Benzidine | U | 465 | ug/L | 140 | 465 |
| 91-94-1 | 3,3'-Dichlorobenzidine | U | 465 | ug/L | 140 | 465 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 465 | ug/L | 140 | 465 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | | Acceptable Limits |
|---|---|---|---|---|---|---|
| 2,4,6-Tribromophenol | 0.00 | 233 | ug/L | 0.00 | * | (26%-129%) |
| 2-Fluorobiphenyl | 39.5 | 116 | ug/L | 34.0 | | (32%-102%) |
| 2-Fluorophenol | 0.00 | 233 | ug/L | 0.00 | * | (10%-78%) |
| Nitrobenzene-d5 | 37.7 | 116 | ug/L | 32.4 | * | (36%-125%) |
| Phenol-d5 | 0.00 | 233 | ug/L | 0.00 | * | (10%-104%) |
| p-Terphenyl-d14 | 69.3 | 116 | ug/L | 59.6 | | (34%-135%) |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-823** | **Date Collected:** | **05/07/2013 09:30** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202873991** | **Date Received:** | **05/08/2013 08:55** | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **WST55-13-32015MSD** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **20** |
| **Run Date:** | **05/14/2013 01:17** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **430 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1328.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 62-75-9 | N-Methyl-N-nitrosomethylamine | U | 465 | ug/L | 140 | 465 |
| 110-86-1 | Pyridine | U | 465 | ug/L | 140 | 465 |
| 62-53-3 | Aniline | U | 465 | ug/L | 140 | 465 |
| 108-95-2 | Phenol | U | 465 | ug/L | 140 | 465 |
| 111-44-4 | bis(2-Chloroethyl) ether | U | 465 | ug/L | 140 | 465 |
| 95-57-8 | 2-Chlorophenol | U | 465 | ug/L | 140 | 465 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 465 | ug/L | 140 | 465 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 465 | ug/L | 140 | 465 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 465 | ug/L | 140 | 465 |
| 39638-32-9 | bis(2-Chloroisopropyl)ether | U | 465 | ug/L | 140 | 465 |
| 100-51-6 | Benzyl alcohol | U | 465 | ug/L | 140 | 465 |
| 95-48-7 | o-Cresol | U | 465 | ug/L | 140 | 465 |
| 65794-96-9 | m,p-Cresols | U | 465 | ug/L | 140 | 465 |
| 621-64-7 | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | U | 465 | ug/L | 140 | 465 |
| 67-72-1 | Hexachloroethane | U | 465 | ug/L | 140 | 465 |
| 98-95-3 | Nitrobenzene | U | 465 | ug/L | 140 | 465 |
| 78-59-1 | Isophorone | U | 465 | ug/L | 140 | 465 |
| 88-75-5 | 2-Nitrophenol | U | 465 | ug/L | 140 | 465 |
| 105-67-9 | 2,4-Dimethylphenol | U | 465 | ug/L | 140 | 465 |
| 111-91-1 | bis(2-Chloroethoxy)methane | U | 465 | ug/L | 140 | 465 |
| 120-83-2 | 2,4-Dichlorophenol | U | 465 | ug/L | 140 | 465 |
| 65-85-0 | Benzoic acid | U | 930 | ug/L | 279 | 930 |
| 106-47-8 | 4-Chloroaniline | U | 465 | ug/L | 153 | 465 |
| 87-68-3 | Hexachlorobutadiene | U | 465 | ug/L | 140 | 465 |
| 59-50-7 | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | U | 465 | ug/L | 140 | 465 |
| 91-57-6 | 2-Methylnaphthalene | J | 45.1 | ug/L | 14.0 | 46.5 |
| 91-20-3 | Naphthalene | J | 40.9 | ug/L | 14.0 | 46.5 |
| 90-12-0 | 1-Methylnaphthalene | J | 41.9 | ug/L | 14.0 | 46.5 |
| 77-47-4 | Hexachlorocyclopentadiene | U | 465 | ug/L | 140 | 465 |
| 88-06-2 | 2,4,6-Trichlorophenol | U | 465 | ug/L | 140 | 465 |
| 95-95-4 | 2,4,5-Trichlorophenol | U | 465 | ug/L | 140 | 465 |
| 91-58-7 | 2-Chloronaphthalene | J | 42.3 | ug/L | 14.0 | 46.5 |
| 88-74-4 | 2-Nitroaniline<br>*o-Nitroaniline* | U | 465 | ug/L | 140 | 465 |
| 99-09-2 | 3-Nitroaniline<br>*m-Nitroaniline* | U | 465 | ug/L | 140 | 465 |
| 131-11-3 | Dimethylphthalate | U | 465 | ug/L | 140 | 465 |
| 606-20-2 | 2,6-Dinitrotoluene | U | 465 | ug/L | 140 | 465 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-823** | **Date Collected:** | **05/07/2013 09:30** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202873991** | **Date Received:** | **05/08/2013 08:55** | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **WST55-13-32015MSD** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **20** |
| **Run Date:** | **05/14/2013 01:17** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **430 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1328.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 121-14-2 | 2,4-Dinitrotoluene | U | 465 | ug/L | 140 | 465 |
| 208-96-8 | Acenaphthylene | J | 44.2 | ug/L | 14.0 | 46.5 |
| 83-32-9 | Acenaphthene | J | 42.3 | ug/L | 14.0 | 46.5 |
| 51-28-5 | 2,4-Dinitrophenol | U | 930 | ug/L | 233 | 930 |
| 132-64-9 | Dibenzofuran | U | 465 | ug/L | 140 | 465 |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | U | 465 | ug/L | 140 | 465 |
| 84-66-2 | Diethylphthalate | U | 465 | ug/L | 140 | 465 |
| 100-02-7 | 4-Nitrophenol | U | 465 | ug/L | 140 | 465 |
| 86-73-7 | Fluorene | J | 41.9 | ug/L | 14.0 | 46.5 |
| 7005-72-3 | 4-Chlorophenylphenylether | U | 465 | ug/L | 140 | 465 |
| 100-01-6 | 4-Nitroaniline | U | 465 | ug/L | 140 | 465 |
| | *p-Nitroaniline* | | | | | |
| 534-52-1 | 2-Methyl-4,6-dinitrophenol | U | 465 | ug/L | 140 | 465 |
| 122-39-4 | Diphenylamine | U | 465 | ug/L | 140 | 465 |
| 122-66-7 | Azobenzene | U | 465 | ug/L | 140 | 465 |
| | *1,2-Diphenylhydrazine* | | | | | |
| 101-55-3 | 4-Bromophenylphenylether | U | 465 | ug/L | 140 | 465 |
| 118-74-1 | Hexachlorobenzene | U | 465 | ug/L | 140 | 465 |
| 87-86-5 | Pentachlorophenol | U | 465 | ug/L | 140 | 465 |
| 88-85-7 | Dinoseb | U | 465 | ug/L | 140 | 465 |
| 85-01-8 | Phenanthrene | J | 42.3 | ug/L | 14.0 | 46.5 |
| 120-12-7 | Anthracene | J | 41.4 | ug/L | 14.0 | 46.5 |
| 84-74-2 | Di-n-butylphthalate | U | 465 | ug/L | 140 | 465 |
| 206-44-0 | Fluoranthene | J | 40.9 | ug/L | 14.0 | 46.5 |
| 129-00-0 | Pyrene | J | 44.7 | ug/L | 14.0 | 46.5 |
| 85-68-7 | Butylbenzylphthalate | U | 465 | ug/L | 140 | 465 |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | U | 465 | ug/L | 140 | 465 |
| 56-55-3 | Benzo(a)anthracene | J | 41.9 | ug/L | 14.0 | 46.5 |
| 218-01-9 | Chrysene | J | 39.5 | ug/L | 14.0 | 46.5 |
| 117-84-0 | Di-n-octylphthalate | U | 465 | ug/L | 140 | 465 |
| 205-99-2 | Benzo(b)fluoranthene | J | 45.1 | ug/L | 14.0 | 46.5 |
| 207-08-9 | Benzo(k)fluoranthene | | 59.1 | ug/L | 14.0 | 46.5 |
| 50-32-8 | Benzo(a)pyrene | J | 39.1 | ug/L | 20.5 | 46.5 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | J | 30.2 | ug/L | 14.0 | 46.5 |
| 53-70-3 | Dibenzo(a,h)anthracene | J | 25.1 | ug/L | 14.0 | 46.5 |
| 191-24-2 | Benzo(ghi)perylene | J | 27.4 | ug/L | 14.0 | 46.5 |
| 123-91-1 | 1,4-Dioxane | U | 465 | ug/L | 140 | 465 |
| 55-18-5 | N-Nitrosodiethylamine | U | 465 | ug/L | 140 | 465 |
| 930-55-2 | N-Nitrosopyrrolidine | U | 465 | ug/L | 140 | 465 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-823** | **Date Collected:** | **05/07/2013 09:30** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202873991** | **Date Received:** | **05/08/2013 08:55** | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **WST55-13-32015MSD** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **20** |
| **Run Date:** | **05/14/2013 01:17** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **430 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1328.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 924-16-3 | N-Nitrosodi-n-butylamine | U | 465 | ug/L | 140 | 465 |
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | U | 465 | ug/L | 140 | 465 |
| 608-93-5 | Pentachlorobenzene | U | 465 | ug/L | 140 | 465 |
| 1912-24-9 | Atrazine | U | 465 | ug/L | 140 | 465 |
| 92-87-5 | Benzidine | U | 465 | ug/L | 140 | 465 |
| 91-94-1 | 3,3'-Dichlorobenzidine | U | 465 | ug/L | 140 | 465 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 465 | ug/L | 140 | 465 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | | Acceptable Limits |
|---|---|---|---|---|---|---|
| 2,4,6-Tribromophenol | 0.00 | 233 | ug/L | 0.00 | * | (26%-129%) |
| 2-Fluorobiphenyl | 35.3 | 116 | ug/L | 30.4 | * | (32%-102%) |
| 2-Fluorophenol | 0.00 | 233 | ug/L | 0.00 | * | (10%-78%) |
| Nitrobenzene-d5 | 35.3 | 116 | ug/L | 30.4 | * | (36%-125%) |
| Phenol-d5 | 0.00 | 233 | ug/L | 0.00 | * | (10%-104%) |
| p-Terphenyl-d14 | 59.5 | 116 | ug/L | 51.2 | | (34%-135%) |

# Miscellaneous

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 14-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| SEMIVOA GC/MS | SW846 8270C | Liquid | ARSL (ESHL) |
| **Batch ID:** | **Sample Numbers:** | | |
| 1300969 | See Below | | |

**Potentially affected work order(s)(SDG):** **325284(2013-809),325285(2013-810),325394(2013-813),325410(2013-814),325479(2013-822),325480(2013-823)**

**Application Issues:**

Failed Recovery for MS/PS

Failed Recovery for LCS/LCSD

Failed Yield for Surrogates

Failed Recovery for MSD/PSD

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Sample 325285001, the MS(1202873990), and MSD(1202873991) failed surrogate recovery limits. Please see the QC Summary/Spike Recovery Report for specific failures. | 1. The samples were analyzed at a dilution due to the presence of non-target analytes. As a result, some surrogates were diluted out of the acceptance criteria and the data results have been reported. |
| 2. The LCS(1202873989) did not meet spike recovery limits for 4-Nitrophenol at 9% (limits: 16%-77%) and Atrazine at 31% (limits: 47%-115%). | 2. The 4-Nitrophenol and Atrazine failures represent less than 5% of the total requested spike analyte list. That satisfied the acceptance criteria for the client and the data results have been reported. |
| 3. The MS(1202873990) and MSD(1202873991) failed multiple spike recovery limits. Please see the QC Summary/Spike Recovery Report for specific failures. | 3. The samples were analyzed at a dilution due to the presence of non-target analytes. As a result, some spike analytes were diluted out of the acceptance criteria and the data results have been reported. |

**Originator's Name:**

Josh Brooks 14-MAY-13

**Data Validator/Group Leader:**

Barbara Bailey 15-MAY-13

# Perchlorates by LCMSMS Analysis

# Case Narrative

**Perchlorate by LC/MSMS**
**ARS International (ARSL)**
**SDG 2013-823**

## Method/Analysis Information

| | |
|---|---|
| **Procedure:** | **Definitive Low Level Perchlorate Analysis Utilizing Liquid Chromatography/Mass Spectrometry/Mass Spectrometry (LC/MS/MS) by EPA Method 6850 Modified (6850M)** |
| Analytical Method: | SW846 6850 Modified |
| Prep Method: | SW846 6850 Modified |
| Analytical Batch Number: | 1301785 |
| Prep Batch Number: | 1301783 |

## Sample Analysis

| Sample ID | Client ID |
|---|---|
| 325480002 | CAMO-13-30589 |
| 1202876024 | Interference Check Sample (ICS) |
| 1202876020 | Method Blank (MB) |
| 1202876021 | Laboratory Control Sample (LCS) |
| 1202876022 | 325284004(CAMO-13-30592) Matrix Spike (MS) |
| 1202876023 | 325284004(CAMO-13-30592) Matrix Spike Duplicate (MSD) |

The samples in this SDG were analyzed on an "as received" basis.

## Preparation/Analytical Method Verification

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-067 REV# 10.

## Calibration Information

**Initial Calibration**
All initial calibration requirements have been met for this SDG. Due to software constraints, all Initial Calibration Blanks must be designated as IPB001.

**ICV Requirements**
All associated initial calibration verification standard(s) (ICV) met the acceptance criteria.

**CCB Requirements**
All continuing calibration blanks (CCB) bracketing the analyses associated with this batch were within acceptance criteria.

**CCV Requirements**
All continuing calibration checks (CCV) requirements were met by all bracketing CCV standards.

**Low Level Standard (CRI) Requirements**
All low level calibration verification (CRI) requirements were met by all bracketing CRI standards.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Interference Check Sample (ICS)**
The ICS met all recovery acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recoveries met the acceptance limits.

**QC Sample Designation**
Client sample 325284004 (CAMO-13-30592) was chosen for matrix spike and matrix spike duplicate analysis.

**Matrix Spike (MS) Recovery Statement**
The MS recoveries were within the established acceptance limits.

**Matrix Spike Duplicate (MSD) Recovery Statement**
The MSD recoveries were within the established acceptance limits.

**MS/MSD Relative Percent Difference (RPD) Statement**
The RPD(s) between the MS and MSD met the acceptance limits.

**Retention Time Standard Area Acceptance**
The retention time standard areas were within the required acceptance criteria for all samples and QC.

**Retention Time**
During the analysis of Perchlorate by LC/MS/MS, retention time shifts are commonly observed. These retention time shifts, which are caused by fouling of the column by the sample matrices, are problematic when the retention time is used as one of the criterion for confirmation. To overcome this problem, a known amount of O(18) labeled Perchlorate was added to each sample as a retention time standard. The presence of Perchlorate was confirmed by the relative retention time (RRT) of the Perchlorate peak and the O(18) standard. A RRT window of 0.98 to 1.02, as required by Method 332.0, has been used. In addition to the isotopic ratio, the presence of Perchlorate in the samples associated with this data package have been confirmed using the relative retention criteria stated above, not the absolute retention time.

**Technical Information**

**Holding Time Specifications**
All samples in this SDG in this analytical batch met the specified holding time. GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

**Preparation/Analytical Method Verification**
All procedures were performed as stated in the SOP.

**Sample Dilutions**
Samples 1202876022 (CAMO-13-30592), 1202876023 (CAMO-13-30592) and 325480002 (CAMO-13-30589) were diluted to bring the over range concentrations within the calibration range.

| Parmname | 325480 002 |
|---|---|
| All | 100X |

**Sample Re-extraction/Re-analysis**
Re-extractions or re-analyses were not required in this SDG.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Manual Integrations**
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations.

**Method Comments**
The samples in this SDG were not originally analyzed using EPA Method 314.0.

**Additional Comments**
The Perchlorate Isotope Ratio on the Form I may differ slightly from the ratio on the corresponding raw data due to rounding rules and/or significant figures or due to software limitations when there are manual integrations, dilutions or other factors. The ratio value of the Form I is the correct value. The retention time marker, Perchlorate-O (18), is added to all samples, instrument blanks, and standards prior to injection. It is used to verify the retention time of Perchlorate and Perchlorate-101 and to insure an accurate injection occurred. Due to various anions affecting the recovery of Perchlorate-O (18) and not Perchlorate and Perchlorate-101, the calibration curves of Perchlorate and Perchlorate-101 are not internally corrected for using Perchlorate-O (18). They are external calibrations.

**Perchlorate Isotope Ratio**
The Perchlorate isotope ratio met acceptance criteria for all samples and QC samples. Please see the isotope ratio criteria in the Miscellaneous Section.

**System Configuration**

The laboratory utilizes a Waters LC 2795 liquid chromatography instrument for Perchlorate analysis. It is coupled with either a Micromass Quattro Micro Mass Spectrometer/ Mass Spectrometer, or a Micromass Quattro Ultima Mass Spectrometer/ Mass Spectrometer. Each being designated as LCMSMS #1 and LCMSMS #2, respectively. It is fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis. The laboratory may also utilize an Agilent 1100 liquid chromatography instrument for Perchlorate analysis. It is coupled with an Applied Biosystems 4000 Mass Spectrometer/ Mass Spectrometer, designated as LCMSMS #3 or LCMSMS #4. It is also fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Chromatographic Columns**

Chromatographic separation of Perchlorate is accomplished through analysis on the following anion column:

Dionex: IonPac AG-16 2 x 50 mm.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-823  GEL Work Order: 325480

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

**  Analyte is a surrogate compound

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL  Indicates that sample is diluted.
RA  Indicates that sample is re-analyzed without re-extraction.
RE  Indicates that sample is re-extracted.

**Review/Validation**

GEL requires all analytical data to be verified by a qualified data reviewer.  In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

**Signature:** Pat Steele  **Name: Patricia Steele**

**Date: 29 MAY 2013**  **Title: Data Validator**

# Sample Data Summary

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1301783

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CAMO-13-30589

**Date Received:** 10-MAY-13

**GEL Job No (SDG):** 2013-823

**GEL Sample ID:** 325480002

**Date Filtered:** 15-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | 5 | 20 | 63.3 | ug/L | | 100 | 21-MAY-13 14:39 | per0521017a |
| | Perchlorate Isotope Ratio | | | 3.14 | | | 100 | 21-MAY-13 14:39 | per0521017a |
| 14797-73-0 | Perchlorate-101 | 5 | 20 | 62.9 | ug/L | | 100 | 21-MAY-13 14:39 | per0521017a |
| | Perchlorate-O(18) | | | 51.1 | ug/L | | 100 | 21-MAY-13 14:39 | per0521017a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Quality Control Summary

## Perchlorate Laboratory Control Sample

**Lab Name:** General Engineering Laboratories

**Lab Code:** GEL

**GEL Job No. (SDG):** 2013-823

**Extract Batch Code:** 1301783

**Date Filtered:** 15-MAY-13

**Matrix:** WATER

**Sample ID:** 1202876021

| Analyte^ | True | Found | Units | %Rec | Q | Control Limits |
|---|---|---|---|---|---|---|
| Perchlorate | 0.200 | .203 | ug/L | 102 | | 85 - 115 |
| Perchlorate Isotope Ratio | | 3 | | | | - |
| Perchlorate-101 | 0.200 | .21 | ug/L | 105 | | 85 - 115 |
| Perchlorate-O(18) | | .505 | ug/L | | | - |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

## Perchlorate Spike/Spike Duplicate Summary

**Lab Name:** General Engineering Laboratories

**Lab Code:** GEL

**GEL Job No (SDG):** 2013-823

**Extract Batch Code:** 1301783

**Date Extracted:** 15-MAY-13

**GEL MS/PS ID:** 1202876022

**Client ID:** CAMO-13-30592

**GEL MSD/PSD ID:** 1202876023

**QC Type:** MS

| Compound^ | Spike Added | Sample Conc | Units | MS Conc | MS Rec # | MSD Conc | MSD Rec # | RPD # | RPD Limit | Recovery Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| Perchlorate | 0.200 | 0.931 | ug/L | 1.11 | 90 | 1.16 | 114 | 4.19 | 30 | 75 - 125 |
| Perchlorate Isotope Ratio | 0 | 3.07 | | 3.13 | | 3.05 | | 2.52 | | - |
| Perchlorate-101 | 0.200 | 0.944 | ug/L | 1.10 | 80.5 | 1.18 | 119 | 6.71 | 30 | 75 - 125 |
| Perchlorate-O(18) | 0 | 0.994 | ug/L | 0.985 | | 1.02 | | 3.41 | | - |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

# Quality Control Data

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** EPA 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1301783

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
MB

**Date Received:** 15-MAY-13

**GEL Job No (SDG):** 2013-823

**GEL Sample ID:** 1202876020

**Date Filtered:** 15-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.050 | ug/L | U | 1 | 20-MAY-13 15:52 | per0520021a |
| | Perchlorate Isotope Ratio | | | | | | 1 | 20-MAY-13 15:52 | per0520021a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.050 | ug/L | U | 1 | 20-MAY-13 15:52 | per0520021a |
| | Perchlorate-O(18) | | | 0.496 | ug/L | | 1 | 20-MAY-13 15:52 | per0520021a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** EPA 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1301783

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
LCS

**Date Received:** 15-MAY-13

**GEL Job No (SDG):** 2013-823

**GEL Sample ID:** 1202876021

**Date Filtered:** 15-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.203 | ug/L | | 1 | 20-MAY-13 16:00 | per0520022a |
| | Perchlorate Isotope Ratio | | | 3 | | | 1 | 20-MAY-13 16:00 | per0520022a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.210 | ug/L | | 1 | 20-MAY-13 16:00 | per0520022a |
| | Perchlorate-O(18) | | | 0.505 | ug/L | | 1 | 20-MAY-13 16:00 | per0520022a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1301783

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
ICS

**Date Received:**

**GEL Job No (SDG):** 2013-823

**GEL Sample ID:** 1202876024

**Date Filtered:** 15-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.209 | ug/L | | 1 | 20-MAY-13 16:08 | per0520023a |
| | Perchlorate Isotope Ratio | | | 3.07 | | | 1 | 20-MAY-13 16:08 | per0520023a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.212 | ug/L | | 1 | 20-MAY-13 16:08 | per0520023a |
| | Perchlorate-O(18) | | | 0.506 | ug/L | | 1 | 20-MAY-13 16:08 | per0520023a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1301783

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CAMO-13-30592MS

**Date Received:** 08-MAY-13

**GEL Job No (SDG):** 2013-823

**GEL Sample ID:** 1202876022

**Date Filtered:** 15-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .1 | .4 | 1.11 | ug/L | | 2 | 20-MAY-13 19:29 | per0520048a |
| | Perchlorate Isotope Ratio | | | 3.13 | | | 2 | 20-MAY-13 19:29 | per0520048a |
| 14797-73-0 | Perchlorate-101 | .1 | .4 | 1.10 | ug/L | | 2 | 20-MAY-13 19:29 | per0520048a |
| | Perchlorate-O(18) | | | 0.985 | ug/L | | 2 | 20-MAY-13 19:29 | per0520048a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1301783

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CAMO-13-30592MSD

**Date Received:** 08-MAY-13

**GEL Job No (SDG):** 2013-823

**GEL Sample ID:** 1202876023

**Date Filtered:** 15-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .1 | .4 | 1.16 | ug/L | | 2 | 20-MAY-13 19:37 | per0520049a |
| | Perchlorate Isotope Ratio | | | 3.05 | | | 2 | 20-MAY-13 19:37 | per0520049a |
| 14797-73-0 | Perchlorate-101 | .1 | .4 | 1.18 | ug/L | | 2 | 20-MAY-13 19:37 | per0520049a |
| | Perchlorate-O(18) | | | 1.02 | ug/L | | 2 | 20-MAY-13 19:37 | per0520049a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Metals Analysis

# Case Narrative

**Metals Fractional Narrative**
**ARS International (ARSL)**
**SDG 2013-823**

## Sample Analysis

| Sample ID | Client ID |
|---|---|
| 325480002 | CAMO-13-30589 |
| 1202874202 | Method Blank (MB) **ICP** |
| 1202874203 | Laboratory Control Sample (LCS) |
| 1202874206 | 325480002(CAMO-13-30589L) Serial Dilution (SD) |
| 1202874204 | 325480002(CAMO-13-30589D) Sample Duplicate (DUP) |
| 1202874205 | 325480002(CAMO-13-30589S) Matrix Spike (MS) |
| 1202874210 | Method Blank (MB) **ICP-MS** |
| 1202874211 | Laboratory Control Sample (LCS) |
| 1202874214 | 325480002(CAMO-13-30589L) Serial Dilution (SD) |
| 1202874212 | 325480002(CAMO-13-30589D) Sample Duplicate (DUP) |
| 1202874213 | 325480002(CAMO-13-30589S) Matrix Spike (MS) |
| 1202878660 | Method Blank (MB) **CVAA** |
| 1202878667 | Laboratory Control Sample (LCS) |
| 1202878663 | 325643002(CAMO-13-30598L) Serial Dilution (SD) |
| 1202878661 | 325643002(CAMO-13-30598D) Sample Duplicate (DUP) |
| 1202878665 | 325643002(CAMO-13-30598S) Matrix Spike (MS) |

## Method/Analysis Information

| | |
|---|---|
| **Analytical Batch:** | 1301065, 1301067, 1302856 and 1305711 |
| **Prep Batch :** | 1301064, 1301066 and 1302851 |
| **Standard Operating Procedures:** | GL-MA-E-013 REV# 22, GL-MA-E-006 REV# 9, GL-MA-E-014 REV# 25, GL-MA-E-010 REV# 26 and GL-GC-E-107 REV# 8 |
| **Analytical Method:** | SW846 3005/6010B, SW846 3005/6020 DOE-AL, EPA 245.1/245.2 and SM 2340 B |
| **Prep Method :** | SW846 3005A and EPA 245.1/245.2 Prep |

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

**System Configuration**

The Hardness as CaCO3 is calculated from Calcium and Magnesium results.

The Metals analysis-ICP was performed on a P E 5300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis-ICP was performed on a PE 7300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN 9000 inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadruple mass spectrometer, and dual mode electron multiplier detector. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum. Operating conditions are set at 1400W power and combined argon pressures of 360+/-7 kPa for the plasma and auxiliary gases, and 0.85 L/min carrier gas flow, and an initial lens voltage of 5.2.

The Metals analysis-Mercury was performed on a Perkin-Elmer Flow Injection Mercury System (FIMS-100) automated mercury analyzer. The instrument consists of a cold vapor atomic absorption spectrometer set to detect mercury at a wavelength of 253.7 nm. Sample introduction through the flow injection system is performed via a peristaltic pump at 9 mL/min and nitrogen carrier gas rate of 80 mL/min.

**Calibration Information**

**Instrument Calibration**
All initial calibration requirements have been met for this sample delivery group (SDG).

**CRDL Requirements**
All CRDL standards met the referenced advisory control limits.

**ICSA/ICSAB Statement**
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

**Continuing Calibration Blank (CCB) Requirements**
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

**Continuing Calibration Verification (CCV) Requirements**
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MBs analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recoveries met the acceptance limits.

**Quality Control (QC) Sample Statement**
The following samples were selected as the quality control (QC) samples for this SDG: 325480002 (CAMO-13-30589)-ICP and ICP-MS and 325643002 (CAMO-13-30598)-CVAA.

**Matrix Spike (MS) Recovery Statement**
The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The MS met the recommended quality control acceptance criteria for percent recoveries for all applicable analytes with the exception of nickel.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. All applicable analytes met these requirements.

**Serial Dilution % Difference Statement**
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations that are 25X the IDL/MDL for CVAA, 50X the IDL/MDL for ICP, and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the acceptance criteria of less than 10% difference (%D).

## Technical Information

### Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

### Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

### Sample Dilutions
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. The samples in this SDG did not require dilutions.

### Preparation Information
The samples in this SDG were prepared exactly according to the cited SOP.

## Miscellaneous Information

### Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

### Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. The following DER was generated for this SDG: 1191916. A copy is included in the Miscellaneous Data section of this package.

### Additional Comments
Additional comments were not required for this SDG.
Total Hardness by Calculation is determined using the results of Total Calcium (Ca) and

Total Magnesium (Mg) determined by ICP or ICP-MS.

Hardness = 2.497 (Ca) + 4.118 (Mg)

Please refer to the Total Ca and Total Mg data to validate results appearing on the Hardness Summary sheet. Both results are in the Inorganic/metals section of the package. There is no Batch QC for calculated results, and thus no QC Summary for the Hardness by Calculation Batch. The MDLs and PQLs are calculated using the higher of the two calculated values of Ca or Mg.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

**Review Validation:**

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

**The following data validator verified the information presented in this case narrative:**

**Reviewer:**_____ **Date:** 06/05/13

# Sample Data Summary

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-823  GEL Work Order: 325480

**The Qualifiers in this report are defined as follows:**

* A quality control analyte recovery is outside of specified acceptance criteria

J Value is estimated

N Metals--The Matrix spike sample recovery is not within specified control limits

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____ 06/05/13

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−823 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

**SAMPLE ID:** 325480002 **BASIS:** As Received **DATE COLLECTED** 08−MAY−13

**CLIENT ID:** CAMO−13−30589 **LEVEL:** Low **DATE RECEIVED** 10−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7439−97−6 | Mercury | 0.20 | ug/L | U | 0.067 | 0.2 | 0.2 | 1 | AV | NOR1 | 05/21/13 12:43 | 052113W1−12 | 1302856 |

# METALS
## −1−
## INORGANICS ANALYSIS DATA PACKAGE

**SDG No:** 2013−823 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

**SAMPLE ID:** 325480002 **BASIS:** As Received **DATE COLLECTED** 08−MAY−13

**CLIENT ID:** CAMO−13−30589 **LEVEL:** Low **DATE RECEIVED** 10−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7429−90−5 | Aluminum | 200 | ug/L | U | 68 | 200 | 200 | 1 | P | HSC | 06/03/13 09:49 | 060313A−1 | 1301065 |
| 7440−36−0 | Antimony | 3 | ug/L | U | 1 | 3 | 3 | 1 | MS | PRB | 06/04/13 13:21 | 130604−11 | 1301067 |
| 7440−38−2 | Arsenic | 5 | ug/L | U | 1.7 | 5 | 5 | 1 | MS | BAJ | 06/04/13 03:35 | 130603−10 | 1301067 |
| 7440−39−3 | Barium | 41.1 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:49 | 060313A−1 | 1301065 |
| 7440−41−7 | Beryllium | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:49 | 060313A−1 | 1301065 |
| 7440−42−8 | Boron | 42.3 | ug/L | J | 15 | 50 | 50 | 1 | P | HSC | 06/03/13 09:49 | 060313A−1 | 1301065 |
| 7440−43−9 | Cadmium | 1 | ug/L | U | 0.11 | 1 | 1 | 1 | MS | BAJ | 06/01/13 13:56 | 130601−9 | 1301067 |
| 7440−70−2 | Calcium | 63900 | ug/L | | 50 | 200 | 200 | 1 | P | HSC | 06/03/13 09:49 | 060313A−1 | 1301065 |
| 7440−47−3 | Chromium | 73.2 | ug/L | | 2 | 10 | 10 | 1 | MS | BAJ | 06/01/13 02:21 | 130531−3 | 1301067 |
| 7440−48−4 | Cobalt | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:49 | 060313A−1 | 1301065 |
| 7440−50−8 | Copper | 6.12 | ug/L | J | 3 | 10 | 10 | 1 | P | HSC | 06/03/13 09:49 | 060313A−1 | 1301065 |
| 7439−89−6 | Iron | 100 | ug/L | U | 30 | 100 | 100 | 1 | P | HSC | 06/03/13 09:49 | 060313A−1 | 1301065 |
| 7439−92−1 | Lead | 2 | ug/L | U | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/04/13 03:35 | 130603−10 | 1301067 |
| 7439−95−4 | Magnesium | 13000 | ug/L | | 110 | 300 | 300 | 1 | P | HSC | 06/03/13 09:49 | 060313A−1 | 1301065 |
| 7439−96−5 | Manganese | 2.92 | ug/L | J | 2 | 10 | 10 | 1 | P | HSC | 06/03/13 09:49 | 060313A−1 | 1301065 |
| 7439−98−7 | Molybdenum | 1.45 | ug/L | | 0.165 | 0.5 | 0.5 | 1 | MS | BAJ | 06/01/13 08:55 | 130531−7 | 1301067 |
| 7440−02−0 | Nickel | 41.3 | ug/L | N | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/01/13 02:21 | 130531−3 | 1301067 |
| 7440−09−7 | Potassium | 881 | ug/L | | 50 | 150 | 150 | 1 | P | HSC | 06/03/13 09:49 | 060313A−1 | 1301065 |
| 7782−49−2 | Selenium | 5 | ug/L | U | 1.5 | 5 | 5 | 1 | MS | BAJ | 06/04/13 03:35 | 130603−10 | 1301067 |
| 7631−86−9 | Silica | 65300 | ug/L | | 53 | 213 | 213 | 1 | P | HSC | 06/03/13 09:49 | 060313A−1 | 1301065 |
| 7440−22−4 | Silver | 1 | ug/L | U | 0.2 | 1 | 1 | 1 | MS | BAJ | 06/01/13 13:56 | 130601−9 | 1301067 |
| 7440−23−5 | Sodium | 25500 | ug/L | | 100 | 300 | 300 | 1 | P | HSC | 06/03/13 10:47 | 060313A−2 | 1301065 |
| 7440−24−6 | Strontium | 305 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:49 | 060313A−1 | 1301065 |
| 7440−28−0 | Thallium | 2 | ug/L | U | 0.45 | 2 | 2 | 1 | MS | BAJ | 06/04/13 03:35 | 130603−10 | 1301067 |
| 7440−31−5 | Tin | 10 | ug/L | U | 2.5 | 10 | 10 | 1 | P | HSC | 06/03/13 10:47 | 060313A−2 | 1301065 |
| 7440−61−1 | Uranium | 1.27 | ug/L | | 0.067 | 0.2 | 0.2 | 1 | MS | BAJ | 06/01/13 12:53 | 130601−8 | 1301067 |
| 7440−62−2 | Vanadium | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:49 | 060313A−1 | 1301065 |
| 7440−66−6 | Zinc | 15.9 | ug/L | | 3.3 | 10 | 10 | 1 | P | HSC | 06/03/13 09:49 | 060313A−1 | 1301065 |

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−823 **CONTRACT:** ESHL00210 **METHOD TYPE:**

**SAMPLE ID:** 325480002 **BASIS:** As Received **DATE COLLECTED** 08−MAY−13

**CLIENT ID:** CAMO−13−30589 **LEVEL:** Low **DATE RECEIVED** 10−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Hardness as CaCO3 | 213 | mg/L | | 0.453 | 1.24 | 1.24 | 1 | | JJ2 | 06/04/13 11:28 | | 1305711 |

**Prep Information:**

| Analytical Batch | Prep Batch | Prep Method | Initial wt./vol. | Units | Final wt./vol. | Units | Date | Analyst |
|---|---|---|---|---|---|---|---|---|
| 1301065 | 1301064 | SW846 3005A | 50 | mL | 50 | mL | 05/31/13 | MTM1 |
| 1301067 | 1301066 | SW846 3005A | 50 | mL | 50 | mL | 05/31/13 | MTM1 |
| 1302856 | 1302851 | EPA 245.1/245.2 Prep | 20 | mL | 20 | mL | 05/20/13 | AXS5 |

***Analytical Methods:**

| | |
|---|---|
| **MS** | **SW846 3005/6020 DOE−AL** |
| **P** | **SW846 3005/6010B** |
| **AV** | **EPA 245.1/245.2** |

# Quality Control Summary

**METALS**
**−3b−**
**PREPARATION BLANK SUMMARY**

**SDG NO.** 2013−823

**Contract:** ESHL00210

**Matrix:** W

| Sample ID | Analyte | Result | Units | Acceptance Window | Conc Qual | M* | MDL | RDL |
|---|---|---|---|---|---|---|---|---|
| 1202874202 | | | | | | | | |
| | Aluminum | 68 | ug/L | +/−200 | U | P | 68 | 200 |
| | Barium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Beryllium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Boron | 15 | ug/L | +/−50 | U | P | 15 | 50 |
| | Calcium | 50 | ug/L | +/−200 | U | P | 50 | 200 |
| | Cobalt | 1.31 | ug/L | +/−5 | J | P | 1 | 5 |
| | Copper | 3 | ug/L | +/−10 | U | P | 3 | 10 |
| | Iron | 30 | ug/L | +/−100 | U | P | 30 | 100 |
| | Magnesium | 110 | ug/L | +/−300 | U | P | 110 | 300 |
| | Manganese | 2 | ug/L | +/−10 | U | P | 2 | 10 |
| | Potassium | 64.3 | ug/L | +/−150 | J | P | 50 | 150 |
| | Silica | 53 | ug/L | +/−213 | U | P | 53 | 213 |
| | Sodium | 100 | ug/L | +/−300 | U | P | 100 | 300 |
| | Strontium | 2.05 | ug/L | +/−5 | J | P | 1 | 5 |
| | Tin | 2.5 | ug/L | +/−10 | U | P | 2.5 | 10 |
| | Vanadium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Zinc | 3.3 | ug/L | +/−10 | U | P | 3.3 | 10 |
| 1202874210 | | | | | | | | |
| | Antimony | 1 | ug/L | +/−3 | U | MS | 1 | 3 |
| | Arsenic | 1.7 | ug/L | +/−5 | U | MS | 1.7 | 5 |
| | Cadmium | 0.11 | ug/L | +/−1 | U | MS | 0.11 | 1 |
| | Chromium | 2 | ug/L | +/−10 | U | MS | 2 | 10 |
| | Lead | 0.5 | ug/L | +/−2 | U | MS | 0.5 | 2 |
| | Molybdenum | 0.165 | ug/L | +/−0.5 | U | MS | 0.165 | 0.5 |
| | Nickel | 0.5 | ug/L | +/−2 | U | MS | 0.5 | 2 |
| | Selenium | 1.5 | ug/L | +/−5 | U | MS | 1.5 | 5 |
| | Silver | 0.2 | ug/L | +/−1 | U | MS | 0.2 | 1 |
| | Thallium | 0.45 | ug/L | +/−2 | U | MS | 0.45 | 2 |
| | Uranium | 0.067 | ug/L | +/−0.2 | U | MS | 0.067 | 0.2 |
| 1202878660 | | | | | | | | |
| | Mercury | −0.074 | ug/L | +/−0.2 | J | AV | 0.067 | 0.2 |

***Analytical Methods:**

| | |
|---|---|
| **MS** | **SW846 3005/6020 DOE−AL** |
| **P** | **SW846 3005/6010B** |
| **AV** | **EPA 245.1/245.2** |

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−823 **Client ID** CAMO−13−30589S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 325480002 **Spike ID:** 1202874205

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Potassium | ug/L | 75−125 | 5640 | | 881 | | 5000 | 95.2 | | P |
| Silica | ug/L | | 75900 | | 65300 | | 10700 | 99 | N/A | P |
| Sodium | ug/L | | 30200 | | 25500 | | 5000 | 93.5 | N/A | P |
| Strontium | ug/L | 75−125 | 812 | | 305 | | 500 | 101 | | P |
| Tin | ug/L | 75−125 | 454 | | 2.5 | U | 500 | 90.8 | | P |
| Vanadium | ug/L | 75−125 | 469 | | 1 | U | 500 | 93.6 | | P |
| Zinc | ug/L | 75−125 | 430 | | 15.9 | | 500 | 82.8 | | P |
| Manganese | ug/L | 75−125 | 450 | | 2.92 | J | 500 | 89.5 | | P |
| Aluminum | ug/L | 75−125 | 5060 | | 68 | U | 5000 | 101 | | P |
| Barium | ug/L | 75−125 | 504 | | 41.1 | | 500 | 92.5 | | P |
| Beryllium | ug/L | 75−125 | 473 | | 1 | U | 500 | 94.5 | | P |
| Boron | ug/L | 75−125 | 509 | | 42.3 | J | 500 | 93.4 | | P |
| Calcium | ug/L | | 68900 | | 63900 | | 5000 | 98.3 | N/A | P |
| Cobalt | ug/L | 75−125 | 438 | | 1 | U | 500 | 87.5 | | P |
| Copper | ug/L | 75−125 | 490 | | 6.12 | J | 500 | 96.7 | | P |
| Iron | ug/L | 75−125 | 4790 | | 30 | U | 5000 | 95.6 | | P |
| Magnesium | ug/L | 75−125 | 17600 | | 13000 | | 5000 | 92.7 | | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−823 **Client ID** CAMO−13−30589S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 325480002 **Spike ID:** 1202874213

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ug/L | 75−125 | 50.4 | | 1 | U | 50 | 100 | | MS |
| Arsenic | ug/L | 75−125 | 49.9 | | 1.7 | U | 50 | 99.9 | | MS |
| Cadmium | ug/L | 75−125 | 52.7 | | 0.11 | U | 50 | 105 | | MS |
| Chromium | ug/L | 75−125 | 135 | | 73.2 | | 50 | 124 | | MS |
| Lead | ug/L | 75−125 | 50.1 | | 0.5 | U | 50 | 100 | | MS |
| Molybdenum | ug/L | 75−125 | 55.4 | | 1.45 | | 50 | 108 | | MS |
| Nickel | ug/L | 75−125 | 104 | | 41.3 | | 50 | 126 | N | MS |
| Selenium | ug/L | 75−125 | 54.9 | | 1.5 | U | 50 | 108 | | MS |
| Silver | ug/L | 75−125 | 51.5 | | 0.2 | U | 50 | 103 | | MS |
| Thallium | ug/L | 75−125 | 45.7 | | 0.45 | U | 50 | 91.1 | | MS |
| Uranium | ug/L | 75−125 | 55 | | 1.27 | | 50 | 108 | | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−823 **Client ID** CAMO−13−30598S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 325643002 **Spike ID:** 1202878665

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | ug/L | 75−125 | 1.95 | | 0.067 | U | 2 | 97.7 | | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−823 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CAMO−13−30589D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325480002 **Duplicate ID:** 1202874204 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | ug/L | | 68 | U | 68 | U | | | P |
| Barium | ug/L | +/−20% | 41.1 | | 41.6 | | 1.31 | | P |
| Beryllium | ug/L | | 1 | U | 1 | U | | | P |
| Boron | ug/L | +/−50 | 42.3 | J | 42.5 | J | .481 | | P |
| Calcium | ug/L | +/−20% | 63900 | | 65400 | | 2.23 | | P |
| Cobalt | ug/L | | 1 | U | 1.08 | J | 200 | | P |
| Copper | ug/L | +/−10 | 6.12 | J | 6.13 | J | .16 | | P |
| Iron | ug/L | | 30 | U | 30 | U | | | P |
| Magnesium | ug/L | +/−20% | 13000 | | 13200 | | 1.48 | | P |
| Manganese | ug/L | +/−10 | 2.92 | J | 2.81 | J | 3.67 | | P |
| Potassium | ug/L | +/−20% | 881 | | 863 | | 2.09 | | P |
| Silica | ug/L | +/−20% | 65300 | | 66300 | | 1.56 | | P |
| Sodium | ug/L | +/−20% | 25500 | | 25500 | | .0667 | | P |
| Strontium | ug/L | +/−20% | 305 | | 312 | | 2.26 | | P |
| Tin | ug/L | | 2.5 | U | 2.5 | U | | | P |
| Vanadium | ug/L | | 1 | U | 1 | U | | | P |
| Zinc | ug/L | +/−10 | 15.9 | | 14.5 | | 9.43 | | P |

***Analytical Methods:**

**P SW846 3005/6010B**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−823 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CAMO−13−30589D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325480002 **Duplicate ID:** 1202874212 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Antimony | ug/L | | 1 | U | 1 | U | | | MS |
| Arsenic | ug/L | | 1.7 | U | 1.7 | U | | | MS |
| Cadmium | ug/L | | 0.11 | U | 0.11 | U | | | MS |
| Chromium | ug/L | +/−20% | 73.2 | | 72.1 | | 1.52 | | MS |
| Lead | ug/L | | 0.5 | U | 0.5 | U | | | MS |
| Molybdenum | ug/L | +/−.5 | 1.45 | | 1.44 | | .416 | | MS |
| Nickel | ug/L | +/−20% | 41.3 | | 40.3 | | 2.57 | | MS |
| Selenium | ug/L | | 1.5 | U | 1.5 | U | | | MS |
| Silver | ug/L | | 0.2 | U | 0.2 | U | | | MS |
| Thallium | ug/L | | 0.45 | U | 0.45 | U | | | MS |
| Uranium | ug/L | +/−20% | 1.27 | | 1.22 | | 4.25 | | MS |

***Analytical Methods:**

**MS SW846 3005/6020 DOE−AL**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−823 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CAMO−13−30598D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325643002 **Duplicate ID:** 1202878661 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | ug/L | | 0.067 | U | 0.067 | U | | | AV |

***Analytical Methods:**

**AV EPA 245.1/245.2**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−823

**Contract:** ESHL00210

**Aqueous LCS Source:** OS2I **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202874203 | | | | | | | | |
| | Aluminum | ug/L | 5000 | 5220 | | 104 | 80−120 | P |
| | Barium | ug/L | 500 | 478 | | 95.6 | 80−120 | P |
| | Beryllium | ug/L | 500 | 485 | | 97 | 80−120 | P |
| | Boron | ug/L | 500 | 462 | | 92.4 | 80−120 | P |
| | Calcium | ug/L | 5000 | 4940 | | 98.8 | 80−120 | P |
| | Cobalt | ug/L | 500 | 465 | | 93.1 | 80−120 | P |
| | Copper | ug/L | 500 | 484 | | 96.9 | 80−120 | P |
| | Iron | ug/L | 5000 | 4950 | | 99.1 | 80−120 | P |
| | Magnesium | ug/L | 5000 | 4900 | | 98 | 80−120 | P |
| | Manganese | ug/L | 500 | 469 | | 93.8 | 80−120 | P |
| | Potassium | ug/L | 5000 | 4880 | | 97.6 | 80−120 | P |
| | Silica | ug/L | 10700 | 9820 | | 91.7 | 80−120 | P |
| | Sodium | ug/L | 5000 | 4920 | | 98.4 | 80−120 | P |
| | Strontium | ug/L | 500 | 513 | | 103 | 80−120 | P |
| | Tin | ug/L | 500 | 480 | | 96 | 80−120 | P |
| | Vanadium | ug/L | 500 | 476 | | 95.1 | 80−120 | P |
| | Zinc | ug/L | 500 | 443 | | 88.7 | 80−120 | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−823

**Contract:** ESHL00210

**Aqueous LCS Source:** O2Si **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202874211 | | | | | | | | |
| | Uranium | ug/L | 50 | 51.5 | | 103 | 80−120 | MS |
| | Antimony | ug/L | 50 | 52.9 | | 106 | 80−120 | MS |
| | Arsenic | ug/L | 50 | 52.2 | | 104 | 80−120 | MS |
| | Cadmium | ug/L | 50 | 52 | | 104 | 80−120 | MS |
| | Chromium | ug/L | 50 | 53 | | 106 | 80−120 | MS |
| | Lead | ug/L | 50 | 53.7 | | 107 | 80−120 | MS |
| | Molybdenum | ug/L | 50 | 50.7 | | 101 | 80−120 | MS |
| | Nickel | ug/L | 50 | 55.6 | | 111 | 80−120 | MS |
| | Selenium | ug/L | 50 | 55.4 | | 111 | 80−120 | MS |
| | Silver | ug/L | 50 | 52.5 | | 105 | 80−120 | MS |
| | Thallium | ug/L | 50 | 47.5 | | 95 | 80−120 | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−823

**Contract:** ESHL00210

**Aqueous LCS Source:** GEL **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202878667 | | | | | | | | |
| | Mercury | ug/L | 2 | 1.99 | | 99.5 | 85−115 | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−823 **Client ID** CAMO−13−30589L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325480002 **Serial Dilution ID:** 1202874206

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Aluminum | 68 | U | 340 | U | | | | P |
| Barium | 41.1 | | 41.1 | | .033 | | | P |
| Beryllium | 1 | U | 5 | U | | | | P |
| Boron | 42.3 | J | 75 | U | 100 | | | P |
| Calcium | 63900 | | 64700 | | 1.18 | | 10 | P |
| Cobalt | 1 | U | 5 | U | | | | P |
| Copper | 6.12 | J | 15 | U | 100 | | | P |
| Iron | 30 | U | 150 | U | | | | P |
| Magnesium | 13000 | | 13000 | | .331 | | 10 | P |
| Manganese | 2.92 | J | 10 | U | 100 | | | P |
| Potassium | 881 | | 1120 | | 27.4 | | | P |
| Silica | 65300 | | 63400 | | 2.89 | | 10 | P |
| Sodium | 25500 | | 26000 | | 2.02 | | 10 | P |
| Strontium | 305 | | 311 | | 2.03 | | 10 | P |
| Tin | 2.5 | U | 12.5 | U | | | | P |
| Vanadium | 1 | U | 5 | U | | | | P |
| Zinc | 15.9 | | 16.5 | U | 100 | | | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−823 **Client ID** CAMO−13−30589L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325480002 **Serial Dilution ID:** 1202874214

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Antimony | 1 | U | 5 | U | | | | MS |
| Arsenic | 1.7 | U | 8.5 | U | | | | MS |
| Cadmium | .11 | U | .55 | U | | | | MS |
| Chromium | 73.2 | | 81.4 | | 11.2 | | | MS |
| Lead | .5 | U | 2.5 | U | | | | MS |
| Molybdenum | 1.45 | | 1.79 | J | 23.5 | | | MS |
| Nickel | 41.3 | | 43.4 | | 5.08 | | | MS |
| Selenium | 1.5 | U | 7.5 | U | | | | MS |
| Silver | .2 | U | 1 | U | | | | MS |
| Thallium | .45 | U | 2.65 | J | | | | MS |
| Uranium | 1.27 | | 1.3 | | 2.04 | | | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−823 **Client ID** CAMO−13−30598L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325643002 **Serial Dilution ID:** 1202878663

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Mercury | .067 | U | .335 | U | | | | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

# Miscellaneous

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 04-JUN-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| ICP/MS | SW846 3005/6020 DOE-AL | Liquid | ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1301067 | See Below | | |

**Potentially affected work order(s)(SDG):** **325283(2013-808),325284(2013-809),325285(2013-810),325394(2013-813),325410(2013-814),325479(2013-822),325480(2013-823)**

**Application Issues:**

Failed Recovery for MS/PS

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed Recovery for MS/PS:<br><br>QC 1202874213MS | The matrix spike recovery failed outside of the control limits for Ni due to possible matrix interferences and/or non-homogeneity. Per GEL's accredited methods and SOPs, a corrective action is not required and the data is qualified and reported. |

**Originator's Name:**
Elizabeth Janssen 04-JUN-13

**Data Validator/Group Leader:**
Paul Boyd 04-JUN-13

# General Chem Analysis

# Case Narrative

**General Chemistry Narrative**
**ARS International (ARSL)**
**SDG 2013-823**

## Method/Analysis Information

**Product:** **Carbon, Total Organic**

**Analytical Batch:** 1302095 **Method:** SW 9060 Total Organic Carbon

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9060:

| Sample ID | Client ID |
|---|---|
| 325480001 | CAMO-13-30573 |
| 1202876780 | Method Blank (MB) |
| 1202876781 | 325479001(CAMO-13-30586) Sample Duplicate (DUP) |
| 1202876783 | 325479001(CAMO-13-30586) Post Spike (PS) |
| 1202876785 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-093 REV# 12.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Carbon analysis was performed on a O-I Analytical Model 1010 Total Organic Carbon Analyzer.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

## Quality Control (QC) Information

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325479001 (CAMO-13-30586).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

## Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

## Miscellaneous Information

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
A 15 mg/L Total Inorganic Carbon check standard is analyzed with each analytical run to prove that the instrument is effectively sparging away the inorganic carbon.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages

electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Specific Conductivity** | | |
| **Analytical Batch:** | 1304263 | **Method:** | EPA120.1 Specific Conductivity |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 120.1:

| Sample ID | Client ID |
|---|---|
| 325480002 | CAMO-13-30589 |
| 1202882513 | Laboratory Control Sample (LCS) |
| 1202882514 | 325480002(CAMO-13-30589) Sample Duplicate (DUP) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-009 REV# 11.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Conductivity analysis was performed on a Orion 160 Conductivity Meter.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325480002 (CAMO-13-30589).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

## Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

## Miscellaneous Information

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

**Product:** **pH**

**Analytical Batch:** 1301230 **Method:** EPA 150.1 pH

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 150.1:

| Sample ID | Client ID |
|---|---|
| 325480002 | CAMO-13-30589 |
| 1202874544 | 325479002(CAMO-13-30602) Sample Duplicate (DUP) |
| 1202874545 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-008 REV# 21.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Electrode analysis was performed on a PerpHect pH Meter Orion 370.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**

The following sample was selected for QC analysis: 325479002 (CAMO-13-30602).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
The following sample from this sample group was received by the lab outside of the method specified holding time: 325480002 (CAMO-13-30589).

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1190576 325480002 (CAMO-13-30589).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Ion Chromatography** | | |
| **Analytical Batch:** | 1300945 | **Method:** | EPA 300.0 Anions Liquid 28 day |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

| Sample ID | Client ID |
|---|---|
| 325480002 | CAMO-13-30589 |
| 1202873935 | Method Blank (MB) |
| 1202873936 | 325479002(CAMO-13-30602) Sample Duplicate (DUP) |
| 1202873937 | 325479002(CAMO-13-30602) Post Spike (PS) |
| 1202873938 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 21.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-5000 Ion Chromatograph.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325479002 (CAMO-13-30602).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The spike recovery falls outside of the established acceptance limits due to matrix interference: 1202873937 (CAMO-13-30602).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The following sample in this sample group was diluted due to high concentration: 325480002 (CAMO-13-30589).

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1191934 1202873937 (CAMO-13-30602).

**Manual Integrations**
The following samples from this sample group had to be manually integrated due to errors in the instrument software peak integration: 1202873936 (CAMO-13-30602), 1202873937 (CAMO-13-30602) and 325480002 (CAMO-13-30589).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an

effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Ammonia Nitrogen** | | |
| **Analytical Batch:** | 1301250 | **Method:** | EPA 350.1 Nitrogen and Ammonia L |
| **Prep Batch :** | 1301248 | **Method:** | EEPA 350.2 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 350.1:

| Sample ID | Client ID |
|---|---|
| 325480002 | CAMO-13-30589 |
| 1202874615 | Method Blank (MB) |
| 1202874617 | 325479002(CAMO-13-30602) Sample Duplicate (DUP) |
| 1202874619 | 325479002(CAMO-13-30602) Matrix Spike (MS) |
| 1202874620 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-106 REV# 9.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325479002 (CAMO-13-30602).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample: 1202874617 (CAMO-13-30602).

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1187647 1202874617 (CAMO-13-30602).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Total Kjeldahl Nitrogen** | | |
| **Analytical Batch:** | 1300635 | **Method:** | Nitrogen and Total Kjeldahl (TKN) |
| **Prep Batch :** | 1300634 | **Method:** | EEPA 351.2 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 351.2:

| Sample ID | Client ID |
|---|---|
| 325480001 | CAMO-13-30573 |
| 1202873058 | Method Blank (MB) |
| 1202873059 | 325283001(CAMO-13-30574) Sample Duplicate (DUP) |
| 1202873060 | 325283003(CAMO-13-30577) Sample Duplicate (DUP) |
| 1202873061 | 325283001(CAMO-13-30574) Matrix Spike (MS) |
| 1202873062 | 325283003(CAMO-13-30577) Matrix Spike (MS) |
| 1202873063 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-104 REV# 14.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following samples were selected for QC analysis: 325283001 (CAMO-13-30574) and 325283003 (CAMO-13-30577).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recoveries for this sample set were within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202873059 (CAMO-13-30574).

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The following samples were re-analyzed due to CCV failure: 1202873058 (MB), 1202873059 (CAMO-13-30574), 1202873060 (CAMO-13-30577), 1202873061 (CAMO-13-30574), 1202873062 (CAMO-13-30577), 1202873063 (LCS) and 325480001 (CAMO-13-30573).

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**

Additional comments were not required for this SDG.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Nitrate Nitrite by Cadmium Reduction** | | |
| **Analytical Batch:** | 1301246 | **Method:** | EPA 353.2 Nitrogen and Nitrate/Nitrite |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 353.2:

| Sample ID | Client ID |
|---|---|
| 325480002 | CAMO-13-30589 |
| 1202874598 | Method Blank (MB) |
| 1202874599 | 325284002(CAMO-13-30591) Sample Duplicate (DUP) |
| 1202874602 | 325284002(CAMO-13-30591) Post Spike (PS) |
| 1202874605 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-128 REV# 8.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8500 Series.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within

acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325284002 (CAMO-13-30591).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recoveries for this sample set were within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The following samples in this sample group were diluted due to high concentration: 1202874599 (CAMO-13-30591), 1202874602 (CAMO-13-30591) and 325480002 (CAMO-13-30589).

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Total Phosphorus** | | |
| **Analytical Batch:** | 1300626 | **Method:** | EPA 365.4 Phosphorus and Total in |
| **Prep Batch :** | 1300625 | **Method:** | EEPA 365.4 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 365.4:

| Sample ID | Client ID |
|---|---|
| 325480002 | CAMO-13-30589 |
| 1202873039 | Method Blank (MB) |
| 1202873040 | 325283002(CAMO-13-30590) Sample Duplicate (DUP) |
| 1202873041 | 325287001(NP027-13-30514) Sample Duplicate (DUP) |
| 1202873042 | 325283002(CAMO-13-30590) Matrix Spike (MS) |
| 1202873043 | 325287001(NP027-13-30514) Matrix Spike (MS) |
| 1202873044 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-103 REV# 10.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following samples were selected for QC analysis: 325283002 (CAMO-13-30590) and 325287001 (NP027-13-30514).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recoveries for this sample set were within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The following samples in this sample group were diluted due to high concentration: 1202873041 (NP027-13-30514) and 1202873043 (NP027-13-30514).

**Sample Re-analysis**
The following samples were re-analyzed due to CCV failure: 1202873041 (NP027-13-30514), 1202873043 (NP027-13-30514) and 325480002 (CAMO-13-30589).

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Solids, Total Dissolved** | | |
| **Analytical Batch:** | 1301226 | **Method:** | EPA 160.1 Solids and Dissolved-F |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 160.1:

| Sample ID | Client ID |
|---|---|
| 325480002 | CAMO-13-30589 |
| 1202874534 | Method Blank (MB) |
| 1202874535 | 325479005(CAMO-13-30564) Sample Duplicate (DUP) |
| 1202874536 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-001 REV# 13.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Solids analysis was performed on a Sartorius Balance BAL216. Solids lab

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

## Quality Control (QC) Information

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**

The following sample was selected for QC analysis: 325479005 (CAMO-13-30564).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Sample Aliquot**
A sufficient amount of sample was provided by the client for analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

**Product:** **Alkalinity**

**Analytical Batch:** 1302919 **Method:** EPA 310.1 Total Alkalinity

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 310.1:

| Sample ID | Client ID |
|---|---|
| 325480002 | CAMO-13-30589 |
| 1202878877 | Laboratory Control Sample (LCS) |
| 1202878878 | 325649002(CAMO-13-30594) Sample Duplicate (DUP) |
| 1202878879 | 325649002(CAMO-13-30594) Matrix Spike (MS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-033 REV# 10.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Titration analysis was performed on a Manually operated buret.

**Initial Standardization**
The titrant was properly standardized

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325649002 (CAMO-13-30594).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**

The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

**Review Validation:**

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

**The following data validator verified the information presented in this case narrative:**

**Reviewer:**_____ **Date:**_____06Jun13_____

# Sample Data Summary

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-823  GEL Work Order: 325480

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

**  Analyte is a Tracer compound

**  Analyte is a surrogate compound

H  Analytical holding time was exceeded

J  Value is estimated

N  Metals--The Matrix spike sample recovery is not within specified control limits

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: June 6, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-823

Client Sample ID: CAMO-13-30573
Sample ID: 325480001
Matrix: W
Collect Date: 08-MAY-13 12:13
Receive Date: 10-MAY-13
Collector: Client
Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon Analysis | | | | | | | | | | | |
| SW 9060 Total Organic Carbon "As Received" | | | | | | | | | | | |
| Total Organic Carbon Average | | 1.31 | 0.330 | 1.00 | mg/L | 1 | TSM | 05/16/13 | 1759 | 1302095 | 1 |
| Nutrient Analysis | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl (TKN) "As Received" | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | 0.116 | 0.033 | 0.100 | mg/L | 1 | KLP1 | 05/14/13 | 1428 | 1300635 | 2 |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 351.2 Prep | EPA 351.2 Total Kjeldahl Nitrogen Prep | KLP1 | 05/13/13 | 1700 | 1300634 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | SW846 9060 | |
| 2 | EPA 351.2 | |

**Notes:**

# GEL LABORATORIES LLC

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## Certificate of Analysis

Report Date: June 6, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-823

Client Sample ID: CAMO-13-30589
Sample ID: 325480002
Matrix: W
Collect Date: 08-MAY-13 12:13
Receive Date: 10-MAY-13
Collector: Client
Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Conductivity Analysis | | | | | | | | | | | |
| EPA120.1 Specific Conductivity "As Received" | | | | | | | | | | | |
| Conductivity | | 611 | 1.00 | 1.00 | umhos/cm | 1 | LXA1 | 05/28/13 | 1134 | 1304263 | 1 |
| Electrode Analysis | | | | | | | | | | | |
| EPA 150.1 pH "As Received" | | | | | | | | | | | |
| pH at Temp 12.4C | H | 7.63 | 0.010 | 0.100 | SU | 1 | LYG1 | 05/13/13 | 0859 | 1301230 | 2 |
| Ion Chromatography | | | | | | | | | | | |
| EPA 300.0 Anions Liquid 28 day "As Received" | | | | | | | | | | | |
| Bromide | | 0.587 | 0.067 | 0.200 | mg/L | 1 | MAR1 | 06/01/13 | 1101 | 1300945 | 3 |
| Fluoride | | 0.475 | 0.033 | 0.100 | mg/L | 1 | | | | | |
| Chloride | | 58.2 | 0.670 | 2.00 | mg/L | 10 | MAR1 | 06/03/13 | 1522 | 1300945 | 4 |
| Sulfate | | 61.0 | 1.33 | 4.00 | mg/L | 10 | | | | | |
| Nutrient Analysis | | | | | | | | | | | |
| EPA 350.1 Nitrogen, Ammonia L "As Received" | | | | | | | | | | | |
| Nitrogen, Ammonia | | 0.0941 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/20/13 | 1602 | 1301250 | 5 |
| EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received" | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | 8.19 | 0.170 | 0.500 | mg/L | 10 | KLP1 | 06/03/13 | 1421 | 1301246 | 6 |
| EPA 365.4 Phosphorus, Total in "As Received" | | | | | | | | | | | |
| Phosphorus, Total as P | | 0.371 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/14/13 | 1215 | 1300626 | 7 |
| Solids Analysis | | | | | | | | | | | |
| EPA 160.1 Solids, Dissolved-F "As Received" | | | | | | | | | | | |
| Total Dissolved Solids | | 404 | 3.40 | 14.3 | mg/L | | LYG1 | 05/13/13 | 0747 | 1301226 | 8 |
| Titration Analysis | | | | | | | | | | | |
| EPA 310.1 Total Alkalinity "As Received" | | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | 94.9 | 0.725 | 1.00 | mg/L | | LXA1 | 05/20/13 | 1454 | 1302919 | 9 |
| Carbonate alkalinity (CaCO3) | U | ND | 0.725 | 1.00 | mg/L | | | | | | |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 350.2 Prep | EPA 350.1 Ammonia Nitrogen Prep | KLP1 | 05/20/13 | 1320 | 1301248 |
| EPA 365.4 Prep | EPA 365.4 Phosphorus, Total in liquid PR | KLP1 | 05/13/13 | 1700 | 1300625 |

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: June 6, 2013

| | | | |
|---|---|---|---|
| Company : | Los Alamos National Laboratory | | |
| Address : | PO Box 1663<br>TA-03, SM271, Drop Pt. 02U, Rm111<br>Los Alamos, New Mexico 87545 | | |
| Contact: | Keith Greene | Client SDG: | 2013-823 |
| Project: | LANL-WQH Water Samples | | |

| | | | |
|---|---|---|---|
| Client Sample ID: | CAMO-13-30589 | Project: | ESHL00210 |
| Sample ID: | 325480002 | Client ID: | ARSL001 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | EPA 120.1 | |
| 2 | EPA 150.1 | |
| 3 | EPA 300.0 | |
| 4 | EPA 300.0 | |
| 5 | EPA 350.1 | |
| 6 | EPA 353.2 | |
| 7 | EPA 365.4 | |
| 8 | EPA 160.1 | |
| 9 | EPA 310.1 | |

**Notes:**

# Quality Control Summary

# GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

## QC Summary

**Report Date: June 6, 2013**


**Los Alamos National Laboratory**
**PO Box 1663**
**TA-03, SM271, Drop Pt. 02U, Rm111**
**Los Alamos, New Mexico**

**Contact:** **Keith Greene**

**Workorder:** **325480**

| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Carbon Analysis** | | | | | | | | | | | | |
| Batch 1302095 | | | | | | | | | | | | |
| QC1202876781 325479001 DUP | | | | | | | | | | | | |
| Total Organic Carbon Average | | J | 0.510 | J | 0.511 | mg/L | 0.196 | ^ | | (+/-1.00) | TSM | 05/16/13 16:57 |
| QC1202876785 LCS | | | | | | | | | | | | |
| Total Organic Carbon Average | 10.0 | | | | 9.70 | mg/L | | | 97 | (85%-115%) | | 05/16/13 16:15 |
| QC1202876780 MB | | | | | | | | | | | | |
| Total Organic Carbon Average | | | | U | ND | mg/L | | | | | | 05/16/13 16:06 |
| QC1202876783 325479001 PS | | | | | | | | | | | | |
| Total Organic Carbon Average | 10.0 | J | 0.510 | | 10.4 | mg/L | | | 99 | (65%-120%) | | 05/16/13 17:16 |
| **Conductivity Analysis** | | | | | | | | | | | | |
| Batch 1304263 | | | | | | | | | | | | |
| QC1202882514 325480002 DUP | | | | | | | | | | | | |
| Conductivity | | | 611 | | 616 | umhos/cm | 0.815 | | | (0%-10%) | LXA1 | 05/28/13 11:35 |
| QC1202882513 LCS | | | | | | | | | | | | |
| Conductivity | 1410 | | | | 1450 | umhos/cm | | | 103 | (95%-105%) | | 05/28/13 11:31 |
| **Electrode Analysis** | | | | | | | | | | | | |
| Batch 1301230 | | | | | | | | | | | | |
| QC1202874544 325479002 DUP | | | | | | | | | | | | |
| pH | | H | 8.64 | H | 8.65 | SU | 0.116 | | | (0%-10%) | LYG1 | 05/13/13 08:57 |
| QC1202874545 LCS | | | | | | | | | | | | |
| pH | 7.00 | | | | 6.95 | SU | | | 99.3 | (99%-101%) | | 05/13/13 08:55 |
| **Ion Chromatography** | | | | | | | | | | | | |
| Batch 1300945 | | | | | | | | | | | | |
| QC1202873936 325479002 DUP | | | | | | | | | | | | |
| Bromide | | J | 0.0717 | J | 0.0726 | mg/L | 1.25 | ^ | | (+/-0.200) | MAR1 | 06/01/13 09:27 |
| Chloride | | | 7.71 | | 7.64 | mg/L | 0.958 | | | (0%-20%) | | |
| Fluoride | | | 0.181 | | 0.182 | mg/L | 0.937 | ^ | | (+/-0.100) | | |
| Sulfate | | | 13.1 | | 13.3 | mg/L | 1.31 | | | (0%-20%) | | |
| QC1202873938 LCS | | | | | | | | | | | | |
| Bromide | 1.25 | | | | 1.28 | mg/L | | | 102 | (90%-110%) | | 06/01/13 08:24 |

## QC Summary

**Workorder: 325480**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Ion Chromatography** | | | | | | | | | | | |
| Batch 1300945 | | | | | | | | | | | |
| Chloride | 5.00 | | | | 4.66 | mg/L | | 93.3 | (90%-110%) | MAR1 | 06/01/13 08:24 |
| Fluoride | 2.50 | | | | 2.37 | mg/L | | 94.9 | (90%-110%) | | |
| Sulfate | 10.0 | | | | 9.94 | mg/L | | 99.4 | (90%-110%) | | |
| QC1202873935 MB | | | | | | | | | | | |
| Bromide | | | | U | ND | mg/L | | | | | 06/01/13 07:53 |
| Chloride | | | | U | ND | mg/L | | | | | |
| Fluoride | | | | U | ND | mg/L | | | | | |
| Sulfate | | | | U | ND | mg/L | | | | | |
| QC1202873937 325479002 PS | | | | | | | | | | | |
| Bromide | 1.25 | J | 0.0717 | | 1.30 | mg/L | | 98.3 | (90%-110%) | | 06/01/13 09:59 |
| Chloride | 5.00 | | 7.71 | | 13.3 | mg/L | | 111* | (90%-110%) | | |
| Fluoride | 2.50 | | 0.181 | | 2.49 | mg/L | | 92.2 | (90%-110%) | | |
| Sulfate | 10.0 | | 13.1 | | 23.5 | mg/L | | 104 | (90%-110%) | | |
| **Nutrient Analysis** | | | | | | | | | | | |
| Batch 1300626 | | | | | | | | | | | |
| QC1202873040 325283002 DUP | | | | | | | | | | | |
| Phosphorus, Total as P | | | 0.0705 | | 0.0744 | mg/L | 5.38 ^ | | (+/-0.050) | KLP1 | 05/14/13 10:51 |
| QC1202873041 325287001 DUP | | | | | | | | | | | |
| Phosphorus, Total as P | | | 2.83 | | 2.68 | mg/L | 5.63 | | (0%-31%) | | 05/14/13 12:17 |
| QC1202873044 LCS | | | | | | | | | | | |
| Phosphorus, Total as P | 1.00 | | | | 1.06 | mg/L | | 106 | (76%-120%) | | 05/14/13 10:46 |
| QC1202873039 MB | | | | | | | | | | | |
| Phosphorus, Total as P | | | | U | ND | mg/L | | | | | 05/14/13 10:46 |
| QC1202873042 325283002 MS | | | | | | | | | | | |
| Phosphorus, Total as P | 1.00 | | 0.0705 | | 1.08 | mg/L | | 101 | (62%-139%) | | 05/14/13 10:52 |
| QC1202873043 325287001 MS | | | | | | | | | | | |
| Phosphorus, Total as P | 1.00 | | 2.83 | | 3.70 | mg/L | | 86.5 | (62%-139%) | | 05/14/13 12:18 |

## QC Summary

**Workorder: 325480**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Nutrient Analysis** | | | | | | | | | | | |
| Batch 1300635 | | | | | | | | | | | |
| QC1202873059 325283001 DUP | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | U | ND | U | ND | mg/L | N/A | | | KLP1 | 05/14/13 13:50 |
| QC1202873060 325283003 DUP | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | | 0.109 | | 0.123 | mg/L | 12.1 ^ | | (+/-0.100) | | 05/14/13 13:53 |
| QC1202873063 LCS | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | | | | 0.987 | mg/L | | 98.7 | (90%-110%) | | 05/14/13 13:48 |
| QC1202873058 MB | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | | | U | ND | mg/L | | | | | 05/14/13 13:47 |
| QC1202873061 325283001 MS | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | U | ND | | 0.991 | mg/L | | 99.1 | (90%-110%) | | 05/14/13 13:51 |
| QC1202873062 325283003 MS | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | | 0.109 | | 1.06 | mg/L | | 95.1 | (90%-110%) | | 05/14/13 13:53 |
| Batch 1301246 | | | | | | | | | | | |
| QC1202874599 325284002 DUP | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | | 2.12 | | 2.10 | mg/L | 0.950 | | (0%-20%) | KLP1 | 06/03/13 14:03 |
| QC1202874605 LCS | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | 1.00 | | | | 0.979 | mg/L | | 97.9 | (90%-110%) | | 06/03/13 11:59 |
| QC1202874598 MB | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | | | U | ND | mg/L | | | | | 06/03/13 11:58 |
| QC1202874602 325284002 PS | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | 1.00 | | 0.423 | | 1.43 | mg/L | | 101 | (90%-110%) | | 06/03/13 14:04 |
| Batch 1301250 | | | | | | | | | | | |
| QC1202874617 325479002 DUP | | | | | | | | | | | |
| Nitrogen, Ammonia | | | 0.0937 | J | 0.0255 | mg/L | 114* ^ | | (+/-0.050) | KLP1 | 05/20/13 15:59 |
| QC1202874620 LCS | | | | | | | | | | | |
| Nitrogen, Ammonia | 1.00 | | | | 1.04 | mg/L | | 104 | (90%-110%) | | 05/20/13 15:48 |
| QC1202874615 MB | | | | | | | | | | | |
| Nitrogen, Ammonia | | | | J | 0.0235 | mg/L | | | | | 05/20/13 15:48 |
| QC1202874619 325479002 MS | | | | | | | | | | | |
| Nitrogen, Ammonia | 1.00 | | 0.0937 | | 1.05 | mg/L | | 95.6 | (90%-110%) | | 05/20/13 16:00 |
| **Solids Analysis** | | | | | | | | | | | |
| Batch 1301226 | | | | | | | | | | | |
| QC1202874535 325479005 DUP | | | | | | | | | | | |

## QC Summary

**Workorder: 325480**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Solids Analysis** | | | | | | | | | | |
| Batch 1301226 | | | | | | | | | | |
| Total Dissolved Solids | | 154 | | 141 | mg/L | 8.70 | | (0%-10%) | LYG1 | 05/13/13 07:47 |
| QC1202874536 LCS | | | | | | | | | | |
| Total Dissolved Solids | 300 | | | 289 | mg/L | | 96.2 | (95%-105%) | | 05/13/13 07:47 |
| QC1202874534 MB | | | | | | | | | | |
| Total Dissolved Solids | | | U | ND | mg/L | | | | | 05/13/13 07:47 |
| **Titration Analysis** | | | | | | | | | | |
| Batch 1302919 | | | | | | | | | | |
| QC1202878878 325649002 DUP | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | 54.8 | | 55.8 | mg/L | 1.83 | | (0%-20%) | LXA1 | 05/20/13 15:10 |
| Carbonate alkalinity (CaCO3) | U | ND | U | ND | mg/L | N/A | | | | |
| QC1202878877 LCS | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | 50.0 | | | 51.3 | mg/L | | 103 | (90%-110%) | | 05/20/13 11:51 |
| QC1202878879 325649002 MS | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | 50.0 | 54.8 | | 104 | mg/L | | 97.4 | (80%-120%) | | 05/20/13 15:17 |

**Notes:**

| | |
|---|---|
| ** | Analyte is a surrogate compound |
| < | Result is less than value reported |
| > | Result is greater than value reported |
| A | The TIC is a suspected aldol-condensation product |
| B | The target analyte was detected in the associated blank. |
| C | Analyte has been confirmed by GC/MS analysis |
| D | Results are reported from a diluted aliquot of the sample |
| E | %difference of sample and SD is >10%. Sample concentration must meet flagging criteria |
| E | Concentration of the target analyte exceeds the instrument calibration range |
| E | General Chemistry--Concentration of the target analyte exceeds the instrument calibration range |
| FB | Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies |
| H | Analytical holding time was exceeded |
| J | Value is estimated |
| JNX | Non Calibrated Compound |
| N | Metals--The Matrix spike sample recovery is not within specified control limits |
| N | Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |

## QC Summary

**Workorder: 325480**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|

| | |
|---|---|
| N | Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N/A | RPD or %Recovery limits do not apply. |
| N1 | See case narrative |
| ND | Analyte concentration is not detected above the detection limit |
| NJ | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| P | Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70% |
| Q | One or more quality control criteria have not been met. Refer to the applicable narrative or DER. |
| R | Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes. |
| R | Sample results are rejected |
| U | Analyte was analyzed for, but not detected above the MDL, MDA, or LOD. |
| UJ | Compound cannot be extracted |
| X | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| Y | Other specific qualifiers were required to properly define the results. Consult case narrative. |
| Y | QC Samples were not spiked with this compound |
| Z | Paint Filter Test--Particulates passed through the filter, however no free liquids were observed. |
| ^ | RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry. |
| d | 5-day BOD--The 2:1 depletion requirement was not met for this sample |
| h | Preparation or preservation holding time was exceeded |

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

# Miscellaneous

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 20-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** LACHAT Flow Injection Analyzer | **Test / Method:** EPA 350.1 | **Matrix Type:** Liquid | **Client Code:** ALBR, ECWS, ESHL, GSTL, |
| **Batch ID:** 1301250 | **Sample Numbers:** See Below | | |

**Potentially affected work order(s)(SDG):** **325415,325433,325456,325465,325479(2013-822),325480(2013-823),325596,325598,325643(2013-832),325647(2013-831),325657,325730**

**Application Issues:**

Failed RPD for DUP

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed RPD for DUP:<br><br>QC 1202874617DUP | 1. The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample. |

**Originator's Name:**
Kristen Parson 20-MAY-13

**Data Validator/Group Leader:**
Thomas Lewis 21-MAY-13

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 30-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| ELECTRODE | EPA 150.1 | Liquid | ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1301230 | See below. | | |

**Potentially affected work order(s)(SDG): 325479(2013-822),325480(2013-823)**

**Application Issues:**

Sample received out of holding

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Sample received out of holding:<br><br>325479002, 325479005, and 325480002 | 1. Samples were received out of holding. |

**Originator's Name:**

Lisa Gregory 30-MAY-13

**Data Validator/Group Leader:**

Julia Hamilton 05-JUN-13

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 04-JUN-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| IC | EPA 300.0 | Liquid | ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1300945 | See Below | | |

**Potentially affected work order(s)(SDG): 325479(2013-822),325480(2013-823),325643(2013-832),325647(2013-831),325649(2013-830)**

**Application Issues:**

Failed Recovery for MS/PS

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed Recovery for MS/PS:<br><br>QC 1202873937PS | 1. The MS/PS mixture contains seven anions of interest. Of those, all requested anions except chloride met normal acceptance criteria for recovery (90 - 110%). This failure is attributed to the matrix of the sample because the successful recovery of the other compounds indicate that the laboratory process was in control. This variance is judged to have no negative impact on the data. The deviation is noted in the Case Narrative and DER, and the data has been reported. |

**Originator's Name:**

Mary Sherwood 05-JUN-13

**Data Validator/Group Leader:**

Virginia Wininger 06-JUN-13

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

# Chain of Custody/Analysis Request

COC/Lab Request #: 2013-822



**Client Contact:**

**Lab Agreement # :** 126310011

**Project Number :**

**Analysis Turnaround Time:**

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

**Site Name:** Los Alamos National Laboratory

**Rad Screening Info:** Yes, Below Background

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | WSP-8260B-VOA | WSP-8270C-SVOA | WSP-CL04 | WSP-GENINORG | WSP-GrossA/B | WSP-Met+B+SN+SR+U | WSP-NH3+NO3/NO2+PO4 | WSP-RAD | WSP-TKN+TOC | Special Instructions: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAMO-13-30586 | May 8 2013 | 12:40 | W | 2 | 3 | | | 1 | | | 1 | 1 | |
| CAMO-13-30602 | May 8 2013 | 12:40 | W | | | 1 | 1 | | 1 | 1 | | | |
| CAMO-13-30560 | May 8 2013 | 12:40 | W | 2 | 3 | | | | | | | | |
| CAMO-13-30562 | May 8 2013 | 12:40 | W | 2 | 3 | | | 1 | | | 1 | 1 | |
| CAMO-13-30564 | May 8 2013 | 12:40 | W | | | 1 | 1 | | 1 | 1 | | | |
| CAMO-13-30570 | May 8 2013 | 12:40 | W | 2 | | | | | | | | | |

Special Instructions:

| | | | |
|---|---|---|---|
| Relinquished by: Melissa Montoya | | Date/Time: 5/9/13 3:00 | Received by: |
| Relinquished by: | | Date/Time: | Received by: |
| Relinquished by: | | Date/Time: | Received by: |

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30560 **WORK ORDER:**

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | 5/8/2013 | FIELD MATRIX: | WG | OK |
| TIME COLLECTED (HH:MM): | | 1240 | MEDIA: | UA | |
| PRS ID: | | OK | SAMPLE TECH CODE: | UA | DC |
| LOCATION ID: | R-62 | | FIELD PREP: | UF | OK |
| LOCATION TYPE: | | | FIELD QC TYPE: | FB | |
| PORT: | SINGLE COMPLETION | | SAMPLE USAGE: | QC | |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| N/A | WSP-8260B-VOA | 40 ML SEPTUM AMBER GLASS | 2 | HCL | Y | N/A |
| | WSP-8270C-SVOA | 1 LITER AMBER GLASS | US 2 | 5/8/13 ICE | | |

**SAMPLE COMMENTS:**

**LOCATION COMMENTS:** N/A

**FIELD PARAMETERS:**

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

**COLLECTED BY (PRINT)** A. Stocker

| | | | |
|---|---|---|---|
| **RELINQUISHED BY (Printed Name) (Signature)** | **Date/Time** 5/8/13 1340 | **RECEIVED BY (Printed Name) (Signature)** | **Date/Time** 5/8/13 1340 |
| **RELINQUISHED BY (Printed Name) (Signature)** | **Date/Time** | **RECEIVED BY (Printed Name) (Signature)** | **Date/Time** |

Report Date 04/30/2013

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30562

**WORK ORDER:**

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| **DATE COLLECTED (MM/DD/YYYY):** | | 5/8/2013 | **FIELD MATRIX:** | WG | ok |
| **TIME COLLECTED (HH:MM):** | | 1240 | **MEDIA:** | UA | |
| **PRS ID:** | | ok | **SAMPLE TECH CODE:** | UA | GSP |
| **LOCATION ID:** | R-62 | | **FIELD PREP:** | UF | ok |
| **LOCATION TYPE:** | | | **FIELD QC TYPE:** | FD | |
| **PORT:** | SINGLE COMPLETION | | **SAMPLE USAGE:** | QC | |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| N/A | WSP-8260B-VOA | 40 ML SEPTUM AMBER GLASS | 2 | HCL | Y | N/A |
| | WSP-8270C-SVOA | 1 LITER AMBER GLASS | 1 | ~~3~~ 1 ICE 5/8/13 | | |
| | WSP-GrossA/B | 1 LITER POLY | 1 | NONE | | |
| | WSP-LL-H-3 | 1 LITER POLY | 1 | NONE | | |
| | WSP-RAD | 1 GAL POLY | 1 | HNO3 | | |
| | WSP-TKN+TOC | 500 ML AMBER GLASS | 1 | H2SO4 | | |

**SAMPLE COMMENTS:**

**LOCATION COMMENTS:** N/A

**FIELD PARAMETERS:**

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

**COLLECTED BY (PRINT)** A Stockon

| | | | |
|---|---|---|---|
| **RELINQUISHED BY (Printed Name)** William Shear **(Signature)** | **Date/Time** 5/8/13 1240 | **RECEIVED BY (Printed Name)** M. Martz **(Signature)** | **Date/Time** 5/8/13 1340 |
| **RELINQUISHED BY (Printed Name) (Signature)** | **Date/Time** | **RECEIVED BY (Printed Name) (Signature)** | **Date/Time** |

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30564

**WORK ORDER:**

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | 5/8/2013 | FIELD MATRIX: | WG | ok |
| TIME COLLECTED (HH:MM): | | 1240 | MEDIA: | UA | |
| PRS ID: | | ok | SAMPLE TECH CODE: | UA | GSP |
| LOCATION ID: | R-62 | | FIELD PREP: | F | ok |
| LOCATION TYPE: | | | FIELD QC TYPE: | FD | |
| PORT: | SINGLE COMPLETION | | SAMPLE USAGE: | QC | |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| N/A | WSP-CL04 | 250 ML POLY | 1 | ICE | Y | N/A |
| | WSP-GENINORG | 1 LITER POLY | 1 | ICE | | |
| | WSP-Met+B+SN+SR+U | 1 LITER POLY | 1 | HNO3 | | |
| | WSP-NH3+NO3/NO2+PO4 | 500 ML AMBER GLASS | 1 | H2SO4 | | |

**SAMPLE COMMENTS:**

**LOCATION COMMENTS:** N/A

**FIELD PARAMETERS:**

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

**COLLECTED BY (PRINT)** A. Stocker

| | | | |
|---|---|---|---|
| **RELINQUISHED BY (Printed Name) (Signature)** William Shear | **Date/Time** 5/8/13 1340 | **RECEIVED BY (Printed Name) (Signature)** A. Montoya | **Date/Time** 5/8/13 1340 |
| **RELINQUISHED BY (Printed Name) (Signature)** | **Date/Time** | **RECEIVED BY (Printed Name) (Signature)** | **Date/Time** |

Report Date 04/30/2013

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30570

**WORK ORDER:**

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | 5/8/2013 | FIELD MATRIX: | WG | OK |
| TIME COLLECTED (HH:MM): | | 1240 | MEDIA: | UA | |
| PRS ID: | | OK | SAMPLE TECH CODE: | UA | DC |
| LOCATION ID: | R-62 | | FIELD PREP: | UF | OK |
| LOCATION TYPE: | | | FIELD QC TYPE: | FTB | |
| PORT: | SINGLE COMPLETION | | SAMPLE USAGE: | QC | |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-8260B-VOA | 40 ML SEPTUM AMBER GLASS | 2 | HCL | Y | NA |

**SAMPLE COMMENTS:**

**LOCATION COMMENTS:** NA

**FIELD PARAMETERS:**

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

**COLLECTED BY (PRINT)** A. Stocker

| | | | |
|---|---|---|---|
| **RELINQUISHED BY (Printed Name) (Signature)** W. Thompson | **Date/Time** 5/8/13 1340 | **RECEIVED BY (Printed Name) (Signature)** M. Martin | **Date/Time** 5/8/13 1340 |
| **RELINQUISHED BY (Printed Name) (Signature)** | **Date/Time** | **RECEIVED BY (Printed Name) (Signature)** | **Date/Time** |

Report Date 04/30/2013

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30586

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| **DATE COLLECTED (MM/DD/YYYY):** | | 5/8/2013 | **FIELD MATRIX:** WG | | gf |
| **TIME COLLECTED (HH:MM):** | | 1240 | **MEDIA:** UA | | ✓ |
| **PRS ID:** | | OK | **SAMPLE TECH CODE:** UA | | GSP |
| **LOCATION ID:** R-62 | | ✓ | **FIELD PREP:** UF | | OK |
| **LOCATION TYPE:** MON | | ✓ | **FIELD QC TYPE:** REG | | ✓ |
| **PORT:** SINGLE COMPLETION | | ✓ | **SAMPLE USAGE:** INV | | ✓ |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| N/A | WSP-8260B-VOA | 40 ML SEPTUM AMBER GLASS | 2 | HCL | Y | N/A |
| ✓ | WSP-8270C-SVOA | 1 LITER AMBER GLASS | 1 | ICE 5/8/13 | ✓ | ✓ |
| ✓ | WSP-GrossA/B | 1 LITER POLY | 1 | NONE | ✓ | ✓ |
| ✓ | WSP-LL-H-3 | 1 LITER POLY | 1 | NONE | ✓ | ✓ |
| ✓ | WSP-RAD | 1 GAL POLY | 1 | HNO3 | ✓ | ✓ |
| ✓ | WSP-TKN+TOC | 500 ML AMBER GLASS | 1 | H2SO4 | ✓ | ✓ |

**SAMPLE COMMENTS:** Diesel generator running ~ 40' away while sampling

**LOCATION COMMENTS:** N/A

**FIELD PARAMETERS:**

Dissolved Oxygen 5.03 mg/L  Oxidation-Reduction Potential 192.2 MV  pH 8.52 SU

Specific Conductance 178 uS/cm  Temperature 19.67 deg C  Turbidity 4.5 NTU

**COLLECTED BY (PRINT)** A. Stocker

| | | | |
|---|---|---|---|
| **RELINQUISHED BY (Printed Name)** William Shaw **(Signature)** | **Date/Time** 5/8/13 1340 | **RECEIVED BY (Printed Name)** A. Montoya **(Signature)** | **Date/Time** 5/8/13 1340 |
| **RELINQUISHED BY (Printed Name) (Signature)** | **Date/Time** | **RECEIVED BY (Printed Name) (Signature)** | **Date/Time** |

Report Date 04/30/2013

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30602 **WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | 5/8/2013 | FIELD MATRIX: | WG | ok |
| TIME COLLECTED (HH:MM): | | 1240 | MEDIA: | UA | |
| PRS ID: | | ok | SAMPLE TECH CODE: | UA | GSP |
| LOCATION ID: | R-62 | | FIELD PREP: | F | ok |
| LOCATION TYPE: | MON | | FIELD QC TYPE: | REG | |
| PORT: | SINGLE COMPLETION | | SAMPLE USAGE: | INV | |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| N/A | WSP-CL04 | 250 ML POLY | 1 | ICE | Y | N/A |
| | WSP-GENINORG | 1 LITER POLY | 1 | ICE | | |
| | WSP-Met+B+SN+SR+U | 1 LITER POLY | 1 | HNO3 | | |
| | WSP-NH3+NO3/NO2+PO4 | 500 ML AMBER GLASS | 1 | H2SO4 | | |

**SAMPLE COMMENTS:** N/A

**LOCATION COMMENTS:** N/A

**FIELD PARAMETERS:**

Dissolved Oxygen 5.03 mg/L Oxidation-Reduction Potential 192.2 MV pH 8.52 SU

Specific Conductance 178 uS/cm Temperature 19.67 deg C Turbidity 4.5 NTU

**COLLECTED BY (PRINT)** T. Stocker

| RELINQUISHED BY (Printed Name) (Signature) | Date/Time | RECEIVED BY (Printed Name) (Signature) | Date/Time |
|---|---|---|---|
| William Shear | 5/6/2013 1340 | T. Morton | 5/8/13 1340 |
| **RELINQUISHED BY (Printed Name) (Signature)** | **Date/Time** | **RECEIVED BY (Printed Name) (Signature)** | **Date/Time** |

Report Date 04/30/2013

Data Validation Report

Chain Of Custody No. 2013-822

**1. Distribution Of Samples In EDD.**

| SDG | Analytical Method | Regular Samples | Field Duplicates | Trip Blanks | Field Blanks | Equipment Blanks |
|---|---|---|---|---|---|---|
| 325479 | EPA:120.1 | 1 | 1 | | | |
| 325479 | EPA:150.1 | 1 | 1 | | | |
| 325479 | EPA:160.1 | 1 | 1 | | | |
| 325479 | EPA:245.2 | 1 | 1 | | | |
| 325479 | EPA:300.0 | 1 | 1 | | | |
| 325479 | EPA:310.1 | 1 | 1 | | | |
| 325479 | EPA:350.1 | 1 | 1 | | | |
| 325479 | EPA:351.2 | 1 | 1 | | | |
| 325479 | EPA:353.2 | 1 | 1 | | | |
| 325479 | EPA:365.4 | 1 | 1 | | | |
| 325479 | EPA:900 | 1 | 1 | | | |
| 325479 | EPA:901.1 | 1 | 1 | | | |
| 325479 | EPA:905.0 | 1 | 1 | | | |
| 325479 | HASL-300:AM-241 | 1 | 1 | | | |
| 325479 | HASL-300:ISOPU | 1 | 1 | | | |
| 325479 | HASL-300:ISOU | 1 | 1 | | | |
| 325479 | SM:A2340B | 1 | 1 | | | |
| 325479 | SW-846:6010B | 1 | 1 | | | |
| 325479 | SW-846:6020 | 1 | 1 | | | |
| 325479 | SW-846:6850 | 1 | 1 | | | |
| 325479 | SW-846:8260B | 1 | 1 | 1 | 1 | |
| 325479 | SW-846:8270C | 1 | 1 | | 1 | |
| 325479 | SW-846:9060 | 1 | 1 | | | |

| SDG | Analytical Method | Analysis Lot ID | Prep Lot ID | Regular Samples | Field Duplicates | Trip Blanks | Field Blanks | Equipment Blanks | Method Blanks | Matrix Spikes | Matrix Spike Dups |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 325479 | EPA:120.1 | 1304263 | 1304263 | 1 | 1 | | | | | | |
| 325479 | EPA:150.1 | 1301230 | 1301230 | 1 | 1 | | | | | | |
| 325479 | EPA:160.1 | 1301226 | 1301226 | 1 | 1 | | | | 1 | | |
| 325479 | EPA:245.2 | 1302856 | 1302851 | 1 | 1 | | | | 1 | 2 | |
| 325479 | EPA:300.0 | 1300945 | 1300945 | 1 | 1 | | | | 1 | | |
| 325479 | EPA:310.1 | 1302919 | 1302919 | 1 | 1 | | | | 2 | 1 | |
| 325479 | EPA:350.1 | 1301250 | 1301248 | 1 | 1 | | | | 1 | 1 | |
| 325479 | EPA:351.2 | 1300635 | 1300634 | 1 | 1 | | | | 1 | 2 | |
| 325479 | EPA:353.2 | 1301246 | 1301246 | 1 | 1 | | | | 1 | | |
| 325479 | EPA:365.4 | 1301773 | 1301772 | 1 | 1 | | | | 1 | 2 | |
| 325479 | EPA:900 | 1301385 | 1301385 | 1 | 1 | | | | 1 | 1 | 1 |
| 325479 | EPA:901.1 | 1302818 | 1302818 | 1 | 1 | | | | 1 | | |
| 325479 | EPA:905.0 | 1301365 | 1301365 | 1 | 1 | | | | 1 | 1 | |
| 325479 | HASL-300:AM-241 | 1301466 | 1301466 | 1 | 1 | | | | 1 | | |
| 325479 | HASL-300:ISOPU | 1301467 | 1301467 | 1 | 1 | | | | 1 | | |
| 325479 | HASL-300:ISOU | 1301468 | 1301468 | 1 | 1 | | | | 1 | | |
| 325479 | SM:A2340B | 1305711 | 1305711 | 1 | 1 | | | | | | |
| 325479 | SW-846:6010B | 1301065 | 1301064 | 1 | 1 | | | | 1 | 1 | |
| 325479 | SW-846:6020 | 1301067 | 1301066 | 1 | 1 | | | | 1 | 1 | |
| 325479 | SW-846:6850 | 1301785 | 1301783 | 1 | 1 | | | | 1 | 1 | 1 |
| 325479 | SW-846:8260B | 1302977 | 1302977 | 1 | 1 | 1 | 1 | | 1 | | |

Data Validation Report for:

Chain Of Custody No. 2013-822

| Analytical Spikes | Post-Digestion Spikes | Lab Control Samples | Lab Control Sample Dups | Blank Spikes | Blank Spike Dups | Lab Duplicates | Storage Blanks | Preparation Blanks | Reagent Blanks |
|---|---|---|---|---|---|---|---|---|---|
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 2 | | | |
| | | 1 | | | | 1 | | | |
| | | 2 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 2 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 2 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
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| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
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| | | 1 | | | | 1 | | | |
| | | 1 | | | | | | | |
| | | 2 | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 325479 | SW-846:8270C | 1300969 | 1300968 | 1 | 1 | | 1 | | 1 | 1 | 1 |
| 325479 | SW-846:9060 | 1302095 | 1302095 | 1 | 1 | | | | 1 | | |

**2. Distribution Of Analytes In EDD.**

| Analytical Method | Method Category | Field Sample ID | Lab Sample ID | Sample Purpose | Target Analytes | Surrogates | Spikes | TICS |
|---|---|---|---|---|---|---|---|---|
| EPA:120.1 | GENERAL CHEMISTRY | CAMO-13-30564 | 325479005 | FD | 1 | 0 | 0 | 0 |
| EPA:120.1 | GENERAL CHEMISTRY | CAMO-13-30589 | 1202882514 | DUP | 1 | 0 | 0 | 0 |
| EPA:120.1 | GENERAL CHEMISTRY | CAMO-13-30602 | 325479002 | REG | 1 | 0 | 0 | 0 |
| EPA:120.1 | GENERAL CHEMISTRY | LCS | 1202882513 | LCS | 0 | 0 | 1 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | CAMO-13-30564 | 325479005 | FD | 1 | 0 | 0 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | CAMO-13-30602 | 1202874544 | DUP | 1 | 0 | 0 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | CAMO-13-30602 | 325479002 | REG | 1 | 0 | 0 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | LCS | 1202874545 | LCS | 0 | 0 | 1 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | CAMO-13-30564 | 1202874535 | DUP | 1 | 0 | 0 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | CAMO-13-30564 | 325479005 | FD | 1 | 0 | 0 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | CAMO-13-30602 | 325479002 | REG | 1 | 0 | 0 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | LCS | 1202874536 | LCS | 0 | 0 | 1 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | MB | 1202874534 | MB | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30564 | 325479005 | FD | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30598 | 1202878661 | DUP | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30598 | 1202878665 | MS | 0 | 0 | 1 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30602 | 1202878662 | DUP | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30602 | 1202878666 | MS | 0 | 0 | 1 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30602 | 325479002 | REG | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | LCS | 1202878667 | LCS | 0 | 0 | 1 | 0 |
| EPA:245.2 | INORGANIC | MB | 1202878660 | MB | 1 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | CAMO-13-30564 | 325479005 | FD | 4 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | CAMO-13-30602 | 1202873936 | DUP | 4 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | CAMO-13-30602 | 325479002 | REG | 4 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | LCS | 1202873938 | LCS | 0 | 0 | 4 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | MB | 1202873935 | MB | 4 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CAMO-13-30564 | 325479005 | FD | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CAMO-13-30594 | 1202878878 | DUP | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CAMO-13-30594 | 1202878879 | MS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CAMO-13-30602 | 325479002 | REG | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | LCS | 1202878877 | LCS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | LCS | 1202879028 | LCS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | MB | 1202878876 | MB | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | MB | 1202879027 | MB | 2 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30564 | 325479005 | FD | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30602 | 1202874617 | DUP | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30602 | 1202874619 | MS | 0 | 0 | 1 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30602 | 325479002 | REG | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | LCS | 1202874620 | LCS | 0 | 0 | 1 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | MB | 1202874615 | MB | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30562 | 325479004 | FD | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30574 | 1202873059 | DUP | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30574 | 1202873061 | MS | 0 | 0 | 1 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30577 | 1202873060 | DUP | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30577 | 1202873062 | MS | 0 | 0 | 1 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30586 | 325479001 | REG | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | LCS | 1202873063 | LCS | 0 | 0 | 1 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | MB | 1202873058 | MB | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CAMO-13-30564 | 325479005 | FD | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CAMO-13-30591 | 1202874599 | DUP | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CAMO-13-30602 | 325479002 | REG | 1 | 0 | 0 | 0 |

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|---|---|---|---|---|---|---|---|---|
| EPA:353.2 | GENERAL CHEMISTRY | LCS | 1202874605 | LCS | 0 | 0 | 1 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | MB | 1202874598 | MB | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CAMO-13-30564 | 1202876009 | DUP | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CAMO-13-30564 | 1202876011 | MS | 0 | 0 | 1 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CAMO-13-30564 | 325479005 | FD | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CAMO-13-30602 | 1202876008 | DUP | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CAMO-13-30602 | 1202876010 | MS | 0 | 0 | 1 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CAMO-13-30602 | 325479002 | REG | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | LCS | 1202876012 | LCS | 0 | 0 | 1 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | MB | 1202876007 | MB | 1 | 0 | 0 | 0 |
| EPA:900 | RAD | CAMO-13-30558 | 1202875026 | DUP | 2 | 0 | 0 | 0 |
| EPA:900 | RAD | CAMO-13-30558 | 1202875027 | MS | 0 | 0 | 2 | 0 |
| EPA:900 | RAD | CAMO-13-30558 | 1202875028 | MSD | 0 | 0 | 2 | 0 |
| EPA:900 | RAD | CAMO-13-30562 | 325479004 | FD | 2 | 0 | 0 | 0 |
| EPA:900 | RAD | CAMO-13-30586 | 325479001 | REG | 2 | 0 | 0 | 0 |
| EPA:900 | RAD | LCS | 1202875029 | LCS | 0 | 0 | 2 | 0 |
| EPA:900 | RAD | MB | 1202875025 | MB | 2 | 0 | 0 | 0 |
| EPA:901.1 | RAD | CAMO-13-30562 | 325479004 | FD | 5 | 0 | 0 | 0 |
| EPA:901.1 | RAD | CAMO-13-30584 | 1202878534 | DUP | 5 | 0 | 0 | 0 |
| EPA:901.1 | RAD | CAMO-13-30586 | 325479001 | REG | 5 | 0 | 0 | 0 |
| EPA:901.1 | RAD | LCS | 1202878535 | LCS | 0 | 0 | 3 | 0 |
| EPA:901.1 | RAD | MB | 1202878533 | MB | 5 | 0 | 0 | 0 |
| EPA:905.0 | RAD | CAMO-13-30562 | 325479004 | FD | 1 | 0 | 0 | 0 |
| EPA:905.0 | RAD | CAMO-13-30586 | 1202874958 | DUP | 1 | 0 | 0 | 0 |
| EPA:905.0 | RAD | CAMO-13-30586 | 1202874959 | MS | 0 | 0 | 1 | 0 |
| EPA:905.0 | RAD | CAMO-13-30586 | 325479001 | REG | 1 | 0 | 0 | 0 |
| EPA:905.0 | RAD | LCS | 1202874960 | LCS | 0 | 0 | 1 | 0 |
| EPA:905.0 | RAD | MB | 1202874957 | MB | 1 | 0 | 0 | 0 |
| HASL-300:AM-241 | RAD | CAMO-13-30562 | 325479004 | FD | 1 | 0 | 0 | 0 |
| HASL-300:AM-241 | RAD | CAMO-13-30586 | 1202875203 | DUP | 1 | 0 | 0 | 0 |
| HASL-300:AM-241 | RAD | CAMO-13-30586 | 325479001 | REG | 1 | 0 | 0 | 0 |
| HASL-300:AM-241 | RAD | LCS | 1202875204 | LCS | 0 | 0 | 1 | 0 |
| HASL-300:AM-241 | RAD | MB | 1202875202 | MB | 1 | 0 | 0 | 0 |
| HASL-300:ISOPU | RAD | CAMO-13-30562 | 325479004 | FD | 2 | 0 | 0 | 0 |
| HASL-300:ISOPU | RAD | CAMO-13-30586 | 1202875206 | DUP | 2 | 0 | 0 | 0 |
| HASL-300:ISOPU | RAD | CAMO-13-30586 | 325479001 | REG | 2 | 0 | 0 | 0 |
| HASL-300:ISOPU | RAD | LCS | 1202875207 | LCS | 0 | 0 | 1 | 0 |
| HASL-300:ISOPU | RAD | MB | 1202875205 | MB | 2 | 0 | 0 | 0 |
| HASL-300:ISOU | RAD | CAMO-13-30562 | 325479004 | FD | 3 | 0 | 0 | 0 |
| HASL-300:ISOU | RAD | CAMO-13-30586 | 1202875209 | DUP | 3 | 0 | 0 | 0 |
| HASL-300:ISOU | RAD | CAMO-13-30586 | 325479001 | REG | 3 | 0 | 0 | 0 |
| HASL-300:ISOU | RAD | LCS | 1202875210 | LCS | 0 | 0 | 1 | 0 |
| HASL-300:ISOU | RAD | MB | 1202875208 | MB | 3 | 0 | 0 | 0 |
| SM:A2340B | INORGANIC | CAMO-13-30564 | 325479005 | FD | 1 | 0 | 0 | 0 |
| SM:A2340B | INORGANIC | CAMO-13-30602 | 325479002 | REG | 1 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30564 | 325479005 | FD | 17 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30589 | 1202874204 | DUP | 17 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30589 | 1202874205 | MS | 0 | 0 | 17 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30602 | 325479002 | REG | 17 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | LCS | 1202874203 | LCS | 0 | 0 | 17 | 0 |
| SW-846:6010B | INORGANIC | MB | 1202874202 | MB | 17 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30564 | 325479005 | FD | 11 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30589 | 1202874212 | DUP | 11 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30589 | 1202874213 | MS | 0 | 0 | 11 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30602 | 325479002 | REG | 11 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | LCS | 1202874211 | LCS | 0 | 0 | 11 | 0 |
| SW-846:6020 | INORGANIC | MB | 1202874210 | MB | 11 | 0 | 0 | 0 |

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| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| SW-846:6850 | LCMS/MS PERCHLORATE | CAMO-13-30564 | 325479005 | FD | 1 | 0 | 0 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | CAMO-13-30592 | 1202876022 | MS | 0 | 0 | 1 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | CAMO-13-30592 | 1202876023 | MSD | 0 | 0 | 1 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | CAMO-13-30602 | 325479002 | REG | 1 | 0 | 0 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | LCS | 1202876021 | LCS | 0 | 0 | 1 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | MB | 1202876020 | MB | 1 | 0 | 0 | 0 |
| SW-846:8260B | VOC | CAMO-13-30560 | 325479003 | FB | 80 | 3 | 0 | 0 |
| SW-846:8260B | VOC | CAMO-13-30562 | 325479004 | FD | 80 | 3 | 0 | 0 |
| SW-846:8260B | VOC | CAMO-13-30570 | 325479006 | FTB | 80 | 3 | 0 | 0 |
| SW-846:8260B | VOC | CAMO-13-30586 | 325479001 | REG | 80 | 3 | 0 | 0 |
| SW-846:8260B | VOC | LCS | 1202879077 | LCS | 0 | 3 | 70 | 0 |
| SW-846:8260B | VOC | LCS | 1202879078 | LCS | 0 | 3 | 10 | 0 |
| SW-846:8260B | VOC | MB | 1202879074 | MB | 80 | 3 | 0 | 0 |
| SW-846:8270C | SVOC | CAMO-13-30560 | 325479003 | FB | 80 | 6 | 0 | 0 |
| SW-846:8270C | SVOC | CAMO-13-30562 | 325479004 | FD | 80 | 6 | 0 | 0 |
| SW-846:8270C | SVOC | CAMO-13-30586 | 325479001 | REG | 80 | 6 | 0 | 0 |
| SW-846:8270C | SVOC | LCS | 1202873989 | LCS | 0 | 6 | 76 | 0 |
| SW-846:8270C | SVOC | MB | 1202873988 | MB | 80 | 6 | 0 | 0 |
| SW-846:8270C | SVOC | WST55-13-32015 | 1202873990 | MS | 0 | 6 | 76 | 0 |
| SW-846:8270C | SVOC | WST55-13-32015 | 1202873991 | MSD | 0 | 6 | 76 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | CAMO-13-30562 | 325479004 | FD | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | CAMO-13-30586 | 1202876781 | DUP | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | CAMO-13-30586 | 325479001 | REG | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | LCS | 1202876785 | LCS | 0 | 0 | 1 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | MB | 1202876780 | MB | 1 | 0 | 0 | 0 |

**3. Are any analytes missing?**

No.

**4. Were any holding times exceeded?**

No.

**5. Any contaminants in blanks?**

| Field Sample ID | Lab Sample ID | Type Of Blank | Analytical Method | Sample Matrix | Parameter Name | Lab Result | Lab Qualifier | Units | Lab Detection Limit |
|---|---|---|---|---|---|---|---|---|---|
| MB | 1202874202 | METHOD BLANK | SW-846:6010B | W | Potassium | 64.3 | J | ug/L | 150 |
| MB | 1202874202 | METHOD BLANK | SW-846:6010B | W | Strontium | 2.05 | J | ug/L | 5 |
| MB | 1202874615 | METHOD BLANK | EPA:350.1 | W | Ammonia as Nitrogen | 0.0235 | J | mg/L | 0.05 |
| MB | 1202876007 | METHOD BLANK | EPA:365.4 | W | Total Phosphate as Phosphorus | 0.0287 | J | mg/L | 0.05 |
| MB | 1202878660 | METHOD BLANK | EPA:245.2 | W | Mercury | -0.074 | J | ug/L | 0.2 |

**Any samples affected by the presence of contaminants in blanks?**

| Field Sample ID | Blank Field Sample ID | Blank Lab Sample ID | Blank Type | Analytical Method | Parameter Name | Units | Blank Result | Sample Result | Lab Qualifier | Detect Limit | Detected |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAMO-13-30602 | MB | 1202878660 | METHOD BLANK | EPA:245.2 | Mercury | ug/L | -0.074 | 0.2 | U | 0.2 | N |

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| Correction Factor (ND) | Correction Factor (J) | Use Factors |
|---|---|---|
| 5 | | Y |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAMO-13-30564 | MB | 1202878660 | METHOD BLANK | EPA:245.2 | Mercury | ug/L | -0.074 | 0.2 | U | 0.2 | N |
| CAMO-13-30602 | MB | 1202874615 | METHOD BLANK | EPA:350.1 | Ammonia as Nitrogen | mg/L | 0.0235 | 0.0937 | | 0.05 | Y |
| CAMO-13-30564 | MB | 1202874615 | METHOD BLANK | EPA:350.1 | Ammonia as Nitrogen | mg/L | 0.0235 | 0.0316 | J | 0.05 | Y |
| CAMO-13-30602 | MB | 1202876007 | METHOD BLANK | EPA:365.4 | Total Phosphate as Phosphorus | mg/L | 0.0287 | 0.0458 | J | 0.05 | Y |
| CAMO-13-30564 | MB | 1202876007 | METHOD BLANK | EPA:365.4 | Total Phosphate as Phosphorus | mg/L | 0.0287 | 0.0426 | J | 0.05 | Y |

**6. Any surrogate recoveries outside the control limits?**

No.

**7. Any MS/MSD recoveries or RPDs outside the control limits?**

| Field Sample ID | Matrix Spike ID | Matrix Spike Dup ID | Analytical Method | Parameter Name | Analysis Lot ID | Analysis Date | Sample Matrix | MS % Recvry | MSD % Recvry | Upper Limit | Lower Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAMO-13-30589 | 1202874213 | | SW-846:6020 | Nickel | 1301066 | 6/1/2013 | W | 126 | | 125 | 75 |

**8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?**

| LCS Sample ID | LCSD Sample ID | Analytical Method | Parameter Name | Lab Lot ID | Analysis Date | Sample Matrix | LCS Recovery | LCSD Recovery | Upper Limit | Lower Limit | Lower Reject Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1202873989 | | SW-846:8270C | Atrazine | 1300968 | 5/13/2013 | W | 31 | | 115 | 47 | 10 |
| 1202873989 | | SW-846:8270C | Nitrophenol[4-] | 1300968 | 5/13/2013 | W | 9 | | 77 | 16 | 10 |

**9. Any Field Duplicate RPDs outside the desired limits?**

No.

**10. Any Lab Duplicate RPDs outside the desired limits?**

| Field Sample ID | Lab SampleID | Lab Duplicate Sample ID | Analytical Method | Parameter Name | Sample Matrix | Sample Result | Dup Sample Result | Units | Detected In Sample | Detected In Dup | RPD |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAMO-13-30586 | 325479001 | 1202875209 | HASL-300:ISOU | Uranium-238 | W | 0.286 | 0.276 | pCi/L | Y | Y | 3.35 |

**11. Any required reporting limits exceeded?**

No.

**12. Additional Validator's Coments.**

None.

**13. Display Flagged Data.**

| Location ID | Chain Of Custody No | Field Sample ID | Sample Purpose | Analysis Type Code | Analytical Suite | Analytical Method | Parameter Name | Lab Qualifier | Validation Qualifier | Validation Reason Codes | Detected |
|---|---|---|---|---|---|---|---|---|---|---|---|
| R-62 | 2013-822 | CAMO-13-30560 | FB | INIT | SVOC | SW-846:8270C | Atrazine | U | UJ | SV12a | N |
| R-62 | 2013-822 | CAMO-13-30560 | FB | INIT | SVOC | SW-846:8270C | Nitrophenol[4-] | U | R | SV12 | N |
| R-62 | 2013-822 | CAMO-13-30562 | FD | INIT | RAD | HASL-300:AM-241 | Americium-241 | U | U | R5 | N |
| R-62 | 2013-822 | CAMO-13-30562 | FD | INIT | SVOC | SW-846:8270C | Atrazine | U | UJ | SV12a | N |
| R-62 | 2013-822 | CAMO-13-30562 | FD | INIT | RAD | EPA:901.1 | Cesium-137 | U | U | R5 | N |
| R-62 | 2013-822 | CAMO-13-30562 | FD | INIT | RAD | EPA:901.1 | Cobalt-60 | U | U | R5 | N |
| R-62 | 2013-822 | CAMO-13-30562 | FD | INIT | RAD | EPA:900 | Gross alpha | U | U | R5 | N |

Data Validation Report for:

Chain Of Custody No. 2013-822

| | | |
|---|---|---|
| 5 | | Y |
| 5 | | Y |
| 5 | | Y |
| 5 | | Y |
| 5 | | Y |

| | | |
|---|---|---|
| Rejection Limit | RPD | RPD Limit |
| 10 | | |

| | | |
|---|---|---|
| Upper Reject Limit | RPD | RPD Limit |
| | | |
| | | |

RPD Limit

0.0371

| Lab Result | Lab Units | Report Result | Report Units | Report MDA | Report Uncertainty | Lab Matrix | Sample Date | Percent Moisture | Analysis Lot ID | Validation Status Code | Use Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10.6 | ug/L | 10.6 | ug/L | | | W | 5/8/2013 | | 1300969 | VAL | Y |
| 10.6 | ug/L | 10.6 | ug/L | | | W | 5/8/2013 | | 1300969 | VAL | Y |
| 0 | pCi/L | 0 | pCi/L | 0.062 | 0.00452 | W | 5/8/2013 | | 1301466 | VAL | Y |
| 10.5 | ug/L | 10.5 | ug/L | | | W | 5/8/2013 | | 1300969 | VAL | Y |
| 4.24 | pCi/L | 4.24 | pCi/L | 4.42 | 1.72 | W | 5/8/2013 | | 1302818 | VAL | Y |
| -0.0409 | pCi/L | -0.0409 | pCi/L | 7.09 | 1.9 | W | 5/8/2013 | | 1302818 | VAL | Y |
| -0.0718 | pCi/L | -0.0718 | pCi/L | 2.97 | 0.668 | W | 5/8/2013 | | 1301385 | VAL | Y |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| R-62 | 2013-822 | CAMO-13-30562 | FD | INIT | RAD | EPA:901.1 | Neptunium-237 | U | U | R5 | N |
| R-62 | 2013-822 | CAMO-13-30562 | FD | INIT | SVOC | SW-846:8270C | Nitrophenol[4-] | U | R | SV12 | N |
| R-62 | 2013-822 | CAMO-13-30562 | FD | INIT | RAD | HASL-300:ISOPU | Plutonium-238 | U | U | R5 | N |
| R-62 | 2013-822 | CAMO-13-30562 | FD | INIT | RAD | HASL-300:ISOPU | Plutonium-239/240 | U | U | R5 | N |
| R-62 | 2013-822 | CAMO-13-30562 | FD | INIT | RAD | EPA:901.1 | Potassium-40 | U | U | R5 | N |
| R-62 | 2013-822 | CAMO-13-30562 | FD | INIT | RAD | EPA:901.1 | Sodium-22 | U | U | R5 | N |
| R-62 | 2013-822 | CAMO-13-30562 | FD | INIT | RAD | EPA:905.0 | Strontium-90 | U | U | R5 | N |
| R-62 | 2013-822 | CAMO-13-30562 | FD | INIT | RAD | HASL-300:ISOU | Uranium-235/236 | U | U | R5 | N |
| R-62 | 2013-822 | CAMO-13-30564 | FD | INIT | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | J | U | I4 | N |
| R-62 | 2013-822 | CAMO-13-30564 | FD | INIT | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | J | U | I4 | N |
| R-62 | 2013-822 | CAMO-13-30586 | REG | INIT | RAD | HASL-300:AM-241 | Americium-241 | U | U | R5 | N |
| R-62 | 2013-822 | CAMO-13-30586 | REG | INIT | SVOC | SW-846:8270C | Atrazine | U | UJ | SV12a | N |
| R-62 | 2013-822 | CAMO-13-30586 | REG | INIT | RAD | EPA:901.1 | Cesium-137 | U | U | R5 | N |
| R-62 | 2013-822 | CAMO-13-30586 | REG | INIT | RAD | EPA:901.1 | Cobalt-60 | U | U | R5 | N |
| R-62 | 2013-822 | CAMO-13-30586 | REG | INIT | RAD | EPA:900 | Gross alpha | U | U | R5 | N |
| R-62 | 2013-822 | CAMO-13-30586 | REG | INIT | RAD | EPA:901.1 | Neptunium-237 | U | U | R5 | N |
| R-62 | 2013-822 | CAMO-13-30586 | REG | INIT | SVOC | SW-846:8270C | Nitrophenol[4-] | U | R | SV12 | N |
| R-62 | 2013-822 | CAMO-13-30586 | REG | INIT | RAD | HASL-300:ISOPU | Plutonium-238 | U | U | R5 | N |
| R-62 | 2013-822 | CAMO-13-30586 | REG | INIT | RAD | HASL-300:ISOPU | Plutonium-239/240 | U | U | R5 | N |
| R-62 | 2013-822 | CAMO-13-30586 | REG | INIT | RAD | EPA:901.1 | Potassium-40 | U | U | R5 | N |
| R-62 | 2013-822 | CAMO-13-30586 | REG | INIT | RAD | EPA:901.1 | Sodium-22 | U | U | R5 | N |
| R-62 | 2013-822 | CAMO-13-30586 | REG | INIT | RAD | EPA:905.0 | Strontium-90 | U | U | R5 | N |
| R-62 | 2013-822 | CAMO-13-30586 | REG | INIT | RAD | HASL-300:ISOU | Uranium-235/236 | | U | R11 | N |
| R-62 | 2013-822 | CAMO-13-30586 | REG | INIT | RAD | HASL-300:ISOU | Uranium-238 | | J | R10 | Y |
| R-62 | 2013-822 | CAMO-13-30602 | REG | INIT | GENERAL CHEMISTRY | EPA:350.1 | Ammonia as Nitrogen | | U | I4 | N |
| R-62 | 2013-822 | CAMO-13-30602 | REG | INIT | GENERAL CHEMISTRY | EPA:365.4 | Total Phosphate as Phosphorus | J | U | I4 | N |

| **Reason Code** | Description |
|---|---|
| I4 | the sample result is =<5x the concentration of related analyte in the method blank. |
| J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL |
| NQ | The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample. |
| R10 | Associated duplicate sample has DER or RER> the analytical laboratory's acceptance limits. |
| R11 | The results for the affected analytes should be regarded as not-detected (U) because the associated sample concentration was less than 3x the 1 sigma TPU. |
| R5 | Analyte is not detected because the amount reported is less than the MDC. |
| SV12 | The LCS percent recovery was <10%. Follow the external laboratory limits located within the associated data package. |
| SV12a | The LCS percent recovery was < the LAL but >10%. Follow the external laboratory limits located within the associated data package. |
| U_LAB | The analytical laboratory qualified the analyte as not detected. |

**14. Useable Result Count.**

| Field Sample ID | Location ID | Sample Purpose | Analytical Method | No. Unuseable Records | Total No. Of Records |
|---|---|---|---|---|---|
| CAMO-13-30560 | R-62 | FB | SW-846:8260B | 0 | 80 |
| CAMO-13-30560 | R-62 | FB | SW-846:8270C | 0 | 80 |
| CAMO-13-30562 | R-62 | FD | EPA:351.2 | 0 | 1 |
| CAMO-13-30562 | R-62 | FD | EPA:900 | 0 | 2 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.359 | pCi/L | 0.359 | pCi/L | 11.5 | 3.25 | W | 5/8/2013 | | 1302818 | VAL | Y |
| 10.5 | ug/L | 10.5 | ug/L | | | W | 5/8/2013 | | 1300969 | VAL | Y |
| 0 | pCi/L | 0 | pCi/L | 0.0586 | 0.00965 | W | 5/8/2013 | | 1301467 | VAL | Y |
| 0.0158 | pCi/L | 0.0158 | pCi/L | 0.0706 | 0.00965 | W | 5/8/2013 | | 1301467 | VAL | Y |
| 9.73 | pCi/L | 9.73 | pCi/L | 63.1 | 19.1 | W | 5/8/2013 | | 1302818 | VAL | Y |
| 2.3 | pCi/L | 2.3 | pCi/L | 6.94 | 1.61 | W | 5/8/2013 | | 1302818 | VAL | Y |
| 0.0627 | pCi/L | 0.0627 | pCi/L | 0.497 | 0.141 | W | 5/8/2013 | | 1301365 | VAL | Y |
| 0.0225 | pCi/L | 0.0225 | pCi/L | 0.0323 | 0.0106 | W | 5/8/2013 | | 1301468 | VAL | Y |
| 0.0316 | mg/L | 0.0316 | mg/L | | | W | 5/8/2013 | | 1301250 | VAL | Y |
| 0.0426 | mg/L | 0.0426 | mg/L | | | W | 5/8/2013 | | 1301773 | VAL | Y |
| -0.00325 | pCi/L | -0.00325 | pCi/L | 0.0629 | 0.00562 | W | 5/8/2013 | | 1301466 | VAL | Y |
| 10.6 | ug/L | 10.6 | ug/L | | | W | 5/8/2013 | | 1300969 | VAL | Y |
| 0.346 | pCi/L | 0.346 | pCi/L | 4.95 | 1.4 | W | 5/8/2013 | | 1302818 | VAL | Y |
| 0.776 | pCi/L | 0.776 | pCi/L | 5.86 | 1.4 | W | 5/8/2013 | | 1302818 | VAL | Y |
| 1.38 | pCi/L | 1.38 | pCi/L | 2.75 | 0.856 | W | 5/8/2013 | | 1301385 | VAL | Y |
| -0.32 | pCi/L | -0.32 | pCi/L | 10.7 | 3.01 | W | 5/8/2013 | | 1302818 | VAL | Y |
| 10.6 | ug/L | 10.6 | ug/L | | | W | 5/8/2013 | | 1300969 | VAL | Y |
| -0.00923 | pCi/L | -0.00923 | pCi/L | 0.0343 | 0.00863 | W | 5/8/2013 | | 1301467 | VAL | Y |
| 0 | pCi/L | 0 | pCi/L | 0.0413 | 0.00652 | W | 5/8/2013 | | 1301467 | VAL | Y |
| -2.88 | pCi/L | -2.88 | pCi/L | 72.8 | 18.7 | W | 5/8/2013 | | 1302818 | VAL | Y |
| -1.33 | pCi/L | -1.33 | pCi/L | 5.41 | 1.54 | W | 5/8/2013 | | 1302818 | VAL | Y |
| 0.162 | pCi/L | 0.162 | pCi/L | 0.494 | 0.145 | W | 5/8/2013 | | 1301365 | VAL | Y |
| 0.0512 | pCi/L | 0.0512 | pCi/L | 0.0441 | 0.0177 | W | 5/8/2013 | | 1301468 | VAL | Y |
| 0.286 | pCi/L | 0.286 | pCi/L | 0.0573 | 0.0358 | W | 5/8/2013 | | 1301468 | VAL | Y |
| 0.0937 | mg/L | 0.0937 | mg/L | | | W | 5/8/2013 | | 1301250 | VAL | Y |
| 0.0458 | mg/L | 0.0458 | mg/L | | | W | 5/8/2013 | | 1301773 | VAL | Y |

| | | | | | |
|---|---|---|---|---|---|
| CAMO-13-30562 | R-62 | FD | EPA:901.1 | 0 | 5 |
| CAMO-13-30562 | R-62 | FD | EPA:905.0 | 0 | 1 |
| CAMO-13-30562 | R-62 | FD | HASL-300:AM-241 | 0 | 1 |
| CAMO-13-30562 | R-62 | FD | HASL-300:ISOPU | 0 | 2 |
| CAMO-13-30562 | R-62 | FD | HASL-300:ISOU | 0 | 3 |
| CAMO-13-30562 | R-62 | FD | SW-846:8260B | 0 | 80 |
| CAMO-13-30562 | R-62 | FD | SW-846:8270C | 0 | 80 |
| CAMO-13-30562 | R-62 | FD | SW-846:9060 | 0 | 1 |
| CAMO-13-30564 | R-62 | FD | EPA:120.1 | 0 | 1 |
| CAMO-13-30564 | R-62 | FD | EPA:150.1 | 0 | 1 |
| CAMO-13-30564 | R-62 | FD | EPA:160.1 | 0 | 1 |
| CAMO-13-30564 | R-62 | FD | EPA:245.2 | 0 | 1 |
| CAMO-13-30564 | R-62 | FD | EPA:300.0 | 0 | 4 |
| CAMO-13-30564 | R-62 | FD | EPA:310.1 | 0 | 2 |
| CAMO-13-30564 | R-62 | FD | EPA:350.1 | 0 | 1 |
| CAMO-13-30564 | R-62 | FD | EPA:353.2 | 0 | 1 |
| CAMO-13-30564 | R-62 | FD | EPA:365.4 | 0 | 1 |
| CAMO-13-30564 | R-62 | FD | SM:A2340B | 0 | 1 |
| CAMO-13-30564 | R-62 | FD | SW-846:6010B | 0 | 7 |
| CAMO-13-30564 | R-62 | FD | SW-846:6020 | 0 | 11 |
| CAMO-13-30564 | R-62 | FD | SW-846:6850 | 0 | 1 |
| CAMO-13-30570 | R-62 | FTB | SW-846:8260B | 0 | 80 |
| CAMO-13-30586 | R-62 | REG | EPA:351.2 | 0 | 1 |
| CAMO-13-30586 | R-62 | REG | EPA:900 | 0 | 2 |
| CAMO-13-30586 | R-62 | REG | EPA:901.1 | 0 | 5 |
| CAMO-13-30586 | R-62 | REG | EPA:905.0 | 0 | 1 |
| CAMO-13-30586 | R-62 | REG | HASL-300:AM-241 | 0 | 1 |
| CAMO-13-30586 | R-62 | REG | HASL-300:ISOPU | 0 | 2 |
| CAMO-13-30586 | R-62 | REG | HASL-300:ISOU | 0 | 3 |
| CAMO-13-30586 | R-62 | REG | SW-846:8260B | 0 | 80 |
| CAMO-13-30586 | R-62 | REG | SW-846:8270C | 0 | 80 |
| CAMO-13-30586 | R-62 | REG | SW-846:9060 | 0 | 1 |
| CAMO-13-30602 | R-62 | REG | EPA:120.1 | 0 | 1 |
| CAMO-13-30602 | R-62 | REG | EPA:150.1 | 0 | 1 |
| CAMO-13-30602 | R-62 | REG | EPA:160.1 | 0 | 1 |
| CAMO-13-30602 | R-62 | REG | EPA:245.2 | 0 | 1 |
| CAMO-13-30602 | R-62 | REG | EPA:300.0 | 0 | 4 |
| CAMO-13-30602 | R-62 | REG | EPA:310.1 | 0 | 2 |
| CAMO-13-30602 | R-62 | REG | EPA:350.1 | 0 | 1 |
| CAMO-13-30602 | R-62 | REG | EPA:353.2 | 0 | 1 |
| CAMO-13-30602 | R-62 | REG | EPA:365.4 | 0 | 1 |
| CAMO-13-30602 | R-62 | REG | SM:A2340B | 0 | 1 |
| CAMO-13-30602 | R-62 | REG | SW-846:6010B | 0 | 7 |
| CAMO-13-30602 | R-62 | REG | SW-846:6020 | 0 | 1 |
| CAMO-13-30602 | R-62 | REG | SW-846:6850 | 0 | 1 |

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178
www.gel.com

June 05, 2013

Keith Greene
Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Re: LANL-WQH Water Samples
Work Order: 325479
SDG: 2013-822

Dear Keith Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on May 10, 2013, and analyzed for GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,

Hope Taylor for
Valerie Davis
Project Manager

Purchase Order: 63641-10
Chain of Custody: 2013-822
Enclosures

**ARS International (63641-10)**
**LANL-WQH Water Samples**
**Work Order #: 325479**
**SDG: 2013-822**

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# Case Narrative

**Case Narrative for**
**ARS International (63641-10)**
**LANL-WQH Water Samples**
**Workorder #: 325479**
**SDG # : 2013-822**

**June 05, 2013**

**Laboratory Identification:**

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

**Summary**

**Sample receipt** The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on May 10, 2013 for analysis. Please see attached email for discrepancies. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. The containers for Gross A/B were preserved prior to analysis. Shipping container temperature was within specification (0 - 6C). Shipping container temperatures were checked, documented, and within specifications. There are no additional comments concerning sample receipt.

**Sample Identification** The laboratory received the following samples:

| Laboratory ID | Client ID |
|---|---|
| 325479001 | CAMO-13-30586 |
| 325479002 | CAMO-13-30602 |
| 325479003 | CAMO-13-30560 |
| 325479004 | CAMO-13-30562 |
| 325479005 | CAMO-13-30564 |
| 325479006 | CAMO-13-30570 |

**Case Narrative**

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

**Data Package**

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.

Hope Taylor for
Valerie Davis
Project Manager

**List of current GEL Certifications as of 05 June 2013**

| State | Certification |
|---|---|
| Alaska | UST−110 |
| Arkansas | 88−0651 |
| CLIA | 42D0904046 |
| California NELAP | 01151CA |
| Colorado | SC00012 |
| Connecticut | PH−0169 |
| Delaware | SC00012 |
| DoD ELAP A2LA ISO 17025 | 2567.01 |
| Florida NELAP | E87156 |
| Foreign Soils Permit | P330−12−00283, P330−12−00284 |
| Georgia | SC00012 |
| Georgia SDWA | 967 |
| Hawaii | SC00012 |
| Idaho | SC00012 |
| Illinois NELAP | 200029 |
| Indiana | C−SC−01 |
| Kansas NELAP | E−10332 |
| Kentucky | 90129 |
| Louisiana NELAP | 03046 (AI33904) |
| Louisiana SDWA | LA130005 |
| Maryland | 270 |
| Massachusetts | M−SC012 |
| Nevada | SC000122011−1 |
| New Hampshire NELAP | 2054 |
| New Jersey NELAP | SC002 |
| New Mexico | SC00012 |
| New York NELAP | 11501 |
| North Carolina | 233 |
| North Carolina SDWA | 45709 |
| Oklahoma | 9904 |
| Pennsylvania NELAP | 68−00485 |
| Plant Material Permit | PDEP−12−00260 |
| South Carolina Chemistry | 10120001 |
| South Carolina Radiochemi | 10120002 |
| Tennessee | TN 02934 |
| Texas NELAP | T104704235−13−8 |
| Utah NELAP | SC000122013−8 |
| Vermont | VT87156 |
| Virginia NELAP | 460202 |
| Washington | C780−12 |
| Wisconsin | 999887790 |

# Chain of Custody and Supporting Documentation

General Engineering Laboratories, Inc., Charleston, SC.
2040 Savage Rd
Charleston SC 29407

# Chain of Custody/Analysis Request

325479

COC/Lab Request #: 2013-822

Page 1 of 1

Client Contact:

Lab Agreement # : 126310011

Project Number :

Site Name: Los Alamos National Laboratory

Analysis Turnaround Time:
24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Rad Screening Info: Yes, Below Background

Special Instructions:

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | WSP-8260B-VOA | WSP-8270C-SVOA | WSP-CL04 | WSP-GENINORG | WSP-GrossA/B | WSP-Met+B+SN+SR+U | WSP-NH3+NO3/NO2+PO4 | WSP-RAD | WSP-TKN+TOC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAMO-13-30586 | May 8 2013 | 12:40 | W | 2 | 3 | | | 1 | | | 1 | 1 |
| CAMO-13-30602 | May 8 2013 | 12:40 | W | | | 1 | 1 | | 1 | 1 | | |
| CAMO-13-30560 | May 8 2013 | 12:40 | W | 2 | 3 | | | | | | | |
| CAMO-13-30562 | May 8 2013 | 12:40 | W | 2 | 3 | | | 1 | | | 1 | 1 |
| CAMO-13-30564 | May 8 2013 | 12:40 | W | | | 1 | 1 | | 1 | 1 | | |
| CAMO-13-30570 | May 8 2013 | 12:40 | W | 2 | | | | | | | | |

Special Instructions:

| | | | | |
|---|---|---|---|---|
| Relinquished by: Melissa Montoya | | Date/Time: 5/9/13 3:00 | Received by: P. Olent | 5-10-13 09:00 |
| Relinquished by: | | Date/Time: | Received by: | |
| Relinquished by: | | Date/Time: | Received by: | |

GEL Laboratories LLC

# SAMPLE RECEIPT & REVIEW FORM

| | |
|---|---|
| **Client: LANL** | **SDG/AR/COC/Work Order: 2013-822** |
| **Received By: Patricia Dent** | **Date Received: May 10, 2013** |

| **Suspected Hazard Information** | **Yes** | **No** | *If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation. |
|---|---|---|---|
| COC/Samples marked as radioactive? | | X | Maximum Net Counts Observed* (Observed Counts - Area Background Counts): **0 CPM** |
| Classified Radioactive II or III by RSO? | | X | If yes, Were swipes taken of sample contatiners < action levels? |
| COC/Samples marked containing PCBs? | | X | |
| Package, COC, and/or Samples marked as beryllium or asbestos containing? | | X | If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group. |
| Shipped as a DOT Hazardous? | | X | Hazard Class Shipped: UN#: |
| Samples identified as Foreign Soil? | | X | |

| | **Sample Receipt Criteria** | **Yes** | **NA** | **No** | **Comments/Qualifiers (Required for Non-Conforming Items)** |
|---|---|---|---|---|---|
| 1 | Shipping containers received intact and sealed? | X | | | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 2 | Samples requiring cold preservation within (0 ≤ 6 deg. C)?* | X | | | Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius **3,4C** |
| 2a | Daily check performed and passed on IR temperature gun? | X | | | Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable):**61524649** |
| 3 | Chain of custody documents included with shipment? | X | | | |
| 4 | Sample containers intact and sealed? | X | | | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 5 | Samples requiring chemical preservation at proper pH? | | | X | Sample ID's, containers affected and observed Ph **CAMO-13-30586, 30562 for Gross A/B** If Preservation added, Lot# **NX 0409-75** |
| 6 | VOA vials free of headspace (defined as < 6mm bubble)? | | X | | Sample ID's and containers affected: |
| 7 | Are Encore containers present? | | | X | (If yes, immediately deliver to Volatiles laboratory) |
| 8 | Samples received within holding time? | X | | | ID's and tests affected: |
| 9 | Sample ID's on COC match ID's on bottles? | X | | | Sample ID's and containers affected: |
| 10 | Date & time on COC match date & time on bottles? | X | | | Sample ID's affected: |
| 11 | Number of containers received match number indicated on COC? | | | X | Sample ID's affected:**CAMO-13-30560, 30562, 30586 the lab rec'd 1 8270C contr. chain indicates 3. CAMO-13-30570 for 8260b the lab rec'd 1 contr. chain indicates 2** |
| 12 | Are sample containers identifiable as GEL provided? | | | X | **Client** |
| 13 | COC form is properly signed in relinquished/received sections? | X | | | |
| 14 | Carrier and tracking number. | X | | | Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other **5462 9832 9980 4C 5462 9833 0001 3C 5462 9832 9990 4C** |



5-13-13

**Subject:** Re: Today's Issues 05/10/13
**From:** Pat Dent <Pat.Dent@gel.com>
**Date:** 5/10/2013 4:09 PM
**To:** "Keith R. Greene" <kgreene@lanl.gov>
**CC:** "team.davis" <team.davis@gel.com>, LANL@amrad.com

Containers received for Gross A/B was preserved prior to analysis

Patricia Dent
Project Manager Assistant
GEL Laboratories, LLC
2040 Savage Rd.
Charleston, S.C. 29407
Main: 843-556-8171 Ext 4264
Fax: 843-766-1178
Email: pad@gel.com
Web: www.gel.com

On 5/10/2013 3:48 PM, Pat Dent wrote:

> Good afternoon all listed below are today's issues
>
> RN#2013-822
> CAMO-13-30570 for 8260b the lab received 1container chain indicates 2.
> CAMO-13-30562, 30560, 30586 for 8270C-SVOA the lab received 1 container each chain indicates 3 each.
>
> RN#2013-823
> CAMO-13-30567 for 8260b the lab received 1 container chain indicates 2
> CAMO-13-30573 for 8270C-SVOA the lab received 1 container chain indicates 3.
>
> Thanks!!

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 09MAY13
ACTWGT: 46.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWKO

4c

58DC1/99B3/10BC

FedEx Express

J111311060601 25

1 of 3

TRK# 0201 5462 9832 9980

FRI - 10 MAY 10:30A
PRIORITY OVERNIGHT

## MASTER ##

XX CHSA 4c

29407
SC-US CHS

Part # 156140-434 FMT2 08/10

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 09MAY13
ACTWGT: 40.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWKO

3E

58DC1/9983/10BC

FedEx Express

J111311060125

3 of 3
MPS# 0263 5462 9833 0001
Mstr# 5462 9832 9980

FRI - 10 MAY 10:30A
PRIORITY OVERNIGHT

0201

XX CHSA 3C

29407
SC-US CHS

Part # 156148-434 RIT2 08/10

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 09MAY13
ACTWGT: 53.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWKO

58DC1/9983/10BC

FedEx Express

J111311060125

2 of 3
MPS# 0263 5462 9832 9990
Mstr# 5462 9832 9980

FRI - 10 MAY 10:30A
PRIORITY OVERNIGHT

0201

XX CHSA 4C

29407
SC-US CHS

Part # 156148-434 RIT2 08/10

1 of

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES, US

SHIP DATE: 09MAY13
ACTWGT: 10.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: WE6L11551000

3C

58DC1/99983/1B8C

FedEx Express

J111311060601 25

TRK# 0201 5462 9833 0034

FRI - 10 MAY 10:30A
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

NPDES

Part # 156148-434 RITT2 08/10

# Data Review Qualifier Flag Definition Sheet

## Data Review Qualifier Definitions

| Qualifier | Explanation |
|---|---|
| * | A quality control analyte recovery is outside of specified acceptance criteria |
| ** | Analyte is a surrogate compound |
| < | Result is less than value reported |
| > | Result is greater than value reported |
| ^ | RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL |
| A | The TIC is a suspected aldol-condensation product |
| B | Target analyte was detected in the associated blank |
| B | Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL |
| BD | Results are either below the MDC or tracer recovery is low |
| C | Analyte has been confirmed by GC/MS analysis |
| D | Results are reported from a diluted aliquot of the sample |
| d | 5-day BOD-The 2:1 depletion requirement was not met for this sample |
| E | Organics-Concentration of the target analyte exceeds the instrument calibration range |
| E | Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria |
| H | Analytical holding time was exceeded |
| h | Preparation or preservation holding time was exceeded |
| J | Value is estimated |
| N | Metals-The Matrix spike sample recovery is not within specified control limits |
| N | Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N/A | Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more |
| ND | Analyte concentration is not detected above the reporting limit |
| UI | Gamma Spectroscopy-Uncertain identification |
| X | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| Y | QC Samples were not spiked with this compound |
| Z | Paint Filter Test-Particulates passed through the filter, however no free liquids were observed. |

# Volatile Analysis

# Case Narrative

**ChemStation Case Narrative**
**ARS International (ARSL)**
**SDG 2013-822**

## Method/Analysis Information

| | |
|---|---|
| **Procedure:** | **Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer** |
| Analytical Method: | SW846 8260B DOE-AL |
| Analytical Batch Number: | 1302977 |

## Sample Analysis

The following client and quality control samples were analyzed to complete this SDG using the methods referenced in the Analysis Information section:

| Sample ID | Client ID |
|---|---|
| 325479001 | CAMO-13-30586 |
| 325479003 | CAMO-13-30560 |
| 325479004 | CAMO-13-30562 |
| 325479006 | CAMO-13-30570 |
| 1202879074 | Method Blank (MB) |
| 1202879075 | 325479001(CAMO-13-30586) Post Spike (PS) |
| 1202879076 | 325479001(CAMO-13-30586) Post Spike Duplicate (PSD) |
| 1202879077 | Laboratory Control Sample (LCS) |
| 1202879078 | Laboratory Control Sample (LCS) |

NOTE: For volatile organic analyses the matrix spike designations may be indicated as "PS" or "PSD". The "PS" designation (post spike) indicates that the matrix was fortified prior to analysis but after applying any prep factors, such as a dilution. The laboratory considers the MS/MSD and PS/PSD designations interchangeable.

The samples in this SDG were analyzed on an "as received" basis.

## Preparation/Analytical Method Verification

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-038 REV# 19.

Raw data reports are processed and reviewed by the analyst using the Chemstation software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP) section 19.1.2. False positive analytes are designated on the quantitation report with a ’d’ qualifier.

## Calibration Information

A complete list of the initial calibration data files with the correct dates and times of analysis are shown in the Calibration History report located in the Standard Data section of the data package.

The surrogate compounds were calibrated using a minimum five-point calibration curve. The surrogates were added by the auto sampler at a concentration of 50 ug/L or 20 ug/L for low level analyses. GEL Laboratories LLC will not have surrogate recoveries reported for Dibromofluoromethane. This is due to increased regulations for this analyte and an industry shortage.

**Initial Calibration**
All initial calibration requirements have been met for this sample delivery group (SDG).

**Continuing Calibration Verification Requirements**
All associated calibration verification standard(s) (CCV) met the acceptance criteria.

**Quality Control (QC) Information**

**Blank (MB) Statement**
The blank analyzed with this SDG met the acceptance criteria.

**Surrogate Recoveries**
Surrogate recoveries in all client and quality control samples were within the acceptance limits.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recoveries met the acceptance limits.

**QC Sample Designation**
Sample 325479001 (CAMO-13-30586) was designated for spike analysis.

**Matrix Spike (PS) Recovery Statement**
The spike recoveries were within the required acceptance limits.

**Matrix Spike Duplicate (PSD) Recovery Statement**
The spike duplicate recoveries were within the required acceptance limits.

**Relative Percent Difference (RPD) Statement**
The RPDs between the matrix spike pair met the acceptance limits.

**Internal Standard (ISTD) Acceptance**
The internal standard responses in all client and quality control samples met the required acceptance criteria.

**Technical Information**

**Holding Time Specifications**
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection or sample receipt. Those holding times expressed in hours are calculated in the ALPHALIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

**Sample Preservation and Integrity**
All samples met the sample preservation and integrity requirements.

**Sample Dilutions/Methanol Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-extraction/Re-analysis**
Re-analyses were not required for samples in this SDG.

**Miscellaneous Information**

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Manual Integrations**
Data files associated with the initial calibration, continuing calibration check, and samples did not require manual integrations.

**TIC Comment**
Tentatively identified compounds (TIC) may be requested for this sample delivery group/work order. Please note that non-requested target analytes that are reported on the quantitation reports will be present on the Form I. These detected analytes are included in the calibrated method and as a result will be reported on the Sample Data Summary (Form I) or Certificate of Analysis (C of A). TIC data, if requested, are included on the Sample Data Summary (Form I) and are also included with the sample raw data.

**Additional Comments**
Additional comments were not required for this SDG.

**Residual Chlorine**
Residual Chlorine was not detected in any of the samples in this SDG.

**System Configuration**

The Volatile-GC/MS analysis was performed on the following instrument configuration:

| Instrument ID | Instrument | System Configuration | Column ID | Column Description | P & T Trap |
|---|---|---|---|---|---|
| VOA4.I | Agilent 6890/5973 GC/MS w/ OI 4560/Archon Autosampler | HP6890/HP5973 | DB-624 | J&W, 60m x 0.25mm x 1.4um | Trap 10 |

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-822  GEL Work Order: 325479

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

**  Analyte is a surrogate compound

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL  Indicates that sample is diluted.
RA  Indicates that sample is re-analyzed without re-extraction.
RE  Indicates that sample is re-extracted.

**Review/Validation**

GEL requires all analytical data to be verified by a qualified data reviewer.  In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

**Signature:** Erin Haubert  **Name:** **Erin Haubert**

**Date:** **05 JUN 2013**  **Title:** **Data Validator**

# Sample Data Summary

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | **Date Collected:** | **05/08/2013 12:40** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325479001** | **Date Received:** | **05/10/2013 09:05** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30586** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 15:54** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 15:54** | | | | |
| **Data File:** | **052013V4\4L111.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 75-71-8 | Dichlorodifluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-01-4 | Vinyl chloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-83-9 | Bromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-64-1 | Acetone | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | U | 25.0 | ug/L | 8.00 | 25.0 |
| 75-35-4 | 1,1-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-15-0 | Carbon disulfide | U | 5.00 | ug/L | 1.50 | 5.00 |
| 1634-04-4 | tert-Butyl methyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-05-4 | Vinyl acetate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-34-3 | 1,1-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | U | 5.00 | ug/L | 2.00 | 5.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-36-3 | n-Butyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 56-23-5 | Carbon tetrachloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-43-2 | Benzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | U | 5.00 | ug/L | 2.20 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | **Date Collected:** | **05/08/2013 12:40** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325479001** | **Date Received:** | **05/10/2013 09:05** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30586** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 15:54** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 15:54** | | | | |
| **Data File:** | **052013V4\4L111.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 142-28-9 | 1,3-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-41-4 | Ethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | U | 2.00 | ug/L | 0.300 | 2.00 |
| 95-47-6 | o-Xylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-42-5 | Styrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-82-8 | Isopropylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-43-4 | 4-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 104-51-8 | n-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.400 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | **Date Collected:** | **05/08/2013 12:40** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325479001** | **Date Received:** | **05/10/2013 09:05** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30586** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 15:54** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 15:54** | | | | |
| **Data File:** | **052013V4\4L111.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 46.9 | 50.0 | ug/L | 93.7 | (78%-124%) |
| Bromofluorobenzene | 48.1 | 50.0 | ug/L | 96.2 | (80%-120%) |
| Toluene-d8 | 50.9 | 50.0 | ug/L | 102 | (80%-120%) |

**Tentatively Identified Compound Summary**

| CAS No. | Tentatively Identified Compound (TIC) | RT | Estimated | Units | Fit | Qual |
|---|---|---|---|---|---|---|
| | unknown hydrocarbon | 4.482 | 20.1 | ug/L | 0 | J |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | **Date Collected:** | **05/08/2013 12:40** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325479003** | **Date Received:** | **05/10/2013 09:05** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30560** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 16:22** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 16:22** | | | | |
| **Data File:** | **052013V4\4L112.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 75-71-8 | Dichlorodifluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-01-4 | Vinyl chloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-83-9 | Bromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-64-1 | Acetone | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | U | 25.0 | ug/L | 8.00 | 25.0 |
| 75-35-4 | 1,1-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-15-0 | Carbon disulfide | U | 5.00 | ug/L | 1.50 | 5.00 |
| 1634-04-4 | tert-Butyl methyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-05-4 | Vinyl acetate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-34-3 | 1,1-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | U | 5.00 | ug/L | 2.00 | 5.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-36-3 | n-Butyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 56-23-5 | Carbon tetrachloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-43-2 | Benzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | U | 5.00 | ug/L | 2.20 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | **Date Collected:** | **05/08/2013 12:40** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325479003** | **Date Received:** | **05/10/2013 09:05** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30560** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 16:22** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 16:22** | | | | |
| **Data File:** | **052013V4\4L112.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 142-28-9 | 1,3-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-41-4 | Ethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | U | 2.00 | ug/L | 0.300 | 2.00 |
| 95-47-6 | o-Xylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-42-5 | Styrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-82-8 | Isopropylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-43-4 | 4-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 104-51-8 | n-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.400 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | **Date Collected:** | **05/08/2013 12:40** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325479003** | **Date Received:** | **05/10/2013 09:05** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30560** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 16:22** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 16:22** | | | | |
| **Data File:** | **052013V4\4L112.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 47.6 | 50.0 | ug/L | 95.3 | (78%-124%) |
| Bromofluorobenzene | 48.4 | 50.0 | ug/L | 96.9 | (80%-120%) |
| Toluene-d8 | 52.0 | 50.0 | ug/L | 104 | (80%-120%) |

**Tentatively Identified Compound Summary**

| CAS No. | Tentatively Identified Compound (TIC) | RT | Estimated | Units | Fit | Qual |
|---|---|---|---|---|---|---|
| | unknown hydrocarbon | 4.482 | 8.14 | ug/L | 0 | J |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | **Date Collected:** | **05/08/2013 12:40** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325479004** | **Date Received:** | **05/10/2013 09:05** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30562** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 16:51** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 16:51** | | | | |
| **Data File:** | **052013V4\4L113.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 75-71-8 | Dichlorodifluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-01-4 | Vinyl chloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-83-9 | Bromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-64-1 | Acetone | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | U | 25.0 | ug/L | 8.00 | 25.0 |
| 75-35-4 | 1,1-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-15-0 | Carbon disulfide | U | 5.00 | ug/L | 1.50 | 5.00 |
| 1634-04-4 | tert-Butyl methyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-05-4 | Vinyl acetate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-34-3 | 1,1-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | U | 5.00 | ug/L | 2.00 | 5.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-36-3 | n-Butyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 56-23-5 | Carbon tetrachloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-43-2 | Benzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | U | 5.00 | ug/L | 2.20 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | **Date Collected:** | **05/08/2013 12:40** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325479004** | **Date Received:** | **05/10/2013 09:05** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30562** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 16:51** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 16:51** | | | | |
| **Data File:** | **052013V4\4L113.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 142-28-9 | 1,3-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-41-4 | Ethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | U | 2.00 | ug/L | 0.300 | 2.00 |
| 95-47-6 | o-Xylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-42-5 | Styrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-82-8 | Isopropylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-43-4 | 4-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 104-51-8 | n-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.400 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | **Date Collected:** | **05/08/2013 12:40** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325479004** | **Date Received:** | **05/10/2013 09:05** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30562** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 16:51** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 16:51** | | | | |
| **Data File:** | **052013V4\4L113.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 47.6 | 50.0 | ug/L | 95.1 | (78%-124%) |
| Bromofluorobenzene | 48.5 | 50.0 | ug/L | 97.1 | (80%-120%) |
| Toluene-d8 | 51.7 | 50.0 | ug/L | 103 | (80%-120%) |

**Tentatively Identified Compound Summary**

| CAS No. | Tentatively Identified Compound (TIC) | RT | Estimated | Units | Fit | Qual |
|---|---|---|---|---|---|---|
| | unknown hydrocarbon | 4.482 | 16.5 | ug/L | 0 | J |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | **Date Collected:** | **05/08/2013 12:40** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325479006** | **Date Received:** | **05/10/2013 09:05** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30570** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 17:19** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 17:19** | | | | |
| **Data File:** | **052013V4\4L114.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 75-71-8 | Dichlorodifluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-01-4 | Vinyl chloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-83-9 | Bromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-64-1 | Acetone | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | U | 25.0 | ug/L | 8.00 | 25.0 |
| 75-35-4 | 1,1-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-15-0 | Carbon disulfide | U | 5.00 | ug/L | 1.50 | 5.00 |
| 1634-04-4 | tert-Butyl methyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-05-4 | Vinyl acetate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-34-3 | 1,1-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | U | 5.00 | ug/L | 2.00 | 5.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-36-3 | n-Butyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 56-23-5 | Carbon tetrachloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-43-2 | Benzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | U | 5.00 | ug/L | 2.20 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | **Date Collected:** | **05/08/2013 12:40** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325479006** | **Date Received:** | **05/10/2013 09:05** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30570** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 17:19** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 17:19** | | | | |
| **Data File:** | **052013V4\4L114.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 142-28-9 | 1,3-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-41-4 | Ethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | U | 2.00 | ug/L | 0.300 | 2.00 |
| 95-47-6 | o-Xylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-42-5 | Styrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-82-8 | Isopropylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-43-4 | 4-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 104-51-8 | n-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.400 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | **Date Collected:** | **05/08/2013 12:40** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325479006** | **Date Received:** | **05/10/2013 09:05** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30570** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 17:19** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 17:19** | | | | |
| **Data File:** | **052013V4\4L114.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 46.7 | 50.0 | ug/L | 93.4 | (78%-124%) |
| Bromofluorobenzene | 47.7 | 50.0 | ug/L | 95.3 | (80%-120%) |
| Toluene-d8 | 50.6 | 50.0 | ug/L | 101 | (80%-120%) |

**Tentatively Identified Compound Summary**

| CAS No. | Tentatively Identified Compound (TIC) | RT | Estimated | Units | Fit | Qual |
|---|---|---|---|---|---|---|
| | unknown hydrocarbon | 4.482 | 14.5 | ug/L | 0 | J |

# Quality Control Summary

**Volatile**

## Surrogate Recovery Report

**SDG Number: 2013-822**

**Matrix Type: LIQUID**

| Sample ID | Client ID | DCED4 %REC | TOL %REC | BFB %REC |
|---|---|---|---|---|
| 1202879077 | LCS for batch 1302977 | 93 | 102 | 92 |
| 1202879078 | LCS for batch 1302977 | 95 | 102 | 102 |
| 1202879074 | MB for batch 1302977 | 95 | 102 | 97 |
| 325479001 | CAMO-13-30586 | 94 | 102 | 96 |
| 325479003 | CAMO-13-30560 | 95 | 104 | 97 |
| 325479004 | CAMO-13-30562 | 95 | 103 | 97 |
| 325479006 | CAMO-13-30570 | 93 | 101 | 95 |
| 1202879075 | CAMO-13-30586PS | 92 | 100 | 93 |
| 1202879076 | CAMO-13-30586PSD | 94 | 100 | 94 |

| Surrogate | | Acceptance Limits |
|---|---|---|
| DCED4 | = 1,2-Dichloroethane-d4 | (78%-124%) |
| TOL | = Toluene-d8 | (80%-120%) |
| BFB | = Bromofluorobenzene | (80%-120%) |

* Recovery outside Acceptance Limits
# Column to be used to flag recovery values
D Sample Diluted

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-822** **Sample Type:** **Post Spike**
**Client ID:** **CAMO-13-30586PS** **Matrix:** **W**
**Lab Sample ID:** **1202879075**
**Instrument:** **VOA4.I** **Analysis Date:** **05/20/2013 22:00** **Dilution: 1**
**Analyst:** **ACJ**
**Purge Vol:** **5 mL** **Batch ID:** **1302977**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 179601-23-1 | PS | m,p-Xylenes | 100 | 0.00 | U | 98.4 | 98 | 56-134 |
| 75-05-8 | PS | Acetonitrile | 1250 | 0.00 | U | 1410 | 113 | 60-133 |
| 67-64-1 | PS | Acetone | 250 | 0.00 | U | 133 | 53 | 30-143 |
| 74-88-4 | PS | Iodomethane | 250 | 0.00 | U | 240 | 96 | 69-147 |
| 75-15-0 | PS | Carbon disulfide | 250 | 0.00 | U | 284 | 113 | 65-153 |
| 108-05-4 | PS | Vinyl acetate | 250 | 0.00 | U | 241 | 97 | 50-143 |
| 78-93-3 | PS | 2-Butanone | 250 | 0.00 | U | 201 | 80 | 30-140 |
| 108-10-1 | PS | 4-Methyl-2-pentanone | 250 | 0.00 | U | 268 | 107 | 68-136 |
| 591-78-6 | PS | 2-Hexanone | 250 | 0.00 | U | 243 | 97 | 31-132 |
| 75-71-8 | PS | Dichlorodifluoromethane | 50.0 | 0.00 | U | 46.0 | 92 | 36-123 |
| 74-87-3 | PS | Chloromethane | 50.0 | 0.00 | U | 49.3 | 99 | 47-134 |
| 75-01-4 | PS | Vinyl chloride | 50.0 | 0.00 | U | 47.4 | 95 | 49-129 |
| 74-83-9 | PS | Bromomethane | 50.0 | 0.00 | U | 53.7 | 107 | 56-127 |
| 75-00-3 | PS | Chloroethane | 50.0 | 0.00 | U | 48.6 | 97 | 67-122 |
| 75-69-4 | PS | Trichlorofluoromethane | 50.0 | 0.00 | U | 45.1 | 90 | 60-123 |
| 60-29-7 | PS | Ethyl ether | 50.0 | 0.00 | U | 44.0 | 88 | 69-121 |
| 75-35-4 | PS | 1,1-Dichloroethylene | 50.0 | 0.00 | U | 50.9 | 102 | 67-132 |
| 75-09-2 | PS | Methylene chloride | 50.0 | 0.00 | U | 49.4 | 99 | 56-135 |
| 1634-04-4 | PS | tert-Butyl methyl ether | 50.0 | 0.00 | U | 46.5 | 93 | 73-126 |
| 156-60-5 | PS | trans-1,2-Dichloroethylene | 50.0 | 0.00 | U | 50.6 | 101 | 69-128 |
| 75-34-3 | PS | 1,1-Dichloroethane | 50.0 | 0.00 | U | 50.3 | 101 | 75-124 |
| 156-59-2 | PS | cis-1,2-Dichloroethylene | 50.0 | 0.00 | U | 51.5 | 103 | 52-147 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-822** **Sample Type:** **Post Spike**
**Client ID:** **CAMO-13-30586PS** **Matrix:** **W**
**Lab Sample ID:** **1202879075**
**Instrument:** **VOA4.I** **Analysis Date:** **05/20/2013 22:00** **Dilution: 1**
**Analyst:** **ACJ**
**Purge Vol:** **5 mL** **Batch ID:** **1302977**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 594-20-7 | PS | 2,2-Dichloropropane | 50.0 | 0.00 | U | 47.0 | 94 | 67-143 |
| 67-66-3 | PS | Chloroform | 50.0 | 0.00 | U | 49.7 | 99 | 75-125 |
| 74-97-5 | PS | Bromochloromethane | 50.0 | 0.00 | U | 49.9 | 100 | 80-120 |
| 71-55-6 | PS | 1,1,1-Trichloroethane | 50.0 | 0.00 | U | 49.6 | 99 | 69-140 |
| 563-58-6 | PS | 1,1-Dichloropropene | 50.0 | 0.00 | U | 50.7 | 101 | 71-130 |
| 56-23-5 | PS | Carbon tetrachloride | 50.0 | 0.00 | U | 48.6 | 97 | 69-142 |
| 107-06-2 | PS | 1,2-Dichloroethane | 50.0 | 0.00 | U | 46.8 | 94 | 72-126 |
| 71-43-2 | PS | Benzene | 50.0 | 0.00 | U | 50.2 | 100 | 73-119 |
| 79-01-6 | PS | Trichloroethylene | 50.0 | 0.00 | U | 49.0 | 98 | 54-147 |
| 78-87-5 | PS | 1,2-Dichloropropane | 50.0 | 0.00 | U | 48.4 | 97 | 78-123 |
| 75-27-4 | PS | Bromodichloromethane | 50.0 | 0.00 | U | 48.5 | 97 | 76-131 |
| 74-95-3 | PS | Dibromomethane | 50.0 | 0.00 | U | 49.2 | 98 | 79-120 |
| 10061-01-5 | PS | cis-1,3-Dichloropropylene | 50.0 | 0.00 | U | 48.5 | 97 | 72-134 |
| 108-88-3 | PS | Toluene | 50.0 | 0.00 | U | 49.4 | 99 | 62-126 |
| 10061-02-6 | PS | trans-1,3-Dichloropropylene | 50.0 | 0.00 | U | 47.8 | 96 | 72-133 |
| 79-00-5 | PS | 1,1,2-Trichloroethane | 50.0 | 0.00 | U | 49.9 | 100 | 74-120 |
| 142-28-9 | PS | 1,3-Dichloropropane | 50.0 | 0.00 | U | 49.5 | 99 | 73-121 |
| 127-18-4 | PS | Tetrachloroethylene | 50.0 | 0.00 | U | 47.3 | 95 | 54-139 |
| 124-48-1 | PS | Dibromochloromethane | 50.0 | 0.00 | U | 51.4 | 103 | 74-128 |
| 106-93-4 | PS | 1,2-Dibromoethane | 50.0 | 0.00 | U | 50.3 | 101 | 80-120 |
| 108-90-7 | PS | Chlorobenzene | 50.0 | 0.00 | U | 48.3 | 97 | 73-119 |
| 100-41-4 | PS | Ethylbenzene | 50.0 | 0.00 | U | 48.7 | 97 | 66-125 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-822** **Sample Type:** **Post Spike**
**Client ID:** **CAMO-13-30586PS** **Matrix:** **W**
**Lab Sample ID:** **1202879075**
**Instrument:** **VOA4.I** **Analysis Date:** **05/20/2013 22:00** **Dilution: 1**
**Analyst:** **ACJ**
**Purge Vol:** **5 mL** **Batch ID:** **1302977**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 95-47-6 | PS | o-Xylene | 50.0 | 0.00 | U | 49.0 | 98 | 68-126 |
| 100-42-5 | PS | Styrene | 50.0 | 0.00 | U | 50.9 | 102 | 57-138 |
| 75-25-2 | PS | Bromoform | 50.0 | 0.00 | U | 49.4 | 99 | 66-129 |
| 79-34-5 | PS | 1,1,2,2-Tetrachloroethane | 50.0 | 0.00 | U | 49.9 | 100 | 44-146 |
| 96-18-4 | PS | 1,2,3-Trichloropropane | 50.0 | 0.00 | U | 48.2 | 96 | 68-129 |
| 108-86-1 | PS | Bromobenzene | 50.0 | 0.00 | U | 46.1 | 92 | 70-122 |
| 103-65-1 | PS | n-Propylbenzene | 50.0 | 0.00 | U | 46.8 | 94 | 61-131 |
| 95-49-8 | PS | 2-Chlorotoluene | 50.0 | 0.00 | U | 46.7 | 93 | 66-126 |
| 98-82-8 | PS | Isopropylbenzene | 50.0 | 0.00 | U | 47.7 | 95 | 65-130 |
| 108-67-8 | PS | 1,3,5-Trimethylbenzene | 50.0 | 0.00 | U | 48.4 | 97 | 58-134 |
| 106-43-4 | PS | 4-Chlorotoluene | 50.0 | 0.00 | U | 46.6 | 93 | 63-125 |
| 98-06-6 | PS | tert-Butylbenzene | 50.0 | 0.00 | U | 46.8 | 94 | 66-129 |
| 95-63-6 | PS | 1,2,4-Trimethylbenzene | 50.0 | 0.00 | U | 48.0 | 96 | 60-131 |
| 135-98-8 | PS | sec-Butylbenzene | 50.0 | 0.00 | U | 49.4 | 99 | 62-130 |
| 99-87-6 | PS | 4-Isopropyltoluene | 50.0 | 0.00 | U | 48.0 | 96 | 62-132 |
| 541-73-1 | PS | 1,3-Dichlorobenzene | 50.0 | 0.00 | U | 46.9 | 94 | 66-121 |
| 106-46-7 | PS | 1,4-Dichlorobenzene | 50.0 | 0.00 | U | 46.5 | 93 | 65-119 |
| 104-51-8 | PS | n-Butylbenzene | 50.0 | 0.00 | U | 49.4 | 99 | 55-134 |
| 96-12-8 | PS | 1,2-Dibromo-3-chloropropane | 50.0 | 0.00 | U | 46.7 | 93 | 58-137 |
| 87-68-3 | PS | Hexachlorobutadiene | 50.0 | 0.00 | U | 43.4 | 87 | 49-139 |
| 91-20-3 | PS | Naphthalene | 50.0 | 0.00 | U | 43.8 | 88 | 46-145 |
| 87-61-6 | PS | 1,2,3-Trichlorobenzene | 50.0 | 0.00 | U | 40.5 | 81 | 54-134 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-822**
**Sample Type:** **Post Spike**
**Client ID:** **CAMO-13-30586PS**
**Matrix:** **W**
**Lab Sample ID:** **1202879075**
**Instrument:** **VOA4.I**
**Analysis Date:** **05/20/2013 22:00**
**Dilution: 1**
**Analyst:** **ACJ**
**Purge Vol:** **5 mL**
**Batch ID:** **1302977**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 120-82-1 | PS | 1,2,4-Trichlorobenzene | 50.0 | 0.00 | U | 41.0 | 82 | 55-128 |
| 630-20-6 | PS | 1,1,1,2-Tetrachloroethane | 50.0 | 0.00 | U | 49.8 | 100 | 79-128 |
| 95-50-1 | PS | 1,2-Dichlorobenzene | 50.0 | 0.00 | U | 47.0 | 94 | 68-121 |
| 71-36-3 | PS | n-Butyl alcohol | 5000 | 0.00 | U | 5390 | 108 | 53-150 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-822** **Sample Type:** **Post Spike Duplicate**

**Client ID:** **CAMO-13-30586PSD** **Matrix:** **W**

**Lab Sample ID:** **1202879076**

**Instrument:** **VOA4.I** **Analysis Date:** **05/20/2013 22:28** **Dilution: 1**

**Analyst:** **ACJ**

**Purge Vol:** **5 mL** **Batch ID:** **1302977**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 179601-23-1 | PSD | m,p-Xylenes | 100 | 0.00 | U | 96.2 | 96 | 56-134 | 2 | 0-20 |
| 75-05-8 | PSD | Acetonitrile | 1250 | 0.00 | U | 1360 | 109 | 60-133 | 4 | 0-20 |
| 67-64-1 | PSD | Acetone | 250 | 0.00 | U | 129 | 51 | 30-143 | 3 | 0-20 |
| 74-88-4 | PSD | Iodomethane | 250 | 0.00 | U | 233 | 93 | 69-147 | 3 | 0-20 |
| 75-15-0 | PSD | Carbon disulfide | 250 | 0.00 | U | 276 | 110 | 65-153 | 3 | 0-20 |
| 108-05-4 | PSD | Vinyl acetate | 250 | 0.00 | U | 237 | 95 | 50-143 | 2 | 0-20 |
| 78-93-3 | PSD | 2-Butanone | 250 | 0.00 | U | 194 | 77 | 30-140 | 4 | 0-20 |
| 108-10-1 | PSD | 4-Methyl-2-pentanone | 250 | 0.00 | U | 256 | 102 | 68-136 | 5 | 0-20 |
| 591-78-6 | PSD | 2-Hexanone | 250 | 0.00 | U | 232 | 93 | 31-132 | 5 | 0-20 |
| 75-71-8 | PSD | Dichlorodifluoromethane | 50.0 | 0.00 | U | 45.1 | 90 | 36-123 | 2 | 0-20 |
| 74-87-3 | PSD | Chloromethane | 50.0 | 0.00 | U | 48.0 | 96 | 47-134 | 3 | 0-20 |
| 75-01-4 | PSD | Vinyl chloride | 50.0 | 0.00 | U | 46.1 | 92 | 49-129 | 3 | 0-20 |
| 74-83-9 | PSD | Bromomethane | 50.0 | 0.00 | U | 53.1 | 106 | 56-127 | 1 | 0-20 |
| 75-00-3 | PSD | Chloroethane | 50.0 | 0.00 | U | 48.0 | 96 | 67-122 | 1 | 0-20 |
| 75-69-4 | PSD | Trichlorofluoromethane | 50.0 | 0.00 | U | 44.1 | 88 | 60-123 | 2 | 0-20 |
| 60-29-7 | PSD | Ethyl ether | 50.0 | 0.00 | U | 45.0 | 90 | 69-121 | 2 | 0-20 |
| 75-35-4 | PSD | 1,1-Dichloroethylene | 50.0 | 0.00 | U | 48.7 | 97 | 67-132 | 4 | 0-20 |
| 75-09-2 | PSD | Methylene chloride | 50.0 | 0.00 | U | 48.0 | 96 | 56-135 | 3 | 0-20 |
| 1634-04-4 | PSD | tert-Butyl methyl ether | 50.0 | 0.00 | U | 46.5 | 93 | 73-126 | 0 | 0-20 |
| 156-60-5 | PSD | trans-1,2-Dichloroethylene | 50.0 | 0.00 | U | 50.5 | 101 | 69-128 | 0 | 0-20 |
| 75-34-3 | PSD | 1,1-Dichloroethane | 50.0 | 0.00 | U | 50.4 | 101 | 75-124 | 0 | 0-20 |
| 156-59-2 | PSD | cis-1,2-Dichloroethylene | 50.0 | 0.00 | U | 51.6 | 103 | 52-147 | 0 | 0-20 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-822** **Sample Type:** **Post Spike Duplicate**

**Client ID:** **CAMO-13-30586PSD** **Matrix:** **W**

**Lab Sample ID:** **1202879076**

**Instrument:** **VOA4.I** **Analysis Date:** **05/20/2013 22:28** **Dilution: 1**

**Analyst:** **ACJ**

**Purge Vol:** **5 mL** **Batch ID:** **1302977**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 594-20-7 | PSD | 2,2-Dichloropropane | 50.0 | 0.00 | U | 47.5 | 95 | 67-143 | 1 | 0-20 |
| 67-66-3 | PSD | Chloroform | 50.0 | 0.00 | U | 49.5 | 99 | 75-125 | 0 | 0-20 |
| 74-97-5 | PSD | Bromochloromethane | 50.0 | 0.00 | U | 49.6 | 99 | 80-120 | 1 | 0-20 |
| 71-55-6 | PSD | 1,1,1-Trichloroethane | 50.0 | 0.00 | U | 48.9 | 98 | 69-140 | 1 | 0-20 |
| 563-58-6 | PSD | 1,1-Dichloropropene | 50.0 | 0.00 | U | 50.4 | 101 | 71-130 | 1 | 0-20 |
| 56-23-5 | PSD | Carbon tetrachloride | 50.0 | 0.00 | U | 48.6 | 97 | 69-142 | 0 | 0-20 |
| 107-06-2 | PSD | 1,2-Dichloroethane | 50.0 | 0.00 | U | 47.0 | 94 | 72-126 | 0 | 0-20 |
| 71-43-2 | PSD | Benzene | 50.0 | 0.00 | U | 50.7 | 101 | 73-119 | 1 | 0-20 |
| 79-01-6 | PSD | Trichloroethylene | 50.0 | 0.00 | U | 48.9 | 98 | 54-147 | 0 | 0-20 |
| 78-87-5 | PSD | 1,2-Dichloropropane | 50.0 | 0.00 | U | 49.2 | 98 | 78-123 | 2 | 0-20 |
| 75-27-4 | PSD | Bromodichloromethane | 50.0 | 0.00 | U | 49.1 | 98 | 76-131 | 1 | 0-20 |
| 74-95-3 | PSD | Dibromomethane | 50.0 | 0.00 | U | 49.2 | 98 | 79-120 | 0 | 0-20 |
| 10061-01-5 | PSD | cis-1,3-Dichloropropylene | 50.0 | 0.00 | U | 48.4 | 97 | 72-134 | 0 | 0-20 |
| 108-88-3 | PSD | Toluene | 50.0 | 0.00 | U | 48.6 | 97 | 62-126 | 2 | 0-20 |
| 10061-02-6 | PSD | trans-1,3-Dichloropropylene | 50.0 | 0.00 | U | 47.7 | 95 | 72-133 | 0 | 0-20 |
| 79-00-5 | PSD | 1,1,2-Trichloroethane | 50.0 | 0.00 | U | 49.5 | 99 | 74-120 | 1 | 0-20 |
| 142-28-9 | PSD | 1,3-Dichloropropane | 50.0 | 0.00 | U | 49.3 | 99 | 73-121 | 0 | 0-20 |
| 127-18-4 | PSD | Tetrachloroethylene | 50.0 | 0.00 | U | 46.3 | 93 | 54-139 | 2 | 0-20 |
| 124-48-1 | PSD | Dibromochloromethane | 50.0 | 0.00 | U | 51.1 | 102 | 74-128 | 1 | 0-20 |
| 106-93-4 | PSD | 1,2-Dibromoethane | 50.0 | 0.00 | U | 49.5 | 99 | 80-120 | 1 | 0-20 |
| 108-90-7 | PSD | Chlorobenzene | 50.0 | 0.00 | U | 47.3 | 95 | 73-119 | 2 | 0-20 |
| 100-41-4 | PSD | Ethylbenzene | 50.0 | 0.00 | U | 47.8 | 96 | 66-125 | 2 | 0-20 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-822** **Sample Type:** **Post Spike Duplicate**

**Client ID:** **CAMO-13-30586PSD** **Matrix:** **W**

**Lab Sample ID:** **1202879076**

**Instrument:** **VOA4.I** **Analysis Date:** **05/20/2013 22:28** **Dilution: 1**

**Analyst:** **ACJ**

**Purge Vol:** **5 mL** **Batch ID:** **1302977**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 95-47-6 | PSD | o-Xylene | 50.0 | 0.00 | U | 48.2 | 96 | 68-126 | 2 | 0-20 |
| 100-42-5 | PSD | Styrene | 50.0 | 0.00 | U | 49.6 | 99 | 57-138 | 3 | 0-20 |
| 75-25-2 | PSD | Bromoform | 50.0 | 0.00 | U | 49.6 | 99 | 66-129 | 0 | 0-20 |
| 79-34-5 | PSD | 1,1,2,2-Tetrachloroethane | 50.0 | 0.00 | U | 49.0 | 98 | 44-146 | 2 | 0-20 |
| 96-18-4 | PSD | 1,2,3-Trichloropropane | 50.0 | 0.00 | U | 46.5 | 93 | 68-129 | 3 | 0-20 |
| 108-86-1 | PSD | Bromobenzene | 50.0 | 0.00 | U | 46.1 | 92 | 70-122 | 0 | 0-20 |
| 103-65-1 | PSD | n-Propylbenzene | 50.0 | 0.00 | U | 46.5 | 93 | 61-131 | 1 | 0-20 |
| 95-49-8 | PSD | 2-Chlorotoluene | 50.0 | 0.00 | U | 46.3 | 93 | 66-126 | 1 | 0-20 |
| 98-82-8 | PSD | Isopropylbenzene | 50.0 | 0.00 | U | 47.2 | 94 | 65-130 | 1 | 0-20 |
| 108-67-8 | PSD | 1,3,5-Trimethylbenzene | 50.0 | 0.00 | U | 47.6 | 95 | 58-134 | 2 | 0-20 |
| 106-43-4 | PSD | 4-Chlorotoluene | 50.0 | 0.00 | U | 45.8 | 92 | 63-125 | 2 | 0-20 |
| 98-06-6 | PSD | tert-Butylbenzene | 50.0 | 0.00 | U | 46.7 | 93 | 66-129 | 0 | 0-20 |
| 95-63-6 | PSD | 1,2,4-Trimethylbenzene | 50.0 | 0.00 | U | 47.5 | 95 | 60-131 | 1 | 0-20 |
| 135-98-8 | PSD | sec-Butylbenzene | 50.0 | 0.00 | U | 47.9 | 96 | 62-130 | 3 | 0-20 |
| 99-87-6 | PSD | 4-Isopropyltoluene | 50.0 | 0.00 | U | 46.8 | 94 | 62-132 | 2 | 0-20 |
| 541-73-1 | PSD | 1,3-Dichlorobenzene | 50.0 | 0.00 | U | 46.5 | 93 | 66-121 | 1 | 0-20 |
| 106-46-7 | PSD | 1,4-Dichlorobenzene | 50.0 | 0.00 | U | 46.4 | 93 | 65-119 | 0 | 0-20 |
| 104-51-8 | PSD | n-Butylbenzene | 50.0 | 0.00 | U | 49.0 | 98 | 55-134 | 1 | 0-20 |
| 96-12-8 | PSD | 1,2-Dibromo-3-chloropropane | 50.0 | 0.00 | U | 46.0 | 92 | 58-137 | 2 | 0-20 |
| 87-68-3 | PSD | Hexachlorobutadiene | 50.0 | 0.00 | U | 43.0 | 86 | 49-139 | 1 | 0-20 |
| 91-20-3 | PSD | Naphthalene | 50.0 | 0.00 | U | 43.8 | 88 | 46-145 | 0 | 0-20 |
| 87-61-6 | PSD | 1,2,3-Trichlorobenzene | 50.0 | 0.00 | U | 41.2 | 82 | 54-134 | 2 | 0-20 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-822**
**Sample Type:** **Post Spike Duplicate**
**Client ID:** **CAMO-13-30586PSD**
**Matrix:** **W**
**Lab Sample ID:** **1202879076**
**Instrument:** **VOA4.I**
**Analysis Date:** **05/20/2013 22:28**
**Dilution: 1**
**Analyst:** **ACJ**
**Purge Vol:** **5 mL**
**Batch ID:** **1302977**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 120-82-1 | PSD | 1,2,4-Trichlorobenzene | 50.0 | 0.00 | U | 40.6 | 81 | 55-128 | 1 | 0-20 |
| 630-20-6 | PSD | 1,1,1,2-Tetrachloroethane | 50.0 | 0.00 | U | 48.9 | 98 | 79-128 | 2 | 0-20 |
| 95-50-1 | PSD | 1,2-Dichlorobenzene | 50.0 | 0.00 | U | 47.7 | 95 | 68-121 | 2 | 0-20 |
| 71-36-3 | PSD | n-Butyl alcohol | 5000 | 0.00 | U | 5380 | 108 | 53-150 | 0 | 0-20 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-822**
**Sample Type:** **Laboratory Control Sample**
**Client ID:** **LCS for batch 1302977**
**Matrix:** **WATER**
**Lab Sample ID:** **1202879077**
**Instrument:** **VOA4.I**
**Analysis Date:** **05/20/2013 12:09**
**Dilution: 1**
**Analyst:** **ACJ**
**Purge Vol:** **5 mL**
**Batch ID:** **1302977**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 179601-23-1 | LCS | m,p-Xylenes | 100 | 0.0 | 106 | 106 | 79-120 |
| 75-05-8 | LCS | Acetonitrile | 1250 | 0.0 | 1370 | 109 | 64-127 |
| 67-64-1 | LCS | Acetone | 250 | 0.0 | 311 | 124 | 36-163 |
| 74-88-4 | LCS | Iodomethane | 250 | 0.0 | 252 | 101 | 80-134 |
| 75-15-0 | LCS | Carbon disulfide | 250 | 0.0 | 306 | 122 | 80-143 |
| 108-05-4 | LCS | Vinyl acetate | 250 | 0.0 | 273 | 109 | 75-144 |
| 78-93-3 | LCS | 2-Butanone | 250 | 0.0 | 340 | 136 | 46-158 |
| 108-10-1 | LCS | 4-Methyl-2-pentanone | 250 | 0.0 | 276 | 110 | 76-131 |
| 591-78-6 | LCS | 2-Hexanone | 250 | 0.0 | 374 | 150 | 53-158 |
| 75-71-8 | LCS | Dichlorodifluoromethane | 50.0 | 0.0 | 49.0 | 98 | 39-124 |
| 74-87-3 | LCS | Chloromethane | 50.0 | 0.0 | 50.9 | 102 | 57-126 |
| 75-01-4 | LCS | Vinyl chloride | 50.0 | 0.0 | 49.3 | 99 | 62-121 |
| 74-83-9 | LCS | Bromomethane | 50.0 | 0.0 | 57.0 | 114 | 68-120 |
| 75-00-3 | LCS | Chloroethane | 50.0 | 0.0 | 52.0 | 104 | 73-120 |
| 75-69-4 | LCS | Trichlorofluoromethane | 50.0 | 0.0 | 47.7 | 95 | 65-123 |
| 60-29-7 | LCS | Ethyl ether | 50.0 | 0.0 | 45.3 | 91 | 74-120 |
| 75-35-4 | LCS | 1,1-Dichloroethylene | 50.0 | 0.0 | 54.3 | 109 | 76-127 |
| 75-09-2 | LCS | Methylene chloride | 50.0 | 0.0 | 50.9 | 102 | 72-121 |
| 1634-04-4 | LCS | tert-Butyl methyl ether | 50.0 | 0.0 | 47.1 | 94 | 76-123 |
| 156-60-5 | LCS | trans-1,2-Dichloroethylene | 50.0 | 0.0 | 53.7 | 107 | 77-123 |
| 75-34-3 | LCS | 1,1-Dichloroethane | 50.0 | 0.0 | 53.7 | 107 | 79-120 |
| 156-59-2 | LCS | cis-1,2-Dichloroethylene | 50.0 | 0.0 | 53.9 | 108 | 80-122 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-822**
**Sample Type:** **Laboratory Control Sample**
**Client ID:** **LCS for batch 1302977**
**Matrix:** **WATER**
**Lab Sample ID:** **1202879077**
**Instrument:** **VOA4.I**
**Analysis Date:** **05/20/2013 12:09**
**Dilution: 1**
**Analyst:** **ACJ**
**Purge Vol:** **5 mL**
**Batch ID:** **1302977**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 594-20-7 | LCS | 2,2-Dichloropropane | 50.0 | 0.0 | 50.5 | 101 | 76-145 |
| 67-66-3 | LCS | Chloroform | 50.0 | 0.0 | 51.8 | 104 | 80-120 |
| 74-97-5 | LCS | Bromochloromethane | 50.0 | 0.0 | 52.4 | 105 | 83-120 |
| 71-55-6 | LCS | 1,1,1-Trichloroethane | 50.0 | 0.0 | 52.3 | 105 | 80-133 |
| 563-58-6 | LCS | 1,1-Dichloropropene | 50.0 | 0.0 | 53.8 | 108 | 80-127 |
| 56-23-5 | LCS | Carbon tetrachloride | 50.0 | 0.0 | 51.8 | 104 | 77-139 |
| 107-06-2 | LCS | 1,2-Dichloroethane | 50.0 | 0.0 | 48.1 | 96 | 75-121 |
| 71-43-2 | LCS | Benzene | 50.0 | 0.0 | 53.5 | 107 | 79-120 |
| 79-01-6 | LCS | Trichloroethylene | 50.0 | 0.0 | 52.2 | 104 | 80-121 |
| 78-87-5 | LCS | 1,2-Dichloropropane | 50.0 | 0.0 | 51.6 | 103 | 80-120 |
| 75-27-4 | LCS | Bromodichloromethane | 50.0 | 0.0 | 50.6 | 101 | 80-127 |
| 74-95-3 | LCS | Dibromomethane | 50.0 | 0.0 | 50.2 | 100 | 80-120 |
| 10061-01-5 | LCS | cis-1,3-Dichloropropylene | 50.0 | 0.0 | 51.8 | 104 | 80-127 |
| 108-88-3 | LCS | Toluene | 50.0 | 0.0 | 52.9 | 106 | 77-120 |
| 10061-02-6 | LCS | trans-1,3-Dichloropropylene | 50.0 | 0.0 | 51.2 | 102 | 80-128 |
| 79-00-5 | LCS | 1,1,2-Trichloroethane | 50.0 | 0.0 | 52.3 | 105 | 79-120 |
| 142-28-9 | LCS | 1,3-Dichloropropane | 50.0 | 0.0 | 51.9 | 104 | 77-120 |
| 127-18-4 | LCS | Tetrachloroethylene | 50.0 | 0.0 | 52.0 | 104 | 77-125 |
| 124-48-1 | LCS | Dibromochloromethane | 50.0 | 0.0 | 52.7 | 105 | 77-126 |
| 106-93-4 | LCS | 1,2-Dibromoethane | 50.0 | 0.0 | 51.7 | 103 | 80-120 |
| 108-90-7 | LCS | Chlorobenzene | 50.0 | 0.0 | 51.6 | 103 | 80-120 |
| 100-41-4 | LCS | Ethylbenzene | 50.0 | 0.0 | 52.5 | 105 | 78-120 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-822**
**Sample Type:** **Laboratory Control Sample**
**Client ID:** **LCS for batch 1302977**
**Matrix:** **WATER**
**Lab Sample ID:** **1202879077**
**Instrument:** **VOA4.I**
**Analysis Date:** **05/20/2013 12:09**
**Dilution: 1**
**Analyst:** **ACJ**
**Purge Vol:** **5 mL**
**Batch ID:** **1302977**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 95-47-6 | LCS | o-Xylene | 50.0 | 0.0 | 52.5 | 105 | 80-120 |
| 100-42-5 | LCS | Styrene | 50.0 | 0.0 | 54.4 | 109 | 80-121 |
| 75-25-2 | LCS | Bromoform | 50.0 | 0.0 | 50.3 | 101 | 72-125 |
| 79-34-5 | LCS | 1,1,2,2-Tetrachloroethane | 50.0 | 0.0 | 50.4 | 101 | 73-120 |
| 96-18-4 | LCS | 1,2,3-Trichloropropane | 50.0 | 0.0 | 48.0 | 96 | 74-121 |
| 108-86-1 | LCS | Bromobenzene | 50.0 | 0.0 | 48.5 | 97 | 79-120 |
| 103-65-1 | LCS | n-Propylbenzene | 50.0 | 0.0 | 50.0 | 100 | 75-125 |
| 95-49-8 | LCS | 2-Chlorotoluene | 50.0 | 0.0 | 49.6 | 99 | 77-121 |
| 98-82-8 | LCS | Isopropylbenzene | 50.0 | 0.0 | 49.7 | 99 | 76-125 |
| 108-67-8 | LCS | 1,3,5-Trimethylbenzene | 50.0 | 0.0 | 51.5 | 103 | 77-123 |
| 106-43-4 | LCS | 4-Chlorotoluene | 50.0 | 0.0 | 49.1 | 98 | 75-120 |
| 98-06-6 | LCS | tert-Butylbenzene | 50.0 | 0.0 | 49.8 | 100 | 79-123 |
| 95-63-6 | LCS | 1,2,4-Trimethylbenzene | 50.0 | 0.0 | 50.8 | 102 | 77-121 |
| 135-98-8 | LCS | sec-Butylbenzene | 50.0 | 0.0 | 52.4 | 105 | 76-124 |
| 99-87-6 | LCS | 4-Isopropyltoluene | 50.0 | 0.0 | 51.5 | 103 | 79-125 |
| 541-73-1 | LCS | 1,3-Dichlorobenzene | 50.0 | 0.0 | 50.8 | 102 | 78-120 |
| 106-46-7 | LCS | 1,4-Dichlorobenzene | 50.0 | 0.0 | 50.4 | 101 | 77-120 |
| 104-51-8 | LCS | n-Butylbenzene | 50.0 | 0.0 | 54.6 | 109 | 75-127 |
| 96-12-8 | LCS | 1,2-Dibromo-3-chloropropane | 50.0 | 0.0 | 46.4 | 93 | 69-128 |
| 87-68-3 | LCS | Hexachlorobutadiene | 50.0 | 0.0 | 46.0 | 92 | 75-128 |
| 91-20-3 | LCS | Naphthalene | 50.0 | 0.0 | 43.0 | 86 | 71-125 |
| 87-61-6 | LCS | 1,2,3-Trichlorobenzene | 50.0 | 0.0 | 41.6 | 83 | 73-125 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-822**
**Sample Type:** **Laboratory Control Sample**
**Client ID:** **LCS for batch 1302977**
**Matrix:** **WATER**
**Lab Sample ID:** **1202879077**
**Instrument:** **VOA4.I**
**Analysis Date:** **05/20/2013 12:09**
**Dilution: 1**
**Analyst:** **ACJ**
**Purge Vol:** **5 mL**
**Batch ID:** **1302977**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 120-82-1 | LCS | 1,2,4-Trichlorobenzene | 50.0 | 0.0 | 43.7 | 87 | 75-123 |
| 630-20-6 | LCS | 1,1,1,2-Tetrachloroethane | 50.0 | 0.0 | 52.7 | 105 | 80-124 |
| 95-50-1 | LCS | 1,2-Dichlorobenzene | 50.0 | 0.0 | 51.1 | 102 | 79-120 |
| 71-36-3 | LCS | n-Butyl alcohol | 5000 | 0.0 | 5640 | 113 | 66-138 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-822**
**Sample Type:** **Laboratory Control Sample**
**Client ID:** **LCS for batch 1302977**
**Matrix:** **WATER**
**Lab Sample ID:** **1202879078**
**Instrument:** **VOA4.I**
**Analysis Date:** **05/20/2013 13:34**
**Dilution: 1**
**Analyst:** **ACJ**
**Purge Vol:** **5 mL**
**Batch ID:** **1302977**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 107-02-8 | LCS | Acrolein | 250 | 0.0 | 236 | 94 | 28-152 |
| 76-13-1 | LCS | Trichlorotrifluoroethane | 250 | 0.0 | 214 | 86 | 65-157 |
| 107-05-1 | LCS | Allyl chloride | 250 | 0.0 | 219 | 88 | 60-135 |
| 107-13-1 | LCS | Acrylonitrile | 250 | 0.0 | 207 | 83 | 64-131 |
| 107-12-0 | LCS | Propionitrile | 250 | 0.0 | 202 | 81 | 67-135 |
| 126-98-7 | LCS | Methacrylonitrile | 250 | 0.0 | 203 | 81 | 64-132 |
| 80-62-6 | LCS | Methyl methacrylate | 250 | 0.0 | 204 | 82 | 66-129 |
| 97-63-2 | LCS | Ethyl methacrylate | 250 | 0.0 | 213 | 85 | 66-132 |
| 78-83-1 | LCS | Isobutyl alcohol | 2500 | 0.0 | 2060 | 83 | 60-136 |
| 126-99-8 | LCS | 2-Chloro-1,3-butadiene | 50.0 | 0.0 | 31.6 | 63 | 45-159 |

## Method Blank Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | **Client:** | **ARSL001** | **Matrix:** | **WATER** |
| **Client ID:** | **MB for batch 1302977** | **Instrument ID:** | **VOA4.I** | **Data File:** | **052013V4\4L108BA.D** |
| **Lab Sample ID:** | **1202879074** | **Prep Date:** | **05/20/2013 14:30** | **Analyzed:** | **05/20/13 14:30** |
| **Column:** | **DB-624** | | | | |

**This method blank applies to the following samples and quality control samples:**

| | Client Sample ID | Lab Sample ID | File ID | Date Analyzed | Time Analyzed |
|---|---|---|---|---|---|
| 01 | LCS for batch 1302977 | 1202879077 | 052013V4\4L103LA.D | 05/20/13 | 1209 |
| 02 | LCS for batch 1302977 | 1202879078 | 052013V4\4L106SA.D | 05/20/13 | 1334 |
| 03 | CAMO-13-30586 | 325479001 | 052013V4\4L111.D | 05/20/13 | 1554 |
| 04 | CAMO-13-30560 | 325479003 | 052013V4\4L112.D | 05/20/13 | 1622 |
| 05 | CAMO-13-30562 | 325479004 | 052013V4\4L113.D | 05/20/13 | 1651 |
| 06 | CAMO-13-30570 | 325479006 | 052013V4\4L114.D | 05/20/13 | 1719 |
| 07 | CAMO-13-30586PS | 1202879075 | 052013V4\4L124.D | 05/20/13 | 2200 |
| 08 | CAMO-13-30586PSD | 1202879076 | 052013V4\4L125.D | 05/20/13 | 2228 |

# Quality Control Data

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202879074** | | | | |
| **Client Sample:** | **QC for batch 1302977** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **MB for batch 1302977** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 14:30** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 14:30** | | | | |
| **Data File:** | **052013V4\4L108BA.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 75-71-8 | Dichlorodifluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-01-4 | Vinyl chloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-83-9 | Bromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-64-1 | Acetone | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | U | 25.0 | ug/L | 8.00 | 25.0 |
| 75-35-4 | 1,1-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-15-0 | Carbon disulfide | U | 5.00 | ug/L | 1.50 | 5.00 |
| 1634-04-4 | tert-Butyl methyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-05-4 | Vinyl acetate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-34-3 | 1,1-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | U | 5.00 | ug/L | 2.00 | 5.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-36-3 | n-Butyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 56-23-5 | Carbon tetrachloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-43-2 | Benzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | U | 5.00 | ug/L | 2.20 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202879074** | | | | |
| **Client Sample:** | **QC for batch 1302977** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **MB for batch 1302977** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 14:30** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 14:30** | | | | |
| **Data File:** | **052013V4\4L108BA.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 142-28-9 | 1,3-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-41-4 | Ethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | U | 2.00 | ug/L | 0.300 | 2.00 |
| 95-47-6 | o-Xylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-42-5 | Styrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-82-8 | Isopropylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-43-4 | 4-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 104-51-8 | n-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.400 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202879074** | | | | |
| **Client Sample:** | **QC for batch 1302977** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **MB for batch 1302977** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 14:30** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 14:30** | | | | |
| **Data File:** | **052013V4\4L108BA.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 47.5 | 50.0 | ug/L | 94.9 | (78%-124%) |
| Bromofluorobenzene | 48.5 | 50.0 | ug/L | 97.0 | (80%-120%) |
| Toluene-d8 | 51.2 | 50.0 | ug/L | 102 | (80%-120%) |

**Tentatively Identified Compound Summary**

| CAS No. | Tentatively Identified Compound (TIC) | RT | Estimated | Units | Fit | Qual |
|---|---|---|---|---|---|---|
| | unknown hydrocarbon | 4.482 | 6.84 | ug/L | 0 | J |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | **Date Collected:** | **05/08/2013 12:40** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202879075** | **Date Received:** | **05/10/2013 09:05** | | |
| **Client Sample:** | **QC for batch 1302977** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **CAMO-13-30586PS** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 22:00** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 22:00** | | | | |
| **Data File:** | **052013V4\4L124.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 75-71-8 | Dichlorodifluoromethane | | 46.0 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | | 49.3 | ug/L | 0.300 | 1.00 |
| 75-01-4 | Vinyl chloride | | 47.4 | ug/L | 0.300 | 1.00 |
| 74-83-9 | Bromomethane | | 53.7 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | | 48.6 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | | 45.1 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | | 44.0 | ug/L | 0.300 | 1.00 |
| 67-64-1 | Acetone | | 133 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | | 1410 | ug/L | 8.00 | 25.0 |
| 75-35-4 | 1,1-Dichloroethylene | | 50.9 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | | 240 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | | 49.4 | ug/L | 3.00 | 10.0 |
| 75-15-0 | Carbon disulfide | | 284 | ug/L | 1.50 | 5.00 |
| 1634-04-4 | tert-Butyl methyl ether | | 46.5 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | | 50.6 | ug/L | 0.300 | 1.00 |
| 108-05-4 | Vinyl acetate | | 241 | ug/L | 1.50 | 5.00 |
| 75-34-3 | 1,1-Dichloroethane | | 50.3 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | | 201 | ug/L | 2.00 | 5.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | | 51.5 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | | 47.0 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | | 49.7 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | | 49.9 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | | 49.6 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | | 50.7 | ug/L | 0.300 | 1.00 |
| 71-36-3 | n-Butyl alcohol | | 5390 | ug/L | 15.0 | 50.0 |
| 56-23-5 | Carbon tetrachloride | | 48.6 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | | 46.8 | ug/L | 0.300 | 1.00 |
| 71-43-2 | Benzene | | 50.2 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | | 49.0 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | | 48.4 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | | 48.5 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | | 49.2 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | | 268 | ug/L | 1.50 | 5.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | | 48.5 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | | 49.4 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | | 47.8 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | | 49.9 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | | 243 | ug/L | 2.20 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | **Date Collected:** | **05/08/2013 12:40** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202879075** | **Date Received:** | **05/10/2013 09:05** | | |
| **Client Sample:** | **QC for batch 1302977** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **CAMO-13-30586PS** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 22:00** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 22:00** | | | | |
| **Data File:** | **052013V4\4L124.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 142-28-9 | 1,3-Dichloropropane | | 49.5 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | | 47.3 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | | 51.4 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | | 50.3 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | | 48.3 | ug/L | 0.300 | 1.00 |
| 100-41-4 | Ethylbenzene | | 48.7 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | | 98.4 | ug/L | 0.300 | 2.00 |
| 95-47-6 | o-Xylene | | 49.0 | ug/L | 0.300 | 1.00 |
| 100-42-5 | Styrene | | 50.9 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | | 49.4 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | | 49.9 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | | 48.2 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | | 46.1 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | | 46.8 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | | 46.7 | ug/L | 0.300 | 1.00 |
| 98-82-8 | Isopropylbenzene | | 47.7 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | | 48.4 | ug/L | 0.300 | 1.00 |
| 106-43-4 | 4-Chlorotoluene | | 46.6 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | | 46.8 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | | 48.0 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | | 49.4 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | | 48.0 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | | 46.9 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | | 46.5 | ug/L | 0.300 | 1.00 |
| 104-51-8 | n-Butylbenzene | | 49.4 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | | 46.7 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | | 43.4 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | | 43.8 | ug/L | 0.400 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | | 40.5 | ug/L | 0.300 | 1.00 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | **Date Collected:** | **05/08/2013 12:40** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202879075** | **Date Received:** | **05/10/2013 09:05** | | |
| **Client Sample:** | **QC for batch 1302977** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **CAMO-13-30586PS** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 22:00** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 22:00** | | | | |
| **Data File:** | **052013V4\4L124.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | | 49.8 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | | 41.0 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | | 47.0 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 46.2 | 50.0 | ug/L | 92.4 | (78%-124%) |
| Bromofluorobenzene | 46.6 | 50.0 | ug/L | 93.2 | (80%-120%) |
| Toluene-d8 | 49.9 | 50.0 | ug/L | 99.7 | (80%-120%) |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | **Date Collected:** | **05/08/2013 12:40** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202879076** | **Date Received:** | **05/10/2013 09:05** | | |
| **Client Sample:** | **QC for batch 1302977** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **CAMO-13-30586PSD** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 22:28** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 22:28** | | | | |
| **Data File:** | **052013V4\4L125.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 75-71-8 | Dichlorodifluoromethane | | 45.1 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | | 48.0 | ug/L | 0.300 | 1.00 |
| 75-01-4 | Vinyl chloride | | 46.1 | ug/L | 0.300 | 1.00 |
| 74-83-9 | Bromomethane | | 53.1 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | | 48.0 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | | 44.1 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | | 45.0 | ug/L | 0.300 | 1.00 |
| 67-64-1 | Acetone | | 129 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | | 1360 | ug/L | 8.00 | 25.0 |
| 75-35-4 | 1,1-Dichloroethylene | | 48.7 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | | 233 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | | 48.0 | ug/L | 3.00 | 10.0 |
| 75-15-0 | Carbon disulfide | | 276 | ug/L | 1.50 | 5.00 |
| 1634-04-4 | tert-Butyl methyl ether | | 46.5 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | | 50.5 | ug/L | 0.300 | 1.00 |
| 108-05-4 | Vinyl acetate | | 237 | ug/L | 1.50 | 5.00 |
| 75-34-3 | 1,1-Dichloroethane | | 50.4 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | | 194 | ug/L | 2.00 | 5.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | | 51.6 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | | 47.5 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | | 49.5 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | | 49.6 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | | 48.9 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | | 50.4 | ug/L | 0.300 | 1.00 |
| 71-36-3 | n-Butyl alcohol | | 5380 | ug/L | 15.0 | 50.0 |
| 56-23-5 | Carbon tetrachloride | | 48.6 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | | 47.0 | ug/L | 0.300 | 1.00 |
| 71-43-2 | Benzene | | 50.7 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | | 48.9 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | | 49.2 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | | 49.1 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | | 49.2 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | | 256 | ug/L | 1.50 | 5.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | | 48.4 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | | 48.6 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | | 47.7 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | | 49.5 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | | 232 | ug/L | 2.20 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | **Date Collected:** | **05/08/2013 12:40** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202879076** | **Date Received:** | **05/10/2013 09:05** | | |
| **Client Sample:** | **QC for batch 1302977** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **CAMO-13-30586PSD** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 22:28** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 22:28** | | | | |
| **Data File:** | **052013V4\4L125.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 142-28-9 | 1,3-Dichloropropane | | 49.3 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | | 46.3 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | | 51.1 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | | 49.5 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | | 47.3 | ug/L | 0.300 | 1.00 |
| 100-41-4 | Ethylbenzene | | 47.8 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | | 96.2 | ug/L | 0.300 | 2.00 |
| 95-47-6 | o-Xylene | | 48.2 | ug/L | 0.300 | 1.00 |
| 100-42-5 | Styrene | | 49.6 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | | 49.6 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | | 49.0 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | | 46.5 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | | 46.1 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | | 46.5 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | | 46.3 | ug/L | 0.300 | 1.00 |
| 98-82-8 | Isopropylbenzene | | 47.2 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | | 47.6 | ug/L | 0.300 | 1.00 |
| 106-43-4 | 4-Chlorotoluene | | 45.8 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | | 46.7 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | | 47.5 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | | 47.9 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | | 46.8 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | | 46.5 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | | 46.4 | ug/L | 0.300 | 1.00 |
| 104-51-8 | n-Butylbenzene | | 49.0 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | | 46.0 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | | 43.0 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | | 43.8 | ug/L | 0.400 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | | 41.2 | ug/L | 0.300 | 1.00 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | **Date Collected:** | **05/08/2013 12:40** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202879076** | **Date Received:** | **05/10/2013 09:05** | | |
| **Client Sample:** | **QC for batch 1302977** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **CAMO-13-30586PSD** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 22:28** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 22:28** | | | | |
| **Data File:** | **052013V4\4L125.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | | 48.9 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | | 40.6 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | | 47.7 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 46.8 | 50.0 | ug/L | 93.6 | (78%-124%) |
| Bromofluorobenzene | 46.9 | 50.0 | ug/L | 93.8 | (80%-120%) |
| Toluene-d8 | 49.8 | 50.0 | ug/L | 99.6 | (80%-120%) |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202879077** | | | | |
| **Client Sample:** | **QC for batch 1302977** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1302977** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 12:09** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 12:09** | | | | |
| **Data File:** | **052013V4\4L103LA.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 75-71-8 | Dichlorodifluoromethane | | 49.0 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | | 50.9 | ug/L | 0.300 | 1.00 |
| 75-01-4 | Vinyl chloride | | 49.3 | ug/L | 0.300 | 1.00 |
| 74-83-9 | Bromomethane | | 57.0 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | | 52.0 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | | 47.7 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | | 45.3 | ug/L | 0.300 | 1.00 |
| 67-64-1 | Acetone | | 311 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | | 1370 | ug/L | 8.00 | 25.0 |
| 75-35-4 | 1,1-Dichloroethylene | | 54.3 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | | 252 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | | 50.9 | ug/L | 3.00 | 10.0 |
| 75-15-0 | Carbon disulfide | | 306 | ug/L | 1.50 | 5.00 |
| 1634-04-4 | tert-Butyl methyl ether | | 47.1 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | | 53.7 | ug/L | 0.300 | 1.00 |
| 108-05-4 | Vinyl acetate | | 273 | ug/L | 1.50 | 5.00 |
| 75-34-3 | 1,1-Dichloroethane | | 53.7 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | | 340 | ug/L | 2.00 | 5.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | | 53.9 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | | 50.5 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | | 51.8 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | | 52.4 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | | 52.3 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | | 53.8 | ug/L | 0.300 | 1.00 |
| 71-36-3 | n-Butyl alcohol | | 5640 | ug/L | 15.0 | 50.0 |
| 56-23-5 | Carbon tetrachloride | | 51.8 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | | 48.1 | ug/L | 0.300 | 1.00 |
| 71-43-2 | Benzene | | 53.5 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | | 52.2 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | | 51.6 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | | 50.6 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | | 50.2 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | | 276 | ug/L | 1.50 | 5.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | | 51.8 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | | 52.9 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | | 51.2 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | | 52.3 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | | 374 | ug/L | 2.20 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202879077** | | | | |
| **Client Sample:** | **QC for batch 1302977** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1302977** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 12:09** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 12:09** | | | | |
| **Data File:** | **052013V4\4L103LA.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 142-28-9 | 1,3-Dichloropropane | | 51.9 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | | 52.0 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | | 52.7 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | | 51.7 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | | 51.6 | ug/L | 0.300 | 1.00 |
| 100-41-4 | Ethylbenzene | | 52.5 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | | 106 | ug/L | 0.300 | 2.00 |
| 95-47-6 | o-Xylene | | 52.5 | ug/L | 0.300 | 1.00 |
| 100-42-5 | Styrene | | 54.4 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | | 50.3 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | | 50.4 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | | 48.0 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | | 48.5 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | | 50.0 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | | 49.6 | ug/L | 0.300 | 1.00 |
| 98-82-8 | Isopropylbenzene | | 49.7 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | | 51.5 | ug/L | 0.300 | 1.00 |
| 106-43-4 | 4-Chlorotoluene | | 49.1 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | | 49.8 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | | 50.8 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | | 52.4 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | | 51.5 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | | 50.8 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | | 50.4 | ug/L | 0.300 | 1.00 |
| 104-51-8 | n-Butylbenzene | | 54.6 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | | 46.4 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | | 46.0 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | | 43.0 | ug/L | 0.400 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | | 41.6 | ug/L | 0.300 | 1.00 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202879077** | | | | |
| **Client Sample:** | **QC for batch 1302977** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1302977** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 12:09** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 12:09** | | | | |
| **Data File:** | **052013V4\4L103LA.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | | 52.7 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | | 43.7 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | | 51.1 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 46.3 | 50.0 | ug/L | 92.5 | (78%-124%) |
| Bromofluorobenzene | 45.8 | 50.0 | ug/L | 91.5 | (80%-120%) |
| Toluene-d8 | 51.0 | 50.0 | ug/L | 102 | (80%-120%) |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202879078** | | | | |
| **Client Sample:** | **QC for batch 1302977** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1302977** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 13:34** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 13:34** | | | | |
| **Data File:** | **052013V4\4L106SA.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 75-71-8 | Dichlorodifluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-01-4 | Vinyl chloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-83-9 | Bromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-64-1 | Acetone | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | U | 25.0 | ug/L | 8.00 | 25.0 |
| 75-35-4 | 1,1-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-15-0 | Carbon disulfide | U | 5.00 | ug/L | 1.50 | 5.00 |
| 1634-04-4 | tert-Butyl methyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-05-4 | Vinyl acetate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-34-3 | 1,1-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | U | 5.00 | ug/L | 2.00 | 5.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-36-3 | n-Butyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 56-23-5 | Carbon tetrachloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-43-2 | Benzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | U | 5.00 | ug/L | 2.20 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202879078** | | | | |
| **Client Sample:** | **QC for batch 1302977** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1302977** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 13:34** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 13:34** | | | | |
| **Data File:** | **052013V4\4L106SA.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 142-28-9 | 1,3-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-41-4 | Ethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | U | 2.00 | ug/L | 0.300 | 2.00 |
| 95-47-6 | o-Xylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-42-5 | Styrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-82-8 | Isopropylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-43-4 | 4-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 104-51-8 | n-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.400 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-02-8 | Acrolein | | 236 | ug/L | 1.50 | 5.00 |
| 76-13-1 | Trichlorotrifluoroethane | | 214 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | | 219 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | | 207 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | | 31.6 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | | 202 | ug/L | 1.50 | 5.00 |
| 126-98-7 | Methacrylonitrile | | 203 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | | 2060 | ug/L | 15.0 | 50.0 |
| 80-62-6 | Methyl methacrylate | | 204 | ug/L | 1.50 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202879078** | | | | |
| **Client Sample:** | **QC for batch 1302977** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1302977** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302977** | **Inst:** | **VOA4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/20/2013 13:34** | **Analyst:** | **ACJ** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/20/2013 13:34** | | | | |
| **Data File:** | **052013V4\4L106SA.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 97-63-2 | Ethyl methacrylate | | 213 | ug/L | 1.50 | 5.00 |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 47.6 | 50.0 | ug/L | 95.2 | (78%-124%) |
| Bromofluorobenzene | 51.2 | 50.0 | ug/L | 102 | (80%-120%) |
| Toluene-d8 | 50.8 | 50.0 | ug/L | 102 | (80%-120%) |

# Semi-Volatile Analysis

# Case Narrative

**Semi-Volatile Case Narrative**
**ARS International (ARSL)**
**SDG 2013-822**

## Method/Analysis Information

| | |
|---|---|
| **Procedure:** | **Analysis of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry** |
| Analytical Method: | SW846 8270C |
| Prep Method: | SW846 3510C |
| Analytical Batch Number: | 1300969 |
| Prep Batch Number: | 1300968 |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 8270C:

| Sample ID | Client ID |
|---|---|
| 325479001 | CAMO-13-30586 |
| 325479003 | CAMO-13-30560 |
| 325479004 | CAMO-13-30562 |
| 1202873988 | Method Blank (MB) |
| 1202873989 | Laboratory Control Sample (LCS) |
| 1202873990 | 325285001(WST55-13-32015) Matrix Spike (MS) |
| 1202873991 | 325285001(WST55-13-32015) Matrix Spike Duplicate (MSD) |

The samples in this SDG were analyzed on an "as received" basis.

## Preparation/Analytical Method Verification

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-009 REV# 30.

Raw data reports are processed and reviewed by the analyst using the data analysis software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP).

## Calibration Information

A complete list of the initial calibration data files are shown in the Calibration History report located in the Standard Data section of the data package. The various calibration mixes may not be calibrated using all of the calibration levels. In addition, not all of the mixes are calibrated using the same levels.

Diphenylamine has now superseded N-Nitroso-diphenylamine on Quantitation Reports, Initial Calibration Reports, Calibration Check Standard Reports, etc. Previous versions of EPA Methodologies referenced N-Nitroso-diphenylamine. However, as stated in EPA Methodology, "N-Nitroso-diphenylamine decomposes in the gas chromatographic inlet and cannot be separated from Diphenylamine." Studies of these two compounds at GEL, both independent of each other and together, showed that they not only co-elute, but also have similar mass spectra. N-Nitroso-diphenylamine and Diphenylamine will be reported as Diphenylamine on all reports and forms.

**Initial Calibration**
All initial calibration requirements have been met for this sample delivery group (SDG) in this batch. A second source initial calibration verification (ICV) was included in the standard section directly behind the initial calibration.

**CCV Requirements**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG in this batch met the acceptance criteria.

**Surrogate Recoveries**
Samples 1202873990 (WST55-13-32015) and 1202873991 (WST55-13-32015) failed surrogate recovery limits. Please see the QC Summary/Spike Recovery Report for specific failures. The samples were analyzed at a dilution due to the presence of non-target analytes. As a result, some surrogates were diluted out of the acceptance criteria and the data results have been reported.

**Laboratory Control Sample (LCS) Recovery**
The LCS(1202873989) did not meet spike recovery limits for 4-Nitrophenol at 9% (limits: 16%-77%) and Atrazine at 31% (limits: 47%-115%). The 4-Nitrophenol and Atrazine failures represent less than 5% of the total requested spike analyte list. That satisfied the acceptance criteria for the client and the data results have been reported.

**QC Sample Designation**
Sample 325285001 (WST55-13-32015) was selected for analysis as the matrix spike and matrix spike duplicate.

**Matrix Spike (MS) Recovery Statement**
The MS, 1202873990 (WST55-13-32015), failed multiple spike recovery limits. Please see the QC Summary/Spike Recovery Report for specific failures. The samples were analyzed at a dilution due to the presence of non-target analytes. As a result, some spike analytes were diluted out of the acceptance criteria and the data results have been reported.

**Matrix Spike Duplicate (MSD) Recovery Statement**
The MSD, 1202873991 (WST55-13-32015), failed multiple spike recovery limits. Please see the QC Summary/Spike Recovery Report for specific failures. The samples were analyzed at a dilution due to the presence of non-target analytes. As a result, some spike analytes were diluted out of the acceptance criteria and the data results have been reported.

**MS/MSD Relative Percent Difference (RPD) Statement**
The RPD values between the MS and MSD met the acceptance limits.

**Internal Standard (ISTD) Acceptance**
Samples 1202873990 (WST55-13-32015) and 1202873991 (WST55-13-32015) failed ISTD acceptance criteria. As the MS and MSD displayed similar responses as the parent sample, the failures were attributed to sample matrix interference and the data results have been reported.

**Technical Information:**

**Holding Time Specifications**
All samples in this SDG in this batch met the specified holding time. GEL assigns holding times based on the associated methodology that assigns the date and time from sample collection or sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

**Preparation/Analytical Method Verification**
All procedures were performed as stated in the SOP. All reported compound mass spectra met the detection specifications in the method.

**Sample Dilutions**
Samples 1202873990 (WST55-13-32015) and 1202873991 (WST55-13-32015) were diluted due to the presence of non-target analytes. The data from the dilutions have been reported.

**Sample Re-extraction/Re-analysis**
Re-extractions or re-analyses were not required in this SDG in this analytical batch unless confirmations or dilutions were required.

**Miscellaneous Information:**

**Data Exception (DER) Documentation**
Data exception report 1185859 was generated for the samples in this batch for this SDG.

**Manual Integrations**
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations. Manual integrations, if any, are included with the raw data.

**TIC Comment**
Tentatively identified compounds (TIC) may be requested for samples 1202873988 (MB), 325479001 (CAMO-13-30586), 325479003 (CAMO-13-30560) and 325479004 (CAMO-13-30562) in this delivery group/work order. Please note that non-requested calibrated analytes detected in a client sample may be reported on the Form 1/Certificate of Analysis as TICs. TIC data, if requested, are included on the Sample Data Summary (Form 1) and are also included with the sample raw data.

**Additional Comments**
The additional comments field is used to address special issues associated with each analysis, clarify method/contractual issues pertaining to the analysis, and to list any report documents generated as a result of sample analysis or review. The following additional comments were required:

Due to rounding differences in the calculation, the data reported in the Surrogate Recovery Report may differ slightly from the raw data. Due to software issue, the raw data may not correctly display the updated SPC limits. Please see Sample Data Summary Report and Surrogate Recovery Report for the correct surrogate acceptance limits.

**Electronic Package Comment**

The following package was generated using an electronic data processing program referred to as "virtual packaging". In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from "traditional" packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative of each electronic package will indicate the reviewer name associated with the generation of the data and package. The data validator will always sign and date the

case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**System Configuration**

The Semi-Volatile-GC/MS analysis was performed on the following instrument configuration:

| Instrument ID | Instrument | System Configuration | Column ID | Column Description |
|---|---|---|---|---|
| MSD4.I | Agilent 7890A/5975C GC/MS w/ 7683 Autosampler | HP6890/HP5973 | DB-5MS | 25m x 0.2mm, 0.33um (5% Phenylmethylpolysiloxane) |

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-822  GEL Work Order: 325479

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

**  Analyte is a surrogate compound

J  Value is estimated

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL  Indicates that sample is diluted.
RA  Indicates that sample is re-analyzed without re-extraction.
RE  Indicates that sample is re-extracted.

**Review/Validation**

GEL requires all analytical data to be verified by a qualified data reviewer.  In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

**Signature:** Barbara Bailey  **Name: Barbara Bailey**

**Date: 04 JUN 2013**  **Title: Data Validator**

# Sample Data Summary

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | **Date Collected:** | **05/08/2013 12:40** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325479001** | **Date Received:** | **05/10/2013 09:05** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30586** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 22:19** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **940 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1322.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 62-75-9 | N-Methyl-N-nitrosomethylamine | U | 10.6 | ug/L | 3.19 | 10.6 |
| 110-86-1 | Pyridine | U | 10.6 | ug/L | 3.19 | 10.6 |
| 62-53-3 | Aniline | U | 10.6 | ug/L | 3.19 | 10.6 |
| 108-95-2 | Phenol | U | 10.6 | ug/L | 3.19 | 10.6 |
| 111-44-4 | bis(2-Chloroethyl) ether | U | 10.6 | ug/L | 3.19 | 10.6 |
| 95-57-8 | 2-Chlorophenol | U | 10.6 | ug/L | 3.19 | 10.6 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 10.6 | ug/L | 3.19 | 10.6 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 10.6 | ug/L | 3.19 | 10.6 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 10.6 | ug/L | 3.19 | 10.6 |
| 39638-32-9 | bis(2-Chloroisopropyl)ether | U | 10.6 | ug/L | 3.19 | 10.6 |
| 100-51-6 | Benzyl alcohol | U | 10.6 | ug/L | 3.19 | 10.6 |
| 95-48-7 | o-Cresol | U | 10.6 | ug/L | 3.19 | 10.6 |
| 65794-96-9 | m,p-Cresols | U | 10.6 | ug/L | 3.19 | 10.6 |
| 621-64-7 | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | U | 10.6 | ug/L | 3.19 | 10.6 |
| 67-72-1 | Hexachloroethane | U | 10.6 | ug/L | 3.19 | 10.6 |
| 98-95-3 | Nitrobenzene | U | 10.6 | ug/L | 3.19 | 10.6 |
| 78-59-1 | Isophorone | U | 10.6 | ug/L | 3.19 | 10.6 |
| 88-75-5 | 2-Nitrophenol | U | 10.6 | ug/L | 3.19 | 10.6 |
| 105-67-9 | 2,4-Dimethylphenol | U | 10.6 | ug/L | 3.19 | 10.6 |
| 111-91-1 | bis(2-Chloroethoxy)methane | U | 10.6 | ug/L | 3.19 | 10.6 |
| 120-83-2 | 2,4-Dichlorophenol | U | 10.6 | ug/L | 3.19 | 10.6 |
| 65-85-0 | Benzoic acid | U | 21.3 | ug/L | 6.38 | 21.3 |
| 106-47-8 | 4-Chloroaniline | U | 10.6 | ug/L | 3.51 | 10.6 |
| 87-68-3 | Hexachlorobutadiene | U | 10.6 | ug/L | 3.19 | 10.6 |
| 59-50-7 | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | U | 10.6 | ug/L | 3.19 | 10.6 |
| 91-57-6 | 2-Methylnaphthalene | U | 1.06 | ug/L | 0.319 | 1.06 |
| 91-20-3 | Naphthalene | U | 1.06 | ug/L | 0.319 | 1.06 |
| 90-12-0 | 1-Methylnaphthalene | U | 1.06 | ug/L | 0.319 | 1.06 |
| 77-47-4 | Hexachlorocyclopentadiene | U | 10.6 | ug/L | 3.19 | 10.6 |
| 88-06-2 | 2,4,6-Trichlorophenol | U | 10.6 | ug/L | 3.19 | 10.6 |
| 95-95-4 | 2,4,5-Trichlorophenol | U | 10.6 | ug/L | 3.19 | 10.6 |
| 91-58-7 | 2-Chloronaphthalene | U | 1.06 | ug/L | 0.319 | 1.06 |
| 88-74-4 | 2-Nitroaniline<br>*o-Nitroaniline* | U | 10.6 | ug/L | 3.19 | 10.6 |
| 99-09-2 | 3-Nitroaniline<br>*m-Nitroaniline* | U | 10.6 | ug/L | 3.19 | 10.6 |
| 131-11-3 | Dimethylphthalate | U | 10.6 | ug/L | 3.19 | 10.6 |
| 606-20-2 | 2,6-Dinitrotoluene | U | 10.6 | ug/L | 3.19 | 10.6 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | **Date Collected:** | **05/08/2013 12:40** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325479001** | **Date Received:** | **05/10/2013 09:05** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30586** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 22:19** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **940 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1322.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 121-14-2 | 2,4-Dinitrotoluene | U | 10.6 | ug/L | 3.19 | 10.6 |
| 208-96-8 | Acenaphthylene | U | 1.06 | ug/L | 0.319 | 1.06 |
| 83-32-9 | Acenaphthene | U | 1.06 | ug/L | 0.319 | 1.06 |
| 51-28-5 | 2,4-Dinitrophenol | U | 21.3 | ug/L | 5.32 | 21.3 |
| 132-64-9 | Dibenzofuran | U | 10.6 | ug/L | 3.19 | 10.6 |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | U | 10.6 | ug/L | 3.19 | 10.6 |
| 84-66-2 | Diethylphthalate | U | 10.6 | ug/L | 3.19 | 10.6 |
| 100-02-7 | 4-Nitrophenol | U | 10.6 | ug/L | 3.19 | 10.6 |
| 86-73-7 | Fluorene | U | 1.06 | ug/L | 0.319 | 1.06 |
| 7005-72-3 | 4-Chlorophenylphenylether | U | 10.6 | ug/L | 3.19 | 10.6 |
| 100-01-6 | 4-Nitroaniline | U | 10.6 | ug/L | 3.19 | 10.6 |
| | *p-Nitroaniline* | | | | | |
| 534-52-1 | 2-Methyl-4,6-dinitrophenol | U | 10.6 | ug/L | 3.19 | 10.6 |
| 122-39-4 | Diphenylamine | U | 10.6 | ug/L | 3.19 | 10.6 |
| 122-66-7 | Azobenzene | U | 10.6 | ug/L | 3.19 | 10.6 |
| | *1,2-Diphenylhydrazine* | | | | | |
| 101-55-3 | 4-Bromophenylphenylether | U | 10.6 | ug/L | 3.19 | 10.6 |
| 118-74-1 | Hexachlorobenzene | U | 10.6 | ug/L | 3.19 | 10.6 |
| 87-86-5 | Pentachlorophenol | U | 10.6 | ug/L | 3.19 | 10.6 |
| 88-85-7 | Dinoseb | U | 10.6 | ug/L | 3.19 | 10.6 |
| 85-01-8 | Phenanthrene | U | 1.06 | ug/L | 0.319 | 1.06 |
| 120-12-7 | Anthracene | U | 1.06 | ug/L | 0.319 | 1.06 |
| 84-74-2 | Di-n-butylphthalate | U | 10.6 | ug/L | 3.19 | 10.6 |
| 206-44-0 | Fluoranthene | U | 1.06 | ug/L | 0.319 | 1.06 |
| 129-00-0 | Pyrene | U | 1.06 | ug/L | 0.319 | 1.06 |
| 85-68-7 | Butylbenzylphthalate | U | 10.6 | ug/L | 3.19 | 10.6 |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | U | 10.6 | ug/L | 3.19 | 10.6 |
| 56-55-3 | Benzo(a)anthracene | U | 1.06 | ug/L | 0.319 | 1.06 |
| 218-01-9 | Chrysene | U | 1.06 | ug/L | 0.319 | 1.06 |
| 117-84-0 | Di-n-octylphthalate | U | 10.6 | ug/L | 3.19 | 10.6 |
| 205-99-2 | Benzo(b)fluoranthene | U | 1.06 | ug/L | 0.319 | 1.06 |
| 207-08-9 | Benzo(k)fluoranthene | U | 1.06 | ug/L | 0.319 | 1.06 |
| 50-32-8 | Benzo(a)pyrene | U | 1.06 | ug/L | 0.468 | 1.06 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | U | 1.06 | ug/L | 0.319 | 1.06 |
| 53-70-3 | Dibenzo(a,h)anthracene | U | 1.06 | ug/L | 0.319 | 1.06 |
| 191-24-2 | Benzo(ghi)perylene | U | 1.06 | ug/L | 0.319 | 1.06 |
| 123-91-1 | 1,4-Dioxane | U | 10.6 | ug/L | 3.19 | 10.6 |
| 55-18-5 | N-Nitrosodiethylamine | U | 10.6 | ug/L | 3.19 | 10.6 |
| 930-55-2 | N-Nitrosopyrrolidine | U | 10.6 | ug/L | 3.19 | 10.6 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | **Date Collected:** | **05/08/2013 12:40** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325479001** | **Date Received:** | **05/10/2013 09:05** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30586** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 22:19** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **940 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1322.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 924-16-3 | N-Nitrosodi-n-butylamine | U | 10.6 | ug/L | 3.19 | 10.6 |
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | U | 10.6 | ug/L | 3.19 | 10.6 |
| 608-93-5 | Pentachlorobenzene | U | 10.6 | ug/L | 3.19 | 10.6 |
| 1912-24-9 | Atrazine | U | 10.6 | ug/L | 3.19 | 10.6 |
| 92-87-5 | Benzidine | U | 10.6 | ug/L | 3.19 | 10.6 |
| 91-94-1 | 3,3'-Dichlorobenzidine | U | 10.6 | ug/L | 3.19 | 10.6 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 10.6 | ug/L | 3.19 | 10.6 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 2,4,6-Tribromophenol | 76.9 | 106 | ug/L | 72.3 | (26%-129%) |
| 2-Fluorobiphenyl | 31.5 | 53.2 | ug/L | 59.2 | (32%-102%) |
| 2-Fluorophenol | 38.5 | 106 | ug/L | 36.2 | (10%-78%) |
| Nitrobenzene-d5 | 33.0 | 53.2 | ug/L | 62.0 | (36%-125%) |
| Phenol-d5 | 23.9 | 106 | ug/L | 22.5 | (10%-104%) |
| p-Terphenyl-d14 | 48.1 | 53.2 | ug/L | 90.5 | (34%-135%) |

**Tentatively Identified Compound Summary**

| CAS No. | Tentatively Identified Compound (TIC) | RT | Estimated | Units | Fit | Qual |
|---|---|---|---|---|---|---|
| | unknown | 2.028 | 28.8 | ug/L | 0 | J |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | **Date Collected:** | **05/08/2013 12:40** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325479003** | **Date Received:** | **05/10/2013 09:05** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30560** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 22:49** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **940 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1323.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 62-75-9 | N-Methyl-N-nitrosomethylamine | U | 10.6 | ug/L | 3.19 | 10.6 |
| 110-86-1 | Pyridine | U | 10.6 | ug/L | 3.19 | 10.6 |
| 62-53-3 | Aniline | U | 10.6 | ug/L | 3.19 | 10.6 |
| 108-95-2 | Phenol | U | 10.6 | ug/L | 3.19 | 10.6 |
| 111-44-4 | bis(2-Chloroethyl) ether | U | 10.6 | ug/L | 3.19 | 10.6 |
| 95-57-8 | 2-Chlorophenol | U | 10.6 | ug/L | 3.19 | 10.6 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 10.6 | ug/L | 3.19 | 10.6 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 10.6 | ug/L | 3.19 | 10.6 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 10.6 | ug/L | 3.19 | 10.6 |
| 39638-32-9 | bis(2-Chloroisopropyl)ether | U | 10.6 | ug/L | 3.19 | 10.6 |
| 100-51-6 | Benzyl alcohol | U | 10.6 | ug/L | 3.19 | 10.6 |
| 95-48-7 | o-Cresol | U | 10.6 | ug/L | 3.19 | 10.6 |
| 65794-96-9 | m,p-Cresols | U | 10.6 | ug/L | 3.19 | 10.6 |
| 621-64-7 | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | U | 10.6 | ug/L | 3.19 | 10.6 |
| 67-72-1 | Hexachloroethane | U | 10.6 | ug/L | 3.19 | 10.6 |
| 98-95-3 | Nitrobenzene | U | 10.6 | ug/L | 3.19 | 10.6 |
| 78-59-1 | Isophorone | U | 10.6 | ug/L | 3.19 | 10.6 |
| 88-75-5 | 2-Nitrophenol | U | 10.6 | ug/L | 3.19 | 10.6 |
| 105-67-9 | 2,4-Dimethylphenol | U | 10.6 | ug/L | 3.19 | 10.6 |
| 111-91-1 | bis(2-Chloroethoxy)methane | U | 10.6 | ug/L | 3.19 | 10.6 |
| 120-83-2 | 2,4-Dichlorophenol | U | 10.6 | ug/L | 3.19 | 10.6 |
| 65-85-0 | Benzoic acid | U | 21.3 | ug/L | 6.38 | 21.3 |
| 106-47-8 | 4-Chloroaniline | U | 10.6 | ug/L | 3.51 | 10.6 |
| 87-68-3 | Hexachlorobutadiene | U | 10.6 | ug/L | 3.19 | 10.6 |
| 59-50-7 | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | U | 10.6 | ug/L | 3.19 | 10.6 |
| 91-57-6 | 2-Methylnaphthalene | U | 1.06 | ug/L | 0.319 | 1.06 |
| 91-20-3 | Naphthalene | U | 1.06 | ug/L | 0.319 | 1.06 |
| 90-12-0 | 1-Methylnaphthalene | U | 1.06 | ug/L | 0.319 | 1.06 |
| 77-47-4 | Hexachlorocyclopentadiene | U | 10.6 | ug/L | 3.19 | 10.6 |
| 88-06-2 | 2,4,6-Trichlorophenol | U | 10.6 | ug/L | 3.19 | 10.6 |
| 95-95-4 | 2,4,5-Trichlorophenol | U | 10.6 | ug/L | 3.19 | 10.6 |
| 91-58-7 | 2-Chloronaphthalene | U | 1.06 | ug/L | 0.319 | 1.06 |
| 88-74-4 | 2-Nitroaniline<br>*o-Nitroaniline* | U | 10.6 | ug/L | 3.19 | 10.6 |
| 99-09-2 | 3-Nitroaniline<br>*m-Nitroaniline* | U | 10.6 | ug/L | 3.19 | 10.6 |
| 131-11-3 | Dimethylphthalate | U | 10.6 | ug/L | 3.19 | 10.6 |
| 606-20-2 | 2,6-Dinitrotoluene | U | 10.6 | ug/L | 3.19 | 10.6 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | **Date Collected:** | **05/08/2013 12:40** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325479003** | **Date Received:** | **05/10/2013 09:05** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30560** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 22:49** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **940 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1323.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 121-14-2 | 2,4-Dinitrotoluene | U | 10.6 | ug/L | 3.19 | 10.6 |
| 208-96-8 | Acenaphthylene | U | 1.06 | ug/L | 0.319 | 1.06 |
| 83-32-9 | Acenaphthene | U | 1.06 | ug/L | 0.319 | 1.06 |
| 51-28-5 | 2,4-Dinitrophenol | U | 21.3 | ug/L | 5.32 | 21.3 |
| 132-64-9 | Dibenzofuran | U | 10.6 | ug/L | 3.19 | 10.6 |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | U | 10.6 | ug/L | 3.19 | 10.6 |
| 84-66-2 | Diethylphthalate | U | 10.6 | ug/L | 3.19 | 10.6 |
| 100-02-7 | 4-Nitrophenol | U | 10.6 | ug/L | 3.19 | 10.6 |
| 86-73-7 | Fluorene | U | 1.06 | ug/L | 0.319 | 1.06 |
| 7005-72-3 | 4-Chlorophenylphenylether | U | 10.6 | ug/L | 3.19 | 10.6 |
| 100-01-6 | 4-Nitroaniline | U | 10.6 | ug/L | 3.19 | 10.6 |
| | *p-Nitroaniline* | | | | | |
| 534-52-1 | 2-Methyl-4,6-dinitrophenol | U | 10.6 | ug/L | 3.19 | 10.6 |
| 122-39-4 | Diphenylamine | U | 10.6 | ug/L | 3.19 | 10.6 |
| 122-66-7 | Azobenzene | U | 10.6 | ug/L | 3.19 | 10.6 |
| | *1,2-Diphenylhydrazine* | | | | | |
| 101-55-3 | 4-Bromophenylphenylether | U | 10.6 | ug/L | 3.19 | 10.6 |
| 118-74-1 | Hexachlorobenzene | U | 10.6 | ug/L | 3.19 | 10.6 |
| 87-86-5 | Pentachlorophenol | U | 10.6 | ug/L | 3.19 | 10.6 |
| 88-85-7 | Dinoseb | U | 10.6 | ug/L | 3.19 | 10.6 |
| 85-01-8 | Phenanthrene | U | 1.06 | ug/L | 0.319 | 1.06 |
| 120-12-7 | Anthracene | U | 1.06 | ug/L | 0.319 | 1.06 |
| 84-74-2 | Di-n-butylphthalate | U | 10.6 | ug/L | 3.19 | 10.6 |
| 206-44-0 | Fluoranthene | U | 1.06 | ug/L | 0.319 | 1.06 |
| 129-00-0 | Pyrene | U | 1.06 | ug/L | 0.319 | 1.06 |
| 85-68-7 | Butylbenzylphthalate | U | 10.6 | ug/L | 3.19 | 10.6 |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | U | 10.6 | ug/L | 3.19 | 10.6 |
| 56-55-3 | Benzo(a)anthracene | U | 1.06 | ug/L | 0.319 | 1.06 |
| 218-01-9 | Chrysene | U | 1.06 | ug/L | 0.319 | 1.06 |
| 117-84-0 | Di-n-octylphthalate | U | 10.6 | ug/L | 3.19 | 10.6 |
| 205-99-2 | Benzo(b)fluoranthene | U | 1.06 | ug/L | 0.319 | 1.06 |
| 207-08-9 | Benzo(k)fluoranthene | U | 1.06 | ug/L | 0.319 | 1.06 |
| 50-32-8 | Benzo(a)pyrene | U | 1.06 | ug/L | 0.468 | 1.06 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | U | 1.06 | ug/L | 0.319 | 1.06 |
| 53-70-3 | Dibenzo(a,h)anthracene | U | 1.06 | ug/L | 0.319 | 1.06 |
| 191-24-2 | Benzo(ghi)perylene | U | 1.06 | ug/L | 0.319 | 1.06 |
| 123-91-1 | 1,4-Dioxane | U | 10.6 | ug/L | 3.19 | 10.6 |
| 55-18-5 | N-Nitrosodiethylamine | U | 10.6 | ug/L | 3.19 | 10.6 |
| 930-55-2 | N-Nitrosopyrrolidine | U | 10.6 | ug/L | 3.19 | 10.6 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | **Date Collected:** | **05/08/2013 12:40** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325479003** | **Date Received:** | **05/10/2013 09:05** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30560** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 22:49** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **940 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1323.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 924-16-3 | N-Nitrosodi-n-butylamine | U | 10.6 | ug/L | 3.19 | 10.6 |
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | U | 10.6 | ug/L | 3.19 | 10.6 |
| 608-93-5 | Pentachlorobenzene | U | 10.6 | ug/L | 3.19 | 10.6 |
| 1912-24-9 | Atrazine | U | 10.6 | ug/L | 3.19 | 10.6 |
| 92-87-5 | Benzidine | U | 10.6 | ug/L | 3.19 | 10.6 |
| 91-94-1 | 3,3'-Dichlorobenzidine | U | 10.6 | ug/L | 3.19 | 10.6 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 10.6 | ug/L | 3.19 | 10.6 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 2,4,6-Tribromophenol | 77.7 | 106 | ug/L | 73.0 | (26%-129%) |
| 2-Fluorobiphenyl | 31.5 | 53.2 | ug/L | 59.3 | (32%-102%) |
| 2-Fluorophenol | 35.4 | 106 | ug/L | 33.3 | (10%-78%) |
| Nitrobenzene-d5 | 37.6 | 53.2 | ug/L | 70.8 | (36%-125%) |
| Phenol-d5 | 20.8 | 106 | ug/L | 19.6 | (10%-104%) |
| p-Terphenyl-d14 | 51.0 | 53.2 | ug/L | 95.8 | (34%-135%) |

**Tentatively Identified Compound Summary**

| CAS No. | Tentatively Identified Compound (TIC) | RT | Estimated | Units | Fit | Qual |
|---|---|---|---|---|---|---|
| | unknown | 2.022 | 29.9 | ug/L | 0 | J |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | **Date Collected:** | **05/08/2013 12:40** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325479004** | **Date Received:** | **05/10/2013 09:05** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30562** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 23:18** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **950 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1324.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 62-75-9 | N-Methyl-N-nitrosomethylamine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 110-86-1 | Pyridine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 62-53-3 | Aniline | U | 10.5 | ug/L | 3.16 | 10.5 |
| 108-95-2 | Phenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 111-44-4 | bis(2-Chloroethyl) ether | U | 10.5 | ug/L | 3.16 | 10.5 |
| 95-57-8 | 2-Chlorophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 39638-32-9 | bis(2-Chloroisopropyl)ether | U | 10.5 | ug/L | 3.16 | 10.5 |
| 100-51-6 | Benzyl alcohol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 95-48-7 | o-Cresol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 65794-96-9 | m,p-Cresols | U | 10.5 | ug/L | 3.16 | 10.5 |
| 621-64-7 | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | U | 10.5 | ug/L | 3.16 | 10.5 |
| 67-72-1 | Hexachloroethane | U | 10.5 | ug/L | 3.16 | 10.5 |
| 98-95-3 | Nitrobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 78-59-1 | Isophorone | U | 10.5 | ug/L | 3.16 | 10.5 |
| 88-75-5 | 2-Nitrophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 105-67-9 | 2,4-Dimethylphenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 111-91-1 | bis(2-Chloroethoxy)methane | U | 10.5 | ug/L | 3.16 | 10.5 |
| 120-83-2 | 2,4-Dichlorophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 65-85-0 | Benzoic acid | U | 21.1 | ug/L | 6.32 | 21.1 |
| 106-47-8 | 4-Chloroaniline | U | 10.5 | ug/L | 3.47 | 10.5 |
| 87-68-3 | Hexachlorobutadiene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 59-50-7 | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | U | 10.5 | ug/L | 3.16 | 10.5 |
| 91-57-6 | 2-Methylnaphthalene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 91-20-3 | Naphthalene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 90-12-0 | 1-Methylnaphthalene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 77-47-4 | Hexachlorocyclopentadiene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 88-06-2 | 2,4,6-Trichlorophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 95-95-4 | 2,4,5-Trichlorophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 91-58-7 | 2-Chloronaphthalene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 88-74-4 | 2-Nitroaniline<br>*o-Nitroaniline* | U | 10.5 | ug/L | 3.16 | 10.5 |
| 99-09-2 | 3-Nitroaniline<br>*m-Nitroaniline* | U | 10.5 | ug/L | 3.16 | 10.5 |
| 131-11-3 | Dimethylphthalate | U | 10.5 | ug/L | 3.16 | 10.5 |
| 606-20-2 | 2,6-Dinitrotoluene | U | 10.5 | ug/L | 3.16 | 10.5 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | **Date Collected:** | **05/08/2013 12:40** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325479004** | **Date Received:** | **05/10/2013 09:05** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30562** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 23:18** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **950 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1324.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 121-14-2 | 2,4-Dinitrotoluene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 208-96-8 | Acenaphthylene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 83-32-9 | Acenaphthene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 51-28-5 | 2,4-Dinitrophenol | U | 21.1 | ug/L | 5.26 | 21.1 |
| 132-64-9 | Dibenzofuran | U | 10.5 | ug/L | 3.16 | 10.5 |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 84-66-2 | Diethylphthalate | U | 10.5 | ug/L | 3.16 | 10.5 |
| 100-02-7 | 4-Nitrophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 86-73-7 | Fluorene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 7005-72-3 | 4-Chlorophenylphenylether | U | 10.5 | ug/L | 3.16 | 10.5 |
| 100-01-6 | 4-Nitroaniline | U | 10.5 | ug/L | 3.16 | 10.5 |
| | *p-Nitroaniline* | | | | | |
| 534-52-1 | 2-Methyl-4,6-dinitrophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 122-39-4 | Diphenylamine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 122-66-7 | Azobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| | *1,2-Diphenylhydrazine* | | | | | |
| 101-55-3 | 4-Bromophenylphenylether | U | 10.5 | ug/L | 3.16 | 10.5 |
| 118-74-1 | Hexachlorobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 87-86-5 | Pentachlorophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 88-85-7 | Dinoseb | U | 10.5 | ug/L | 3.16 | 10.5 |
| 85-01-8 | Phenanthrene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 120-12-7 | Anthracene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 84-74-2 | Di-n-butylphthalate | U | 10.5 | ug/L | 3.16 | 10.5 |
| 206-44-0 | Fluoranthene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 129-00-0 | Pyrene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 85-68-7 | Butylbenzylphthalate | U | 10.5 | ug/L | 3.16 | 10.5 |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | U | 10.5 | ug/L | 3.16 | 10.5 |
| 56-55-3 | Benzo(a)anthracene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 218-01-9 | Chrysene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 117-84-0 | Di-n-octylphthalate | U | 10.5 | ug/L | 3.16 | 10.5 |
| 205-99-2 | Benzo(b)fluoranthene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 207-08-9 | Benzo(k)fluoranthene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 50-32-8 | Benzo(a)pyrene | U | 1.05 | ug/L | 0.463 | 1.05 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 53-70-3 | Dibenzo(a,h)anthracene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 191-24-2 | Benzo(ghi)perylene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 123-91-1 | 1,4-Dioxane | U | 10.5 | ug/L | 3.16 | 10.5 |
| 55-18-5 | N-Nitrosodiethylamine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 930-55-2 | N-Nitrosopyrrolidine | U | 10.5 | ug/L | 3.16 | 10.5 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | **Date Collected:** | **05/08/2013 12:40** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325479004** | **Date Received:** | **05/10/2013 09:05** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30562** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 23:18** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **950 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1324.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 924-16-3 | N-Nitrosodi-n-butylamine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 608-93-5 | Pentachlorobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 1912-24-9 | Atrazine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 92-87-5 | Benzidine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 91-94-1 | 3,3'-Dichlorobenzidine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 2,4,6-Tribromophenol | 72.2 | 105 | ug/L | 68.6 | (26%-129%) |
| 2-Fluorobiphenyl | 31.1 | 52.6 | ug/L | 59.1 | (32%-102%) |
| 2-Fluorophenol | 45.9 | 105 | ug/L | 43.6 | (10%-78%) |
| Nitrobenzene-d5 | 34.2 | 52.6 | ug/L | 65.0 | (36%-125%) |
| Phenol-d5 | 31.6 | 105 | ug/L | 30.0 | (10%-104%) |
| p-Terphenyl-d14 | 48.6 | 52.6 | ug/L | 92.4 | (34%-135%) |

**Tentatively Identified Compound Summary**

| CAS No. | Tentatively Identified Compound (TIC) | RT | Estimated | Units | Fit | Qual |
|---|---|---|---|---|---|---|
| | unknown | 2.022 | 31.8 | ug/L | 0 | J |

# Quality Control Summary

**Semi-Volatile**

## Surrogate Recovery Report

**SDG Number: 2013-822**

**Matrix Type: LIQUID**

| Sample ID | Client ID | 2FP %REC | | PHL %REC | | NBZ %REC | | FBP %REC | | TBP %REC | | TPH %REC | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1202873988 | MB for batch 1300968 | 44 | | 26 | | 67 | | 38 | | 61 | | 104 | |
| 1202873989 | LCS for batch 1300968 | 38 | | 25 | | 61 | | 51 | | 66 | | 75 | |
| 325479001 | CAMO-13-30586 | 36 | | 23 | | 62 | | 59 | | 72 | | 91 | |
| 325479003 | CAMO-13-30560 | 33 | | 20 | | 71 | | 59 | | 73 | | 96 | |
| 325479004 | CAMO-13-30562 | 44 | | 30 | | 65 | | 59 | | 69 | | 92 | |
| 1202873990 | WST55-13-32015MS | 0 * | D | 0 * | D | 32 * | D | 34 | D | 0 * | D | 60 | D |
| 1202873991 | WST55-13-32015MSD | 0 * | D | 0 * | D | 30 * | D | 30 * | D | 0 * | D | 51 | D |

| Surrogate | | | Acceptance Limits |
|---|---|---|---|
| 2FP | = | 2-Fluorophenol | (10%-78%) |
| PHL | = | Phenol-d5 | (10%-104%) |
| NBZ | = | Nitrobenzene-d5 | (36%-125%) |
| FBP | = | 2-Fluorobiphenyl | (32%-102%) |
| TBP | = | 2,4,6-Tribromophenol | (26%-129%) |
| TPH | = | p-Terphenyl-d14 | (34%-135%) |

* Recovery outside Acceptance Limits
# Column to be used to flag recovery values
D Sample Diluted

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-822**
**Client ID:** **LCS for batch 1300968**
**Lab Sample ID:** **1202873989**
**Instrument:** **MSD4.I**
**Analyst:** **JMB3**
**Inj. Vol:** **1 uL**

**Sample Type:** **Laboratory Control Sample**
**Matrix:** **WATER**
**Analysis Date:** **05/13/2013 19:20**
**Prep Batch ID:** **1300968**
**Batch ID:** **1300969**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 62-75-9 | LCS | N-Methyl-N-nitrosomethylam | 50.0 | 0.0 | 17.7 | 35 | 18-75 |
| 110-86-1 | LCS | Pyridine | 50.0 | 0.0 | 25.5 | 51 | 11-88 |
| 62-53-3 | LCS | Aniline | 50.0 | 0.0 | 35.3 | 71 | 35-107 |
| 108-95-2 | LCS | Phenol | 50.0 | 0.0 | 12.2 | 24 | 13-77 |
| 111-44-4 | LCS | bis(2-Chloroethyl) ether | 50.0 | 0.0 | 27.8 | 56 | 35-111 |
| 95-57-8 | LCS | 2-Chlorophenol | 50.0 | 0.0 | 30.3 | 61 | 39-99 |
| 541-73-1 | LCS | 1,3-Dichlorobenzene | 50.0 | 0.0 | 26.9 | 54 | 25-100 |
| 106-46-7 | LCS | 1,4-Dichlorobenzene | 50.0 | 0.0 | 25.7 | 51 | 24-88 |
| 95-50-1 | LCS | 1,2-Dichlorobenzene | 50.0 | 0.0 | 25.8 | 52 | 27-87 |
| 39638-32-9 | LCS | bis(2-Chloroisopropyl)ether | 50.0 | 0.0 | 30.8 | 62 | 23-120 |
| 100-51-6 | LCS | Benzyl alcohol | 50.0 | 0.0 | 28.8 | 58 | 33-90 |
| 95-48-7 | LCS | o-Cresol | 50.0 | 0.0 | 27.2 | 54 | 32-90 |
| 65794-96-9 | LCS | m,p-Cresols | 50.0 | 0.0 | 29.8 | 60 | 28-100 |
| 621-64-7 | LCS | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | 50.0 | 0.0 | 35.9 | 72 | 39-113 |
| 67-72-1 | LCS | Hexachloroethane | 50.0 | 0.0 | 26.0 | 52 | 20-85 |
| 98-95-3 | LCS | Nitrobenzene | 50.0 | 0.0 | 30.2 | 60 | 41-119 |
| 78-59-1 | LCS | Isophorone | 50.0 | 0.0 | 33.9 | 68 | 49-133 |
| 88-75-5 | LCS | 2-Nitrophenol | 50.0 | 0.0 | 29.8 | 60 | 42-111 |
| 105-67-9 | LCS | 2,4-Dimethylphenol | 50.0 | 0.0 | 34.9 | 70 | 43-99 |
| 111-91-1 | LCS | bis(2-Chloroethoxy)methane | 50.0 | 0.0 | 34.6 | 69 | 44-109 |
| 120-83-2 | LCS | 2,4-Dichlorophenol | 50.0 | 0.0 | 32.1 | 64 | 45-106 |
| 65-85-0 | LCS | Benzoic acid | 100 | 0.0 | 21.4 | 21 | 10-81 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-822**
**Client ID:** **LCS for batch 1300968**
**Lab Sample ID:** **1202873989**
**Instrument:** **MSD4.I**
**Analyst:** **JMB3**
**Inj. Vol:** **1 uL**

**Sample Type:** **Laboratory Control Sample**
**Matrix:** **WATER**
**Analysis Date:** **05/13/2013 19:20**
**Prep Batch ID:** **1300968**
**Batch ID:** **1300969**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 106-47-8 | LCS | 4-Chloroaniline | 50.0 | 0.0 | 40.1 | 80 | 50-122 |
| 87-68-3 | LCS | Hexachlorobutadiene | 50.0 | 0.0 | 25.9 | 52 | 19-92 |
| 59-50-7 | LCS | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | 50.0 | 0.0 | 32.5 | 65 | 46-111 |
| 91-57-6 | LCS | 2-Methylnaphthalene | 50.0 | 0.0 | 25.8 | 52 | 33-102 |
| 91-20-3 | LCS | Naphthalene | 50.0 | 0.0 | 28.5 | 57 | 31-98 |
| 90-12-0 | LCS | 1-Methylnaphthalene | 50.0 | 0.0 | 25.2 | 50 | 35-106 |
| 77-47-4 | LCS | Hexachlorocyclopentadiene | 50.0 | 0.0 | 15.5 | 31 | 15-72 |
| 88-06-2 | LCS | 2,4,6-Trichlorophenol | 50.0 | 0.0 | 30.2 | 60 | 41-109 |
| 95-95-4 | LCS | 2,4,5-Trichlorophenol | 50.0 | 0.0 | 34.1 | 68 | 41-111 |
| 91-58-7 | LCS | 2-Chloronaphthalene | 50.0 | 0.0 | 27.6 | 55 | 36-98 |
| 88-74-4 | LCS | 2-Nitroaniline<br>*o-Nitroaniline* | 50.0 | 0.0 | 39.4 | 79 | 44-117 |
| 99-09-2 | LCS | 3-Nitroaniline<br>*m-Nitroaniline* | 50.0 | 0.0 | 37.3 | 75 | 45-124 |
| 131-11-3 | LCS | Dimethylphthalate | 50.0 | 0.0 | 35.1 | 70 | 53-112 |
| 606-20-2 | LCS | 2,6-Dinitrotoluene | 50.0 | 0.0 | 34.7 | 69 | 52-117 |
| 121-14-2 | LCS | 2,4-Dinitrotoluene | 50.0 | 0.0 | 38.9 | 78 | 45-124 |
| 208-96-8 | LCS | Acenaphthylene | 50.0 | 0.0 | 28.0 | 56 | 37-107 |
| 83-32-9 | LCS | Acenaphthene | 50.0 | 0.0 | 25.3 | 51 | 40-104 |
| 51-28-5 | LCS | 2,4-Dinitrophenol | 50.0 | 0.0 | 13.9 | 28 | 19-110 |
| 132-64-9 | LCS | Dibenzofuran | 50.0 | 0.0 | 31.4 | 63 | 45-107 |
| 58-90-2 | LCS | 2,3,4,6-Tetrachlorophenol | 50.0 | 0.0 | 37.3 | 75 | 45-120 |
| 84-66-2 | LCS | Diethylphthalate | 50.0 | 0.0 | 38.4 | 77 | 51-116 |
| 100-02-7 | LCS | 4-Nitrophenol | 50.0 | 0.0 | 4.72 | 9 * | 16-77 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-822**
**Client ID:** **LCS for batch 1300968**
**Lab Sample ID:** **1202873989**
**Instrument:** **MSD4.I**
**Analyst:** **JMB3**
**Inj. Vol:** **1 uL**

**Sample Type:** **Laboratory Control Sample**
**Matrix:** **WATER**
**Analysis Date:** **05/13/2013 19:20**
**Prep Batch ID:** **1300968**
**Batch ID:** **1300969**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 86-73-7 | LCS | Fluorene | 50.0 | 0.0 | 33.2 | 66 | 43-110 |
| 7005-72-3 | LCS | 4-Chlorophenylphenylether | 50.0 | 0.0 | 32.1 | 64 | 40-114 |
| 100-01-6 | LCS | 4-Nitroaniline<br>*p-Nitroaniline* | 50.0 | 0.0 | 44.9 | 90 | 38-133 |
| 534-52-1 | LCS | 2-Methyl-4,6-dinitrophenol | 50.0 | 0.0 | 36.3 | 73 | 34-114 |
| 122-39-4 | LCS | Diphenylamine | 50.0 | 0.0 | 40.9 | 82 | 47-111 |
| 122-66-7 | LCS | Azobenzene<br>*1,2-Diphenylhydrazine* | 50.0 | 0.0 | 36.4 | 73 | 40-112 |
| 101-55-3 | LCS | 4-Bromophenylphenylether | 50.0 | 0.0 | 32.7 | 65 | 41-113 |
| 118-74-1 | LCS | Hexachlorobenzene | 50.0 | 0.0 | 33.5 | 67 | 43-116 |
| 87-86-5 | LCS | Pentachlorophenol | 50.0 | 0.0 | 21.4 | 43 | 27-102 |
| 85-01-8 | LCS | Phenanthrene | 50.0 | 0.0 | 32.0 | 64 | 47-111 |
| 120-12-7 | LCS | Anthracene | 50.0 | 0.0 | 35.0 | 70 | 46-110 |
| 84-74-2 | LCS | Di-n-butylphthalate | 50.0 | 0.0 | 34.9 | 70 | 49-116 |
| 206-44-0 | LCS | Fluoranthene | 50.0 | 0.0 | 33.4 | 67 | 45-118 |
| 129-00-0 | LCS | Pyrene | 50.0 | 0.0 | 29.6 | 59 | 38-127 |
| 85-68-7 | LCS | Butylbenzylphthalate | 50.0 | 0.0 | 29.6 | 59 | 40-122 |
| 117-81-7 | LCS | bis(2-Ethylhexyl)phthalate | 50.0 | 0.0 | 30.0 | 60 | 37-124 |
| 56-55-3 | LCS | Benzo(a)anthracene | 50.0 | 0.0 | 32.4 | 65 | 49-111 |
| 218-01-9 | LCS | Chrysene | 50.0 | 0.0 | 32.6 | 65 | 44-117 |
| 117-84-0 | LCS | Di-n-octylphthalate | 50.0 | 0.0 | 25.4 | 51 | 33-122 |
| 205-99-2 | LCS | Benzo(b)fluoranthene | 50.0 | 0.0 | 33.8 | 68 | 47-117 |
| 207-08-9 | LCS | Benzo(k)fluoranthene | 50.0 | 0.0 | 36.4 | 73 | 46-119 |
| 50-32-8 | LCS | Benzo(a)pyrene | 50.0 | 0.0 | 31.1 | 62 | 47-110 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-822**
**Client ID:** **LCS for batch 1300968**
**Lab Sample ID:** **1202873989**
**Instrument:** **MSD4.I**
**Analyst:** **JMB3**
**Inj. Vol:** **1 uL**

**Sample Type:** **Laboratory Control Sample**
**Matrix:** **WATER**
**Analysis Date:** **05/13/2013 19:20**
**Prep Batch ID:** **1300968**
**Batch ID:** **1300969**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 193-39-5 | LCS | Indeno(1,2,3-cd)pyrene | 50.0 | 0.0 | 28.0 | 56 | 37-125 |
| 53-70-3 | LCS | Dibenzo(a,h)anthracene | 50.0 | 0.0 | 30.4 | 61 | 36-125 |
| 191-24-2 | LCS | Benzo(ghi)perylene | 50.0 | 0.0 | 29.4 | 59 | 33-126 |
| 123-91-1 | LCS | 1,4-Dioxane | 50.0 | 0.0 | 19.4 | 39 | 26-73 |
| 930-55-2 | LCS | N-Nitrosopyrrolidine | 50.0 | 0.0 | 33.9 | 68 | 42-106 |
| 95-94-3 | LCS | 1,2,4,5-Tetrachlorobenzene | 50.0 | 0.0 | 24.0 | 48 | 36-95 |
| 1912-24-9 | LCS | Atrazine | 50.0 | 0.0 | 15.6 | 31 * | 47-115 |
| 92-87-5 | LCS | Benzidine | 100 | 0.0 | 80.6 | 81 | 10-124 |
| 91-94-1 | LCS | 3,3'-Dichlorobenzidine | 50.0 | 0.0 | 31.6 | 63 | 31-113 |
| 120-82-1 | LCS | 1,2,4-Trichlorobenzene | 50.0 | 0.0 | 26.3 | 53 | 26-92 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-822**
**Client ID:** **WST55-13-32015MS**
**Lab Sample ID:** **1202873990**
**Instrument:** **MSD4.I**
**Analyst:** **JMB3**
**Inj. Vol:** **1 uL**

**Sample Type:** **Matrix Spike**
**Matrix:** **W**
**Analysis Date:** **05/14/2013 00:47**
**Prep Batch ID:** **1300968**
**Batch ID:** **1300969**
**Dilution: 20**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 62-75-9 | MS | N-Methyl-N-nitrosomethylam | 116 | 0.00 | U | 0.00 | 0 * | 21-88 |
| 110-86-1 | MS | Pyridine | 116 | 0.00 | U | 0.00 | 0 * | 14-94 |
| 62-53-3 | MS | Aniline | 116 | 0.00 | U | 0.00 | 0 * | 24-109 |
| 108-95-2 | MS | Phenol | 116 | 0.00 | U | 0.00 | 0 * | 10-88 |
| 111-44-4 | MS | bis(2-Chloroethyl) ether | 116 | 0.00 | U | 0.00 | 0 * | 25-114 |
| 95-57-8 | MS | 2-Chlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 31-103 |
| 541-73-1 | MS | 1,3-Dichlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 18-83 |
| 106-46-7 | MS | 1,4-Dichlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 20-86 |
| 95-50-1 | MS | 1,2-Dichlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 21-85 |
| 39638-32-9 | MS | bis(2-Chloroisopropyl)ether | 116 | 0.00 | U | 0.00 | 0 * | 16-121 |
| 100-51-6 | MS | Benzyl alcohol | 116 | 0.00 | U | 0.00 | 0 * | 31-100 |
| 95-48-7 | MS | o-Cresol | 116 | 0.00 | U | 0.00 | 0 * | 26-97 |
| 65794-96-9 | MS | m,p-Cresols | 116 | 0.00 | U | 0.00 | 0 * | 24-110 |
| 621-64-7 | MS | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | 116 | 0.00 | U | 0.00 | 0 * | 29-116 |
| 67-72-1 | MS | Hexachloroethane | 116 | 0.00 | U | 0.00 | 0 * | 17-82 |
| 98-95-3 | MS | Nitrobenzene | 116 | 0.00 | U | 0.00 | 0 * | 32-126 |
| 78-59-1 | MS | Isophorone | 116 | 0.00 | U | 0.00 | 0 * | 36-139 |
| 88-75-5 | MS | 2-Nitrophenol | 116 | 0.00 | U | 0.00 | 0 * | 29-117 |
| 105-67-9 | MS | 2,4-Dimethylphenol | 116 | 0.00 | U | 0.00 | 0 * | 28-107 |
| 111-91-1 | MS | bis(2-Chloroethoxy)methane | 116 | 0.00 | U | 0.00 | 0 * | 34-112 |
| 120-83-2 | MS | 2,4-Dichlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 34-111 |
| 65-85-0 | MS | Benzoic acid | 233 | 0.00 | U | 0.00 | 0 * | 10-105 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-822**
**Client ID:** **WST55-13-32015MS**
**Lab Sample ID:** **1202873990**
**Instrument:** **MSD4.I**
**Analyst:** **JMB3**
**Inj. Vol:** **1 uL**

**Sample Type:** **Matrix Spike**
**Matrix:** **W**
**Analysis Date:** **05/14/2013 00:47**
**Prep Batch ID:** **1300968**
**Batch ID:** **1300969**
**Dilution: 20**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 106-47-8 | MS | 4-Chloroaniline | 116 | 0.00 | U | 0.00 | 0 * | 28-123 |
| 87-68-3 | MS | Hexachlorobutadiene | 116 | 0.00 | U | 0.00 | 0 * | 11-97 |
| 59-50-7 | MS | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | 116 | 0.00 | U | 0.00 | 0 * | 31-119 |
| 91-57-6 | MS | 2-Methylnaphthalene | 116 | 0.00 | U | 47.9 | 41 | 26-103 |
| 91-20-3 | MS | Naphthalene | 116 | 0.00 | U | 41.9 | 36 | 25-100 |
| 90-12-0 | MS | 1-Methylnaphthalene | 116 | 0.00 | U | 46.5 | 40 | 27-107 |
| 77-47-4 | MS | Hexachlorocyclopentadiene | 116 | 0.00 | U | 0.00 | 0 * | 14-73 |
| 88-06-2 | MS | 2,4,6-Trichlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 31-113 |
| 95-95-4 | MS | 2,4,5-Trichlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 30-117 |
| 91-58-7 | MS | 2-Chloronaphthalene | 116 | 0.00 | U | 43.7 | 38 | 30-97 |
| 88-74-4 | MS | 2-Nitroaniline<br>*o-Nitroaniline* | 116 | 0.00 | U | 0.00 | 0 * | 28-122 |
| 99-09-2 | MS | 3-Nitroaniline<br>*m-Nitroaniline* | 116 | 0.00 | U | 0.00 | 0 * | 29-125 |
| 131-11-3 | MS | Dimethylphthalate | 116 | 0.00 | U | 0.00 | 0 * | 41-116 |
| 606-20-2 | MS | 2,6-Dinitrotoluene | 116 | 0.00 | U | 0.00 | 0 * | 40-123 |
| 121-14-2 | MS | 2,4-Dinitrotoluene | 116 | 0.00 | U | 0.00 | 0 * | 34-126 |
| 208-96-8 | MS | Acenaphthylene | 116 | 0.00 | U | 43.7 | 38 | 33-104 |
| 83-32-9 | MS | Acenaphthene | 116 | 0.00 | U | 44.2 | 38 | 31-103 |
| 51-28-5 | MS | 2,4-Dinitrophenol | 116 | 0.00 | U | 0.00 | 0 * | 17-110 |
| 132-64-9 | MS | Dibenzofuran | 116 | 0.00 | U | 0.00 | 0 * | 36-107 |
| 58-90-2 | MS | 2,3,4,6-Tetrachlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 29-126 |
| 84-66-2 | MS | Diethylphthalate | 116 | 0.00 | U | 0.00 | 0 * | 41-117 |
| 100-02-7 | MS | 4-Nitrophenol | 116 | 0.00 | U | 0.00 | 0 * | 16-71 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-822** **Sample Type:** **Matrix Spike**

**Client ID:** **WST55-13-32015MS** **Matrix:** **W**

**Lab Sample ID:** **1202873990**

**Instrument:** **MSD4.I** **Analysis Date:** **05/14/2013 00:47** **Dilution: 20**

**Analyst:** **JMB3** **Prep Batch ID:** **1300968**

**Inj. Vol:** **1 uL** **Batch ID:** **1300969**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 86-73-7 | MS | Fluorene | 116 | 0.00 | U | 43.7 | 38 | 32-111 |
| 7005-72-3 | MS | 4-Chlorophenylphenylether | 116 | 0.00 | U | 0.00 | 0 * | 30-112 |
| 100-01-6 | MS | 4-Nitroaniline<br>*p-Nitroaniline* | 116 | 0.00 | U | 0.00 | 0 * | 25-133 |
| 534-52-1 | MS | 2-Methyl-4,6-dinitrophenol | 116 | 0.00 | U | 0.00 | 0 * | 22-118 |
| 122-39-4 | MS | Diphenylamine | 116 | 0.00 | U | 0.00 | 0 * | 34-111 |
| 122-66-7 | MS | Azobenzene<br>*1,2-Diphenylhydrazine* | 116 | 0.00 | U | 0.00 | 0 * | 30-112 |
| 101-55-3 | MS | 4-Bromophenylphenylether | 116 | 0.00 | U | 0.00 | 0 * | 32-111 |
| 118-74-1 | MS | Hexachlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 33-115 |
| 87-86-5 | MS | Pentachlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 19-112 |
| 85-01-8 | MS | Phenanthrene | 116 | 0.00 | U | 44.2 | 38 | 34-112 |
| 120-12-7 | MS | Anthracene | 116 | 0.00 | U | 42.3 | 36 | 33-108 |
| 84-74-2 | MS | Di-n-butylphthalate | 116 | 0.00 | U | 0.00 | 0 * | 35-118 |
| 206-44-0 | MS | Fluoranthene | 116 | 0.00 | U | 39.5 | 34 | 31-118 |
| 129-00-0 | MS | Pyrene | 116 | 0.00 | U | 53.0 | 46 | 27-126 |
| 85-68-7 | MS | Butylbenzylphthalate | 116 | 0.00 | U | 0.00 | 0 * | 29-121 |
| 117-81-7 | MS | bis(2-Ethylhexyl)phthalate | 116 | 0.00 | U | 0.00 | 0 * | 29-120 |
| 56-55-3 | MS | Benzo(a)anthracene | 116 | 0.00 | U | 42.3 | 36 | 35-112 |
| 218-01-9 | MS | Chrysene | 116 | 0.00 | U | 41.9 | 36 | 32-116 |
| 117-84-0 | MS | Di-n-octylphthalate | 116 | 0.00 | U | 0.00 | 0 * | 25-118 |
| 205-99-2 | MS | Benzo(b)fluoranthene | 116 | 0.00 | U | 50.7 | 44 | 34-116 |
| 207-08-9 | MS | Benzo(k)fluoranthene | 116 | 0.00 | U | 52.1 | 45 | 34-119 |
| 50-32-8 | MS | Benzo(a)pyrene | 116 | 0.00 | U | 36.7 | 32 * | 34-110 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-822**
**Client ID:** **WST55-13-32015MS**
**Lab Sample ID:** **1202873990**
**Instrument:** **MSD4.I**
**Analyst:** **JMB3**
**Inj. Vol:** **1 uL**

**Sample Type:** **Matrix Spike**
**Matrix:** **W**
**Analysis Date:** **05/14/2013 00:47**
**Prep Batch ID:** **1300968**
**Batch ID:** **1300969**
**Dilution: 20**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 193-39-5 | MS | Indeno(1,2,3-cd)pyrene | 116 | 0.00 | U | 23.7 | 20 * | 25-122 |
| 53-70-3 | MS | Dibenzo(a,h)anthracene | 116 | 0.00 | U | 23.7 | 20 * | 24-123 |
| 191-24-2 | MS | Benzo(ghi)perylene | 116 | 0.00 | U | 24.7 | 21 * | 22-122 |
| 123-91-1 | MS | 1,4-Dioxane | 116 | 0.00 | U | 0.00 | 0 * | 26-88 |
| 930-55-2 | MS | N-Nitrosopyrrolidine | 116 | 0.00 | U | 0.00 | 0 * | 42-110 |
| 95-94-3 | MS | 1,2,4,5-Tetrachlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 29-96 |
| 1912-24-9 | MS | Atrazine | 116 | 0.00 | U | 0.00 | 0 * | 33-121 |
| 92-87-5 | MS | Benzidine | 233 | 0.00 | U | 0.00 | 0 * | 10-117 |
| 91-94-1 | MS | 3,3'-Dichlorobenzidine | 116 | 0.00 | U | 0.00 | 0 * | 22-111 |
| 120-82-1 | MS | 1,2,4-Trichlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 20-90 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-822** **Sample Type:** **Matrix Spike Duplicate**

**Client ID:** **WST55-13-32015MSD** **Matrix:** **W**

**Lab Sample ID:** **1202873991**

**Instrument:** **MSD4.I** **Analysis Date:** **05/14/2013 01:17** **Dilution: 20**

**Analyst:** **JMB3** **Prep Batch ID:** **1300968**

**Inj. Vol:** **1 uL** **Batch ID:** **1300969**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 62-75-9 | MSD | N-Methyl-N-nitrosomethylam | 116 | 0.00 | U | 0.00 | 0 * | 21-88 | 0 | 0-30 |
| 110-86-1 | MSD | Pyridine | 116 | 0.00 | U | 0.00 | 0 * | 14-94 | 0 | 0-30 |
| 62-53-3 | MSD | Aniline | 116 | 0.00 | U | 0.00 | 0 * | 24-109 | 0 | 0-30 |
| 108-95-2 | MSD | Phenol | 116 | 0.00 | U | 0.00 | 0 * | 10-88 | 0 | 0-30 |
| 111-44-4 | MSD | bis(2-Chloroethyl) ether | 116 | 0.00 | U | 0.00 | 0 * | 25-114 | 0 | 0-30 |
| 95-57-8 | MSD | 2-Chlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 31-103 | 0 | 0-30 |
| 541-73-1 | MSD | 1,3-Dichlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 18-83 | 0 | 0-30 |
| 106-46-7 | MSD | 1,4-Dichlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 20-86 | 0 | 0-30 |
| 95-50-1 | MSD | 1,2-Dichlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 21-85 | 0 | 0-30 |
| 39638-32-9 | MSD | bis(2-Chloroisopropyl)ether | 116 | 0.00 | U | 0.00 | 0 * | 16-121 | 0 | 0-30 |
| 100-51-6 | MSD | Benzyl alcohol | 116 | 0.00 | U | 0.00 | 0 * | 31-100 | 0 | 0-30 |
| 95-48-7 | MSD | o-Cresol | 116 | 0.00 | U | 0.00 | 0 * | 26-97 | 0 | 0-30 |
| 65794-96-9 | MSD | m,p-Cresols | 116 | 0.00 | U | 0.00 | 0 * | 24-110 | 0 | 0-30 |
| 621-64-7 | MSD | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | 116 | 0.00 | U | 0.00 | 0 * | 29-116 | 0 | 0-30 |
| 67-72-1 | MSD | Hexachloroethane | 116 | 0.00 | U | 0.00 | 0 * | 17-82 | 0 | 0-30 |
| 98-95-3 | MSD | Nitrobenzene | 116 | 0.00 | U | 0.00 | 0 * | 32-126 | 0 | 0-30 |
| 78-59-1 | MSD | Isophorone | 116 | 0.00 | U | 0.00 | 0 * | 36-139 | 0 | 0-30 |
| 88-75-5 | MSD | 2-Nitrophenol | 116 | 0.00 | U | 0.00 | 0 * | 29-117 | 0 | 0-30 |
| 105-67-9 | MSD | 2,4-Dimethylphenol | 116 | 0.00 | U | 0.00 | 0 * | 28-107 | 0 | 0-30 |
| 111-91-1 | MSD | bis(2-Chloroethoxy)methane | 116 | 0.00 | U | 0.00 | 0 * | 34-112 | 0 | 0-30 |
| 120-83-2 | MSD | 2,4-Dichlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 34-111 | 0 | 0-30 |
| 65-85-0 | MSD | Benzoic acid | 233 | 0.00 | U | 0.00 | 0 * | 10-105 | 0 | 0-30 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-822**
**Client ID:** **WST55-13-32015MSD**
**Lab Sample ID:** **1202873991**
**Instrument:** **MSD4.I**
**Analyst:** **JMB3**
**Inj. Vol:** **1 uL**

**Sample Type:** **Matrix Spike Duplicate**
**Matrix:** **W**
**Analysis Date:** **05/14/2013 01:17**
**Prep Batch ID:** **1300968**
**Batch ID:** **1300969**
**Dilution: 20**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 106-47-8 | MSD | 4-Chloroaniline | 116 | 0.00 | U | 0.00 | 0 * | 28-123 | 0 | 0-30 |
| 87-68-3 | MSD | Hexachlorobutadiene | 116 | 0.00 | U | 0.00 | 0 * | 11-97 | 0 | 0-30 |
| 59-50-7 | MSD | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | 116 | 0.00 | U | 0.00 | 0 * | 31-119 | 0 | 0-30 |
| 91-57-6 | MSD | 2-Methylnaphthalene | 116 | 0.00 | U | 45.1 | 39 | 26-103 | 6 | 0-30 |
| 91-20-3 | MSD | Naphthalene | 116 | 0.00 | U | 40.9 | 35 | 25-100 | 2 | 0-30 |
| 90-12-0 | MSD | 1-Methylnaphthalene | 116 | 0.00 | U | 41.9 | 36 | 27-107 | 11 | 0-30 |
| 77-47-4 | MSD | Hexachlorocyclopentadiene | 116 | 0.00 | U | 0.00 | 0 * | 14-73 | 0 | 0-30 |
| 88-06-2 | MSD | 2,4,6-Trichlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 31-113 | 0 | 0-30 |
| 95-95-4 | MSD | 2,4,5-Trichlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 30-117 | 0 | 0-30 |
| 91-58-7 | MSD | 2-Chloronaphthalene | 116 | 0.00 | U | 42.3 | 36 | 30-97 | 3 | 0-30 |
| 88-74-4 | MSD | 2-Nitroaniline<br>*o-Nitroaniline* | 116 | 0.00 | U | 0.00 | 0 * | 28-122 | 0 | 0-30 |
| 99-09-2 | MSD | 3-Nitroaniline<br>*m-Nitroaniline* | 116 | 0.00 | U | 0.00 | 0 * | 29-125 | 0 | 0-30 |
| 131-11-3 | MSD | Dimethylphthalate | 116 | 0.00 | U | 0.00 | 0 * | 41-116 | 0 | 0-30 |
| 606-20-2 | MSD | 2,6-Dinitrotoluene | 116 | 0.00 | U | 0.00 | 0 * | 40-123 | 0 | 0-30 |
| 121-14-2 | MSD | 2,4-Dinitrotoluene | 116 | 0.00 | U | 0.00 | 0 * | 34-126 | 0 | 0-30 |
| 208-96-8 | MSD | Acenaphthylene | 116 | 0.00 | U | 44.2 | 38 | 33-104 | 1 | 0-30 |
| 83-32-9 | MSD | Acenaphthene | 116 | 0.00 | U | 42.3 | 36 | 31-103 | 4 | 0-30 |
| 51-28-5 | MSD | 2,4-Dinitrophenol | 116 | 0.00 | U | 0.00 | 0 * | 17-110 | 0 | 0-30 |
| 132-64-9 | MSD | Dibenzofuran | 116 | 0.00 | U | 0.00 | 0 * | 36-107 | 0 | 0-30 |
| 58-90-2 | MSD | 2,3,4,6-Tetrachlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 29-126 | 0 | 0-30 |
| 84-66-2 | MSD | Diethylphthalate | 116 | 0.00 | U | 0.00 | 0 * | 41-117 | 0 | 0-30 |
| 100-02-7 | MSD | 4-Nitrophenol | 116 | 0.00 | U | 0.00 | 0 * | 16-71 | 0 | 0-30 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-822** **Sample Type:** **Matrix Spike Duplicate**

**Client ID:** **WST55-13-32015MSD** **Matrix:** **W**

**Lab Sample ID:** **1202873991**

**Instrument:** **MSD4.I** **Analysis Date:** **05/14/2013 01:17** **Dilution: 20**

**Analyst:** **JMB3** **Prep Batch ID:** **1300968**

**Inj. Vol:** **1 uL** **Batch ID:** **1300969**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 86-73-7 | MSD | Fluorene | 116 | 0.00 | U | 41.9 | 36 | 32-111 | 4 | 0-30 |
| 7005-72-3 | MSD | 4-Chlorophenylphenylether | 116 | 0.00 | U | 0.00 | 0 * | 30-112 | 0 | 0-30 |
| 100-01-6 | MSD | 4-Nitroaniline<br>*p-Nitroaniline* | 116 | 0.00 | U | 0.00 | 0 * | 25-133 | 0 | 0-30 |
| 534-52-1 | MSD | 2-Methyl-4,6-dinitrophenol | 116 | 0.00 | U | 0.00 | 0 * | 22-118 | 0 | 0-30 |
| 122-39-4 | MSD | Diphenylamine | 116 | 0.00 | U | 0.00 | 0 * | 34-111 | 0 | 0-30 |
| 122-66-7 | MSD | Azobenzene<br>*1,2-Diphenylhydrazine* | 116 | 0.00 | U | 0.00 | 0 * | 30-112 | 0 | 0-30 |
| 101-55-3 | MSD | 4-Bromophenylphenylether | 116 | 0.00 | U | 0.00 | 0 * | 32-111 | 0 | 0-30 |
| 118-74-1 | MSD | Hexachlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 33-115 | 0 | 0-30 |
| 87-86-5 | MSD | Pentachlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 19-112 | 0 | 0-30 |
| 85-01-8 | MSD | Phenanthrene | 116 | 0.00 | U | 42.3 | 36 | 34-112 | 4 | 0-30 |
| 120-12-7 | MSD | Anthracene | 116 | 0.00 | U | 41.4 | 36 | 33-108 | 2 | 0-30 |
| 84-74-2 | MSD | Di-n-butylphthalate | 116 | 0.00 | U | 0.00 | 0 * | 35-118 | 0 | 0-30 |
| 206-44-0 | MSD | Fluoranthene | 116 | 0.00 | U | 40.9 | 35 | 31-118 | 3 | 0-30 |
| 129-00-0 | MSD | Pyrene | 116 | 0.00 | U | 44.7 | 38 | 27-126 | 17 | 0-30 |
| 85-68-7 | MSD | Butylbenzylphthalate | 116 | 0.00 | U | 0.00 | 0 * | 29-121 | 0 | 0-30 |
| 117-81-7 | MSD | bis(2-Ethylhexyl)phthalate | 116 | 0.00 | U | 0.00 | 0 * | 29-120 | 0 | 0-30 |
| 56-55-3 | MSD | Benzo(a)anthracene | 116 | 0.00 | U | 41.9 | 36 | 35-112 | 1 | 0-30 |
| 218-01-9 | MSD | Chrysene | 116 | 0.00 | U | 39.5 | 34 | 32-116 | 6 | 0-30 |
| 117-84-0 | MSD | Di-n-octylphthalate | 116 | 0.00 | U | 0.00 | 0 * | 25-118 | 0 | 0-30 |
| 205-99-2 | MSD | Benzo(b)fluoranthene | 116 | 0.00 | U | 45.1 | 39 | 34-116 | 12 | 0-30 |
| 207-08-9 | MSD | Benzo(k)fluoranthene | 116 | 0.00 | U | 59.1 | 51 | 34-119 | 13 | 0-30 |
| 50-32-8 | MSD | Benzo(a)pyrene | 116 | 0.00 | U | 39.1 | 34 | 34-110 | 6 | 0-30 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-822**
**Client ID:** **WST55-13-32015MSD**
**Lab Sample ID:** **1202873991**
**Instrument:** **MSD4.I**
**Analyst:** **JMB3**
**Inj. Vol:** **1 uL**

**Sample Type:** **Matrix Spike Duplicate**
**Matrix:** **W**
**Analysis Date:** **05/14/2013 01:17**
**Prep Batch ID:** **1300968**
**Batch ID:** **1300969**
**Dilution:** **20**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 193-39-5 | MSD | Indeno(1,2,3-cd)pyrene | 116 | 0.00 | U | 30.2 | 26 | 25-122 | 24 | 0-30 |
| 53-70-3 | MSD | Dibenzo(a,h)anthracene | 116 | 0.00 | U | 25.1 | 22 * | 24-123 | 6 | 0-30 |
| 191-24-2 | MSD | Benzo(ghi)perylene | 116 | 0.00 | U | 27.4 | 24 | 22-122 | 11 | 0-30 |
| 123-91-1 | MSD | 1,4-Dioxane | 116 | 0.00 | U | 0.00 | 0 * | 26-88 | 0 | 0-30 |
| 930-55-2 | MSD | N-Nitrosopyrrolidine | 116 | 0.00 | U | 0.00 | 0 * | 42-110 | 0 | 0-30 |
| 95-94-3 | MSD | 1,2,4,5-Tetrachlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 29-96 | 0 | 0-30 |
| 1912-24-9 | MSD | Atrazine | 116 | 0.00 | U | 0.00 | 0 * | 33-121 | 0 | 0-30 |
| 92-87-5 | MSD | Benzidine | 233 | 0.00 | U | 0.00 | 0 * | 10-117 | 0 | 0-30 |
| 91-94-1 | MSD | 3,3'-Dichlorobenzidine | 116 | 0.00 | U | 0.00 | 0 * | 22-111 | 0 | 0-30 |
| 120-82-1 | MSD | 1,2,4-Trichlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 20-90 | 0 | 0-30 |

# Method Blank Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | **Client:** | **ARSL001** | **Matrix:** | **WATER** |
| **Client ID:** | **MB for batch 1300968** | **Instrument ID:** | **MSD4.I** | **Data File:** | **s051313a.B\s4e1315.D** |
| **Lab Sample ID:** | **1202873988** | **Prep Date:** | **05/13/2013 10:10** | **Analyzed:** | **05/13/13 18:50** |
| **Column:** | **DB-5ms** | | | | |

**This method blank applies to the following samples and quality control samples:**

| Client Sample ID | Lab Sample ID | File ID | Date Analyzed | Time Analyzed |
|---|---|---|---|---|
| 01 LCS for batch 1300968 | 1202873989 | s051313a.B\s4e1316.D | 05/13/13 | 1920 |
| 02 CAMO-13-30586 | 325479001 | s051313a.B\s4e1322.D | 05/13/13 | 2219 |
| 03 CAMO-13-30560 | 325479003 | s051313a.B\s4e1323.D | 05/13/13 | 2249 |
| 04 CAMO-13-30562 | 325479004 | s051313a.B\s4e1324.D | 05/13/13 | 2318 |
| 05 WST55-13-32015MS | 1202873990 | s051313a.B\s4e1327.D | 05/14/13 | 0047 |
| 06 WST55-13-32015MSD | 1202873991 | s051313a.B\s4e1328.D | 05/14/13 | 0117 |

# Quality Control Data

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202873988** | | | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **MB for batch 1300968** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 18:50** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **1000 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1315.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 62-75-9 | N-Methyl-N-nitrosomethylamine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 110-86-1 | Pyridine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 62-53-3 | Aniline | U | 10.0 | ug/L | 3.00 | 10.0 |
| 108-95-2 | Phenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 111-44-4 | bis(2-Chloroethyl) ether | U | 10.0 | ug/L | 3.00 | 10.0 |
| 95-57-8 | 2-Chlorophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 39638-32-9 | bis(2-Chloroisopropyl)ether | U | 10.0 | ug/L | 3.00 | 10.0 |
| 100-51-6 | Benzyl alcohol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 95-48-7 | o-Cresol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 65794-96-9 | m,p-Cresols | U | 10.0 | ug/L | 3.00 | 10.0 |
| 621-64-7 | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | U | 10.0 | ug/L | 3.00 | 10.0 |
| 67-72-1 | Hexachloroethane | U | 10.0 | ug/L | 3.00 | 10.0 |
| 98-95-3 | Nitrobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 78-59-1 | Isophorone | U | 10.0 | ug/L | 3.00 | 10.0 |
| 88-75-5 | 2-Nitrophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 105-67-9 | 2,4-Dimethylphenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 111-91-1 | bis(2-Chloroethoxy)methane | U | 10.0 | ug/L | 3.00 | 10.0 |
| 120-83-2 | 2,4-Dichlorophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 65-85-0 | Benzoic acid | U | 20.0 | ug/L | 6.00 | 20.0 |
| 106-47-8 | 4-Chloroaniline | U | 10.0 | ug/L | 3.30 | 10.0 |
| 87-68-3 | Hexachlorobutadiene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 59-50-7 | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | U | 10.0 | ug/L | 3.00 | 10.0 |
| 91-57-6 | 2-Methylnaphthalene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 90-12-0 | 1-Methylnaphthalene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 77-47-4 | Hexachlorocyclopentadiene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 88-06-2 | 2,4,6-Trichlorophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 95-95-4 | 2,4,5-Trichlorophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 91-58-7 | 2-Chloronaphthalene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 88-74-4 | 2-Nitroaniline<br>*o-Nitroaniline* | U | 10.0 | ug/L | 3.00 | 10.0 |
| 99-09-2 | 3-Nitroaniline<br>*m-Nitroaniline* | U | 10.0 | ug/L | 3.00 | 10.0 |
| 131-11-3 | Dimethylphthalate | U | 10.0 | ug/L | 3.00 | 10.0 |
| 606-20-2 | 2,6-Dinitrotoluene | U | 10.0 | ug/L | 3.00 | 10.0 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202873988** | | | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **MB for batch 1300968** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 18:50** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **1000 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1315.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 121-14-2 | 2,4-Dinitrotoluene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 208-96-8 | Acenaphthylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 83-32-9 | Acenaphthene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 51-28-5 | 2,4-Dinitrophenol | U | 20.0 | ug/L | 5.00 | 20.0 |
| 132-64-9 | Dibenzofuran | U | 10.0 | ug/L | 3.00 | 10.0 |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 84-66-2 | Diethylphthalate | U | 10.0 | ug/L | 3.00 | 10.0 |
| 100-02-7 | 4-Nitrophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 86-73-7 | Fluorene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 7005-72-3 | 4-Chlorophenylphenylether | U | 10.0 | ug/L | 3.00 | 10.0 |
| 100-01-6 | 4-Nitroaniline | U | 10.0 | ug/L | 3.00 | 10.0 |
| | *p-Nitroaniline* | | | | | |
| 534-52-1 | 2-Methyl-4,6-dinitrophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 122-39-4 | Diphenylamine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 122-66-7 | Azobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| | *1,2-Diphenylhydrazine* | | | | | |
| 101-55-3 | 4-Bromophenylphenylether | U | 10.0 | ug/L | 3.00 | 10.0 |
| 118-74-1 | Hexachlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 87-86-5 | Pentachlorophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 88-85-7 | Dinoseb | U | 10.0 | ug/L | 3.00 | 10.0 |
| 85-01-8 | Phenanthrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 120-12-7 | Anthracene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 84-74-2 | Di-n-butylphthalate | U | 10.0 | ug/L | 3.00 | 10.0 |
| 206-44-0 | Fluoranthene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 129-00-0 | Pyrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 85-68-7 | Butylbenzylphthalate | U | 10.0 | ug/L | 3.00 | 10.0 |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | U | 10.0 | ug/L | 3.00 | 10.0 |
| 56-55-3 | Benzo(a)anthracene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 218-01-9 | Chrysene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 117-84-0 | Di-n-octylphthalate | U | 10.0 | ug/L | 3.00 | 10.0 |
| 205-99-2 | Benzo(b)fluoranthene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 207-08-9 | Benzo(k)fluoranthene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 50-32-8 | Benzo(a)pyrene | U | 1.00 | ug/L | 0.440 | 1.00 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 53-70-3 | Dibenzo(a,h)anthracene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 191-24-2 | Benzo(ghi)perylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 123-91-1 | 1,4-Dioxane | U | 10.0 | ug/L | 3.00 | 10.0 |
| 55-18-5 | N-Nitrosodiethylamine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 930-55-2 | N-Nitrosopyrrolidine | U | 10.0 | ug/L | 3.00 | 10.0 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202873988** | | | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **MB for batch 1300968** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 18:50** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **1000 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1315.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 924-16-3 | N-Nitrosodi-n-butylamine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 608-93-5 | Pentachlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 1912-24-9 | Atrazine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 92-87-5 | Benzidine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 91-94-1 | 3,3'-Dichlorobenzidine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 2,4,6-Tribromophenol | 61.2 | 100 | ug/L | 61.2 | (26%-129%) |
| 2-Fluorobiphenyl | 18.8 | 50.0 | ug/L | 37.7 | (32%-102%) |
| 2-Fluorophenol | 44.0 | 100 | ug/L | 44.0 | (10%-78%) |
| Nitrobenzene-d5 | 33.3 | 50.0 | ug/L | 66.6 | (36%-125%) |
| Phenol-d5 | 26.5 | 100 | ug/L | 26.5 | (10%-104%) |
| p-Terphenyl-d14 | 51.9 | 50.0 | ug/L | 104 | (34%-135%) |

**Tentatively Identified Compound Summary**

| CAS No. | Tentatively Identified Compound (TIC) | RT | Estimated | Units | Fit | Qual |
|---|---|---|---|---|---|---|
| | unknown | 2.028 | 30.2 | ug/L | 0 | J |
| | unknown | 23.7 | 5.44 | ug/L | 0 | J |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202873989** | | | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1300968** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 19:20** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **1000 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1316.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 62-75-9 | N-Methyl-N-nitrosomethylamine | | 17.7 | ug/L | 3.00 | 10.0 |
| 110-86-1 | Pyridine | | 25.5 | ug/L | 3.00 | 10.0 |
| 62-53-3 | Aniline | | 35.3 | ug/L | 3.00 | 10.0 |
| 108-95-2 | Phenol | | 12.2 | ug/L | 3.00 | 10.0 |
| 111-44-4 | bis(2-Chloroethyl) ether | | 27.8 | ug/L | 3.00 | 10.0 |
| 95-57-8 | 2-Chlorophenol | | 30.3 | ug/L | 3.00 | 10.0 |
| 541-73-1 | 1,3-Dichlorobenzene | | 26.9 | ug/L | 3.00 | 10.0 |
| 106-46-7 | 1,4-Dichlorobenzene | | 25.7 | ug/L | 3.00 | 10.0 |
| 95-50-1 | 1,2-Dichlorobenzene | | 25.8 | ug/L | 3.00 | 10.0 |
| 39638-32-9 | bis(2-Chloroisopropyl)ether | | 30.8 | ug/L | 3.00 | 10.0 |
| 100-51-6 | Benzyl alcohol | | 28.8 | ug/L | 3.00 | 10.0 |
| 95-48-7 | o-Cresol | | 27.2 | ug/L | 3.00 | 10.0 |
| 65794-96-9 | m,p-Cresols | | 29.8 | ug/L | 3.00 | 10.0 |
| 621-64-7 | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | | 35.9 | ug/L | 3.00 | 10.0 |
| 67-72-1 | Hexachloroethane | | 26.0 | ug/L | 3.00 | 10.0 |
| 98-95-3 | Nitrobenzene | | 30.2 | ug/L | 3.00 | 10.0 |
| 78-59-1 | Isophorone | | 33.9 | ug/L | 3.00 | 10.0 |
| 88-75-5 | 2-Nitrophenol | | 29.8 | ug/L | 3.00 | 10.0 |
| 105-67-9 | 2,4-Dimethylphenol | | 34.9 | ug/L | 3.00 | 10.0 |
| 111-91-1 | bis(2-Chloroethoxy)methane | | 34.6 | ug/L | 3.00 | 10.0 |
| 120-83-2 | 2,4-Dichlorophenol | | 32.1 | ug/L | 3.00 | 10.0 |
| 65-85-0 | Benzoic acid | | 21.4 | ug/L | 6.00 | 20.0 |
| 106-47-8 | 4-Chloroaniline | | 40.1 | ug/L | 3.30 | 10.0 |
| 87-68-3 | Hexachlorobutadiene | | 25.9 | ug/L | 3.00 | 10.0 |
| 59-50-7 | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | | 32.5 | ug/L | 3.00 | 10.0 |
| 91-57-6 | 2-Methylnaphthalene | | 25.8 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | | 28.5 | ug/L | 0.300 | 1.00 |
| 90-12-0 | 1-Methylnaphthalene | | 25.2 | ug/L | 0.300 | 1.00 |
| 77-47-4 | Hexachlorocyclopentadiene | | 15.5 | ug/L | 3.00 | 10.0 |
| 88-06-2 | 2,4,6-Trichlorophenol | | 30.2 | ug/L | 3.00 | 10.0 |
| 95-95-4 | 2,4,5-Trichlorophenol | | 34.1 | ug/L | 3.00 | 10.0 |
| 91-58-7 | 2-Chloronaphthalene | | 27.6 | ug/L | 0.300 | 1.00 |
| 88-74-4 | 2-Nitroaniline<br>*o-Nitroaniline* | | 39.4 | ug/L | 3.00 | 10.0 |
| 99-09-2 | 3-Nitroaniline<br>*m-Nitroaniline* | | 37.3 | ug/L | 3.00 | 10.0 |
| 131-11-3 | Dimethylphthalate | | 35.1 | ug/L | 3.00 | 10.0 |
| 606-20-2 | 2,6-Dinitrotoluene | | 34.7 | ug/L | 3.00 | 10.0 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202873989** | | | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1300968** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 19:20** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **1000 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1316.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 121-14-2 | 2,4-Dinitrotoluene | | 38.9 | ug/L | 3.00 | 10.0 |
| 208-96-8 | Acenaphthylene | | 28.0 | ug/L | 0.300 | 1.00 |
| 83-32-9 | Acenaphthene | | 25.3 | ug/L | 0.300 | 1.00 |
| 51-28-5 | 2,4-Dinitrophenol | J | 13.9 | ug/L | 5.00 | 20.0 |
| 132-64-9 | Dibenzofuran | | 31.4 | ug/L | 3.00 | 10.0 |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | | 37.3 | ug/L | 3.00 | 10.0 |
| 84-66-2 | Diethylphthalate | | 38.4 | ug/L | 3.00 | 10.0 |
| 100-02-7 | 4-Nitrophenol | J | 4.72 | ug/L | 3.00 | 10.0 |
| 86-73-7 | Fluorene | | 33.2 | ug/L | 0.300 | 1.00 |
| 7005-72-3 | 4-Chlorophenylphenylether | | 32.1 | ug/L | 3.00 | 10.0 |
| 100-01-6 | 4-Nitroaniline | | 44.9 | ug/L | 3.00 | 10.0 |
| | *p-Nitroaniline* | | | | | |
| 534-52-1 | 2-Methyl-4,6-dinitrophenol | | 36.3 | ug/L | 3.00 | 10.0 |
| 122-39-4 | Diphenylamine | | 40.9 | ug/L | 3.00 | 10.0 |
| 122-66-7 | Azobenzene | | 36.4 | ug/L | 3.00 | 10.0 |
| | *1,2-Diphenylhydrazine* | | | | | |
| 101-55-3 | 4-Bromophenylphenylether | | 32.7 | ug/L | 3.00 | 10.0 |
| 118-74-1 | Hexachlorobenzene | | 33.5 | ug/L | 3.00 | 10.0 |
| 87-86-5 | Pentachlorophenol | | 21.4 | ug/L | 3.00 | 10.0 |
| 88-85-7 | Dinoseb | U | 10.0 | ug/L | 3.00 | 10.0 |
| 85-01-8 | Phenanthrene | | 32.0 | ug/L | 0.300 | 1.00 |
| 120-12-7 | Anthracene | | 35.0 | ug/L | 0.300 | 1.00 |
| 84-74-2 | Di-n-butylphthalate | | 34.9 | ug/L | 3.00 | 10.0 |
| 206-44-0 | Fluoranthene | | 33.4 | ug/L | 0.300 | 1.00 |
| 129-00-0 | Pyrene | | 29.6 | ug/L | 0.300 | 1.00 |
| 85-68-7 | Butylbenzylphthalate | | 29.6 | ug/L | 3.00 | 10.0 |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | | 30.0 | ug/L | 3.00 | 10.0 |
| 56-55-3 | Benzo(a)anthracene | | 32.4 | ug/L | 0.300 | 1.00 |
| 218-01-9 | Chrysene | | 32.6 | ug/L | 0.300 | 1.00 |
| 117-84-0 | Di-n-octylphthalate | | 25.4 | ug/L | 3.00 | 10.0 |
| 205-99-2 | Benzo(b)fluoranthene | | 33.8 | ug/L | 0.300 | 1.00 |
| 207-08-9 | Benzo(k)fluoranthene | | 36.4 | ug/L | 0.300 | 1.00 |
| 50-32-8 | Benzo(a)pyrene | | 31.1 | ug/L | 0.440 | 1.00 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | | 28.0 | ug/L | 0.300 | 1.00 |
| 53-70-3 | Dibenzo(a,h)anthracene | | 30.4 | ug/L | 0.300 | 1.00 |
| 191-24-2 | Benzo(ghi)perylene | | 29.4 | ug/L | 0.300 | 1.00 |
| 123-91-1 | 1,4-Dioxane | | 19.4 | ug/L | 3.00 | 10.0 |
| 55-18-5 | N-Nitrosodiethylamine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 930-55-2 | N-Nitrosopyrrolidine | | 33.9 | ug/L | 3.00 | 10.0 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202873989** | | | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1300968** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 19:20** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **1000 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1316.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 924-16-3 | N-Nitrosodi-n-butylamine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | | 24.0 | ug/L | 3.00 | 10.0 |
| 608-93-5 | Pentachlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 1912-24-9 | Atrazine | | 15.6 | ug/L | 3.00 | 10.0 |
| 92-87-5 | Benzidine | | 80.6 | ug/L | 3.00 | 10.0 |
| 91-94-1 | 3,3'-Dichlorobenzidine | | 31.6 | ug/L | 3.00 | 10.0 |
| 120-82-1 | 1,2,4-Trichlorobenzene | | 26.3 | ug/L | 3.00 | 10.0 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 2,4,6-Tribromophenol | 65.7 | 100 | ug/L | 65.7 | (26%-129%) |
| 2-Fluorobiphenyl | 25.5 | 50.0 | ug/L | 51.0 | (32%-102%) |
| 2-Fluorophenol | 37.6 | 100 | ug/L | 37.6 | (10%-78%) |
| Nitrobenzene-d5 | 30.3 | 50.0 | ug/L | 60.7 | (36%-125%) |
| Phenol-d5 | 24.8 | 100 | ug/L | 24.8 | (10%-104%) |
| p-Terphenyl-d14 | 37.5 | 50.0 | ug/L | 74.9 | (34%-135%) |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | **Date Collected:** | **05/07/2013 09:30** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202873990** | **Date Received:** | **05/08/2013 08:55** | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **WST55-13-32015MS** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **20** |
| **Run Date:** | **05/14/2013 00:47** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **430 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1327.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 62-75-9 | N-Methyl-N-nitrosomethylamine | U | 465 | ug/L | 140 | 465 |
| 110-86-1 | Pyridine | U | 465 | ug/L | 140 | 465 |
| 62-53-3 | Aniline | U | 465 | ug/L | 140 | 465 |
| 108-95-2 | Phenol | U | 465 | ug/L | 140 | 465 |
| 111-44-4 | bis(2-Chloroethyl) ether | U | 465 | ug/L | 140 | 465 |
| 95-57-8 | 2-Chlorophenol | U | 465 | ug/L | 140 | 465 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 465 | ug/L | 140 | 465 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 465 | ug/L | 140 | 465 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 465 | ug/L | 140 | 465 |
| 39638-32-9 | bis(2-Chloroisopropyl)ether | U | 465 | ug/L | 140 | 465 |
| 100-51-6 | Benzyl alcohol | U | 465 | ug/L | 140 | 465 |
| 95-48-7 | o-Cresol | U | 465 | ug/L | 140 | 465 |
| 65794-96-9 | m,p-Cresols | U | 465 | ug/L | 140 | 465 |
| 621-64-7 | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | U | 465 | ug/L | 140 | 465 |
| 67-72-1 | Hexachloroethane | U | 465 | ug/L | 140 | 465 |
| 98-95-3 | Nitrobenzene | U | 465 | ug/L | 140 | 465 |
| 78-59-1 | Isophorone | U | 465 | ug/L | 140 | 465 |
| 88-75-5 | 2-Nitrophenol | U | 465 | ug/L | 140 | 465 |
| 105-67-9 | 2,4-Dimethylphenol | U | 465 | ug/L | 140 | 465 |
| 111-91-1 | bis(2-Chloroethoxy)methane | U | 465 | ug/L | 140 | 465 |
| 120-83-2 | 2,4-Dichlorophenol | U | 465 | ug/L | 140 | 465 |
| 65-85-0 | Benzoic acid | U | 930 | ug/L | 279 | 930 |
| 106-47-8 | 4-Chloroaniline | U | 465 | ug/L | 153 | 465 |
| 87-68-3 | Hexachlorobutadiene | U | 465 | ug/L | 140 | 465 |
| 59-50-7 | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | U | 465 | ug/L | 140 | 465 |
| 91-57-6 | 2-Methylnaphthalene | | 47.9 | ug/L | 14.0 | 46.5 |
| 91-20-3 | Naphthalene | J | 41.9 | ug/L | 14.0 | 46.5 |
| 90-12-0 | 1-Methylnaphthalene | | 46.5 | ug/L | 14.0 | 46.5 |
| 77-47-4 | Hexachlorocyclopentadiene | U | 465 | ug/L | 140 | 465 |
| 88-06-2 | 2,4,6-Trichlorophenol | U | 465 | ug/L | 140 | 465 |
| 95-95-4 | 2,4,5-Trichlorophenol | U | 465 | ug/L | 140 | 465 |
| 91-58-7 | 2-Chloronaphthalene | J | 43.7 | ug/L | 14.0 | 46.5 |
| 88-74-4 | 2-Nitroaniline<br>*o-Nitroaniline* | U | 465 | ug/L | 140 | 465 |
| 99-09-2 | 3-Nitroaniline<br>*m-Nitroaniline* | U | 465 | ug/L | 140 | 465 |
| 131-11-3 | Dimethylphthalate | U | 465 | ug/L | 140 | 465 |
| 606-20-2 | 2,6-Dinitrotoluene | U | 465 | ug/L | 140 | 465 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | **Date Collected:** | **05/07/2013 09:30** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202873990** | **Date Received:** | **05/08/2013 08:55** | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **WST55-13-32015MS** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **20** |
| **Run Date:** | **05/14/2013 00:47** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **430 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1327.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 121-14-2 | 2,4-Dinitrotoluene | U | 465 | ug/L | 140 | 465 |
| 208-96-8 | Acenaphthylene | J | 43.7 | ug/L | 14.0 | 46.5 |
| 83-32-9 | Acenaphthene | J | 44.2 | ug/L | 14.0 | 46.5 |
| 51-28-5 | 2,4-Dinitrophenol | U | 930 | ug/L | 233 | 930 |
| 132-64-9 | Dibenzofuran | U | 465 | ug/L | 140 | 465 |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | U | 465 | ug/L | 140 | 465 |
| 84-66-2 | Diethylphthalate | U | 465 | ug/L | 140 | 465 |
| 100-02-7 | 4-Nitrophenol | U | 465 | ug/L | 140 | 465 |
| 86-73-7 | Fluorene | J | 43.7 | ug/L | 14.0 | 46.5 |
| 7005-72-3 | 4-Chlorophenylphenylether | U | 465 | ug/L | 140 | 465 |
| 100-01-6 | 4-Nitroaniline | U | 465 | ug/L | 140 | 465 |
| | *p-Nitroaniline* | | | | | |
| 534-52-1 | 2-Methyl-4,6-dinitrophenol | U | 465 | ug/L | 140 | 465 |
| 122-39-4 | Diphenylamine | U | 465 | ug/L | 140 | 465 |
| 122-66-7 | Azobenzene | U | 465 | ug/L | 140 | 465 |
| | *1,2-Diphenylhydrazine* | | | | | |
| 101-55-3 | 4-Bromophenylphenylether | U | 465 | ug/L | 140 | 465 |
| 118-74-1 | Hexachlorobenzene | U | 465 | ug/L | 140 | 465 |
| 87-86-5 | Pentachlorophenol | U | 465 | ug/L | 140 | 465 |
| 88-85-7 | Dinoseb | U | 465 | ug/L | 140 | 465 |
| 85-01-8 | Phenanthrene | J | 44.2 | ug/L | 14.0 | 46.5 |
| 120-12-7 | Anthracene | J | 42.3 | ug/L | 14.0 | 46.5 |
| 84-74-2 | Di-n-butylphthalate | U | 465 | ug/L | 140 | 465 |
| 206-44-0 | Fluoranthene | J | 39.5 | ug/L | 14.0 | 46.5 |
| 129-00-0 | Pyrene | | 53.0 | ug/L | 14.0 | 46.5 |
| 85-68-7 | Butylbenzylphthalate | U | 465 | ug/L | 140 | 465 |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | U | 465 | ug/L | 140 | 465 |
| 56-55-3 | Benzo(a)anthracene | J | 42.3 | ug/L | 14.0 | 46.5 |
| 218-01-9 | Chrysene | J | 41.9 | ug/L | 14.0 | 46.5 |
| 117-84-0 | Di-n-octylphthalate | U | 465 | ug/L | 140 | 465 |
| 205-99-2 | Benzo(b)fluoranthene | | 50.7 | ug/L | 14.0 | 46.5 |
| 207-08-9 | Benzo(k)fluoranthene | | 52.1 | ug/L | 14.0 | 46.5 |
| 50-32-8 | Benzo(a)pyrene | J | 36.7 | ug/L | 20.5 | 46.5 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | J | 23.7 | ug/L | 14.0 | 46.5 |
| 53-70-3 | Dibenzo(a,h)anthracene | J | 23.7 | ug/L | 14.0 | 46.5 |
| 191-24-2 | Benzo(ghi)perylene | J | 24.7 | ug/L | 14.0 | 46.5 |
| 123-91-1 | 1,4-Dioxane | U | 465 | ug/L | 140 | 465 |
| 55-18-5 | N-Nitrosodiethylamine | U | 465 | ug/L | 140 | 465 |
| 930-55-2 | N-Nitrosopyrrolidine | U | 465 | ug/L | 140 | 465 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | **Date Collected:** | **05/07/2013 09:30** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202873990** | **Date Received:** | **05/08/2013 08:55** | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **WST55-13-32015MS** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **20** |
| **Run Date:** | **05/14/2013 00:47** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **430 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1327.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 924-16-3 | N-Nitrosodi-n-butylamine | U | 465 | ug/L | 140 | 465 |
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | U | 465 | ug/L | 140 | 465 |
| 608-93-5 | Pentachlorobenzene | U | 465 | ug/L | 140 | 465 |
| 1912-24-9 | Atrazine | U | 465 | ug/L | 140 | 465 |
| 92-87-5 | Benzidine | U | 465 | ug/L | 140 | 465 |
| 91-94-1 | 3,3'-Dichlorobenzidine | U | 465 | ug/L | 140 | 465 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 465 | ug/L | 140 | 465 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | | Acceptable Limits |
|---|---|---|---|---|---|---|
| 2,4,6-Tribromophenol | 0.00 | 233 | ug/L | 0.00 | * | (26%-129%) |
| 2-Fluorobiphenyl | 39.5 | 116 | ug/L | 34.0 | | (32%-102%) |
| 2-Fluorophenol | 0.00 | 233 | ug/L | 0.00 | * | (10%-78%) |
| Nitrobenzene-d5 | 37.7 | 116 | ug/L | 32.4 | * | (36%-125%) |
| Phenol-d5 | 0.00 | 233 | ug/L | 0.00 | * | (10%-104%) |
| p-Terphenyl-d14 | 69.3 | 116 | ug/L | 59.6 | | (34%-135%) |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | **Date Collected:** | **05/07/2013 09:30** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202873991** | **Date Received:** | **05/08/2013 08:55** | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **WST55-13-32015MSD** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **20** |
| **Run Date:** | **05/14/2013 01:17** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **430 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1328.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 62-75-9 | N-Methyl-N-nitrosomethylamine | U | 465 | ug/L | 140 | 465 |
| 110-86-1 | Pyridine | U | 465 | ug/L | 140 | 465 |
| 62-53-3 | Aniline | U | 465 | ug/L | 140 | 465 |
| 108-95-2 | Phenol | U | 465 | ug/L | 140 | 465 |
| 111-44-4 | bis(2-Chloroethyl) ether | U | 465 | ug/L | 140 | 465 |
| 95-57-8 | 2-Chlorophenol | U | 465 | ug/L | 140 | 465 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 465 | ug/L | 140 | 465 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 465 | ug/L | 140 | 465 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 465 | ug/L | 140 | 465 |
| 39638-32-9 | bis(2-Chloroisopropyl)ether | U | 465 | ug/L | 140 | 465 |
| 100-51-6 | Benzyl alcohol | U | 465 | ug/L | 140 | 465 |
| 95-48-7 | o-Cresol | U | 465 | ug/L | 140 | 465 |
| 65794-96-9 | m,p-Cresols | U | 465 | ug/L | 140 | 465 |
| 621-64-7 | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | U | 465 | ug/L | 140 | 465 |
| 67-72-1 | Hexachloroethane | U | 465 | ug/L | 140 | 465 |
| 98-95-3 | Nitrobenzene | U | 465 | ug/L | 140 | 465 |
| 78-59-1 | Isophorone | U | 465 | ug/L | 140 | 465 |
| 88-75-5 | 2-Nitrophenol | U | 465 | ug/L | 140 | 465 |
| 105-67-9 | 2,4-Dimethylphenol | U | 465 | ug/L | 140 | 465 |
| 111-91-1 | bis(2-Chloroethoxy)methane | U | 465 | ug/L | 140 | 465 |
| 120-83-2 | 2,4-Dichlorophenol | U | 465 | ug/L | 140 | 465 |
| 65-85-0 | Benzoic acid | U | 930 | ug/L | 279 | 930 |
| 106-47-8 | 4-Chloroaniline | U | 465 | ug/L | 153 | 465 |
| 87-68-3 | Hexachlorobutadiene | U | 465 | ug/L | 140 | 465 |
| 59-50-7 | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | U | 465 | ug/L | 140 | 465 |
| 91-57-6 | 2-Methylnaphthalene | J | 45.1 | ug/L | 14.0 | 46.5 |
| 91-20-3 | Naphthalene | J | 40.9 | ug/L | 14.0 | 46.5 |
| 90-12-0 | 1-Methylnaphthalene | J | 41.9 | ug/L | 14.0 | 46.5 |
| 77-47-4 | Hexachlorocyclopentadiene | U | 465 | ug/L | 140 | 465 |
| 88-06-2 | 2,4,6-Trichlorophenol | U | 465 | ug/L | 140 | 465 |
| 95-95-4 | 2,4,5-Trichlorophenol | U | 465 | ug/L | 140 | 465 |
| 91-58-7 | 2-Chloronaphthalene | J | 42.3 | ug/L | 14.0 | 46.5 |
| 88-74-4 | 2-Nitroaniline<br>*o-Nitroaniline* | U | 465 | ug/L | 140 | 465 |
| 99-09-2 | 3-Nitroaniline<br>*m-Nitroaniline* | U | 465 | ug/L | 140 | 465 |
| 131-11-3 | Dimethylphthalate | U | 465 | ug/L | 140 | 465 |
| 606-20-2 | 2,6-Dinitrotoluene | U | 465 | ug/L | 140 | 465 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | **Date Collected:** | **05/07/2013 09:30** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202873991** | **Date Received:** | **05/08/2013 08:55** | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **WST55-13-32015MSD** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **20** |
| **Run Date:** | **05/14/2013 01:17** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **430 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1328.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 121-14-2 | 2,4-Dinitrotoluene | U | 465 | ug/L | 140 | 465 |
| 208-96-8 | Acenaphthylene | J | 44.2 | ug/L | 14.0 | 46.5 |
| 83-32-9 | Acenaphthene | J | 42.3 | ug/L | 14.0 | 46.5 |
| 51-28-5 | 2,4-Dinitrophenol | U | 930 | ug/L | 233 | 930 |
| 132-64-9 | Dibenzofuran | U | 465 | ug/L | 140 | 465 |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | U | 465 | ug/L | 140 | 465 |
| 84-66-2 | Diethylphthalate | U | 465 | ug/L | 140 | 465 |
| 100-02-7 | 4-Nitrophenol | U | 465 | ug/L | 140 | 465 |
| 86-73-7 | Fluorene | J | 41.9 | ug/L | 14.0 | 46.5 |
| 7005-72-3 | 4-Chlorophenylphenylether | U | 465 | ug/L | 140 | 465 |
| 100-01-6 | 4-Nitroaniline | U | 465 | ug/L | 140 | 465 |
| | *p-Nitroaniline* | | | | | |
| 534-52-1 | 2-Methyl-4,6-dinitrophenol | U | 465 | ug/L | 140 | 465 |
| 122-39-4 | Diphenylamine | U | 465 | ug/L | 140 | 465 |
| 122-66-7 | Azobenzene | U | 465 | ug/L | 140 | 465 |
| | *1,2-Diphenylhydrazine* | | | | | |
| 101-55-3 | 4-Bromophenylphenylether | U | 465 | ug/L | 140 | 465 |
| 118-74-1 | Hexachlorobenzene | U | 465 | ug/L | 140 | 465 |
| 87-86-5 | Pentachlorophenol | U | 465 | ug/L | 140 | 465 |
| 88-85-7 | Dinoseb | U | 465 | ug/L | 140 | 465 |
| 85-01-8 | Phenanthrene | J | 42.3 | ug/L | 14.0 | 46.5 |
| 120-12-7 | Anthracene | J | 41.4 | ug/L | 14.0 | 46.5 |
| 84-74-2 | Di-n-butylphthalate | U | 465 | ug/L | 140 | 465 |
| 206-44-0 | Fluoranthene | J | 40.9 | ug/L | 14.0 | 46.5 |
| 129-00-0 | Pyrene | J | 44.7 | ug/L | 14.0 | 46.5 |
| 85-68-7 | Butylbenzylphthalate | U | 465 | ug/L | 140 | 465 |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | U | 465 | ug/L | 140 | 465 |
| 56-55-3 | Benzo(a)anthracene | J | 41.9 | ug/L | 14.0 | 46.5 |
| 218-01-9 | Chrysene | J | 39.5 | ug/L | 14.0 | 46.5 |
| 117-84-0 | Di-n-octylphthalate | U | 465 | ug/L | 140 | 465 |
| 205-99-2 | Benzo(b)fluoranthene | J | 45.1 | ug/L | 14.0 | 46.5 |
| 207-08-9 | Benzo(k)fluoranthene | | 59.1 | ug/L | 14.0 | 46.5 |
| 50-32-8 | Benzo(a)pyrene | J | 39.1 | ug/L | 20.5 | 46.5 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | J | 30.2 | ug/L | 14.0 | 46.5 |
| 53-70-3 | Dibenzo(a,h)anthracene | J | 25.1 | ug/L | 14.0 | 46.5 |
| 191-24-2 | Benzo(ghi)perylene | J | 27.4 | ug/L | 14.0 | 46.5 |
| 123-91-1 | 1,4-Dioxane | U | 465 | ug/L | 140 | 465 |
| 55-18-5 | N-Nitrosodiethylamine | U | 465 | ug/L | 140 | 465 |
| 930-55-2 | N-Nitrosopyrrolidine | U | 465 | ug/L | 140 | 465 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-822** | **Date Collected:** | **05/07/2013 09:30** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202873991** | **Date Received:** | **05/08/2013 08:55** | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **WST55-13-32015MSD** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **20** |
| **Run Date:** | **05/14/2013 01:17** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **430 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1328.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 924-16-3 | N-Nitrosodi-n-butylamine | U | 465 | ug/L | 140 | 465 |
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | U | 465 | ug/L | 140 | 465 |
| 608-93-5 | Pentachlorobenzene | U | 465 | ug/L | 140 | 465 |
| 1912-24-9 | Atrazine | U | 465 | ug/L | 140 | 465 |
| 92-87-5 | Benzidine | U | 465 | ug/L | 140 | 465 |
| 91-94-1 | 3,3'-Dichlorobenzidine | U | 465 | ug/L | 140 | 465 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 465 | ug/L | 140 | 465 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | | Acceptable Limits |
|---|---|---|---|---|---|---|
| 2,4,6-Tribromophenol | 0.00 | 233 | ug/L | 0.00 | * | (26%-129%) |
| 2-Fluorobiphenyl | 35.3 | 116 | ug/L | 30.4 | * | (32%-102%) |
| 2-Fluorophenol | 0.00 | 233 | ug/L | 0.00 | * | (10%-78%) |
| Nitrobenzene-d5 | 35.3 | 116 | ug/L | 30.4 | * | (36%-125%) |
| Phenol-d5 | 0.00 | 233 | ug/L | 0.00 | * | (10%-104%) |
| p-Terphenyl-d14 | 59.5 | 116 | ug/L | 51.2 | | (34%-135%) |

# Miscellaneous

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 14-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| SEMIVOA GC/MS | SW846 8270C | Liquid | ARSL (ESHL) |
| **Batch ID:** | **Sample Numbers:** | | |
| 1300969 | See Below | | |

**Potentially affected work order(s)(SDG):** **325284(2013-809),325285(2013-810),325394(2013-813),325410(2013-814),325479(2013-822),325480(2013-823)**

**Application Issues:**

Failed Recovery for MS/PS

Failed Recovery for LCS/LCSD

Failed Yield for Surrogates

Failed Recovery for MSD/PSD

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Sample 325285001, the MS(1202873990), and MSD(1202873991) failed surrogate recovery limits. Please see the QC Summary/Spike Recovery Report for specific failures. | 1. The samples were analyzed at a dilution due to the presence of non-target analytes. As a result, some surrogates were diluted out of the acceptance criteria and the data results have been reported. |
| 2. The LCS(1202873989) did not meet spike recovery limits for 4-Nitrophenol at 9% (limits: 16%-77%) and Atrazine at 31% (limits: 47%-115%). | 2. The 4-Nitrophenol and Atrazine failures represent less than 5% of the total requested spike analyte list. That satisfied the acceptance criteria for the client and the data results have been reported. |
| 3. The MS(1202873990) and MSD(1202873991) failed multiple spike recovery limits. Please see the QC Summary/Spike Recovery Report for specific failures. | 3. The samples were analyzed at a dilution due to the presence of non-target analytes. As a result, some spike analytes were diluted out of the acceptance criteria and the data results have been reported. |

**Originator's Name:**

Josh Brooks 14-MAY-13

**Data Validator/Group Leader:**

Barbara Bailey 15-MAY-13

# Perchlorates by LCMSMS Analysis

# Case Narrative

**Perchlorate by LC/MSMS**
**ARS International (ARSL)**
**SDG 2013-822**

## Method/Analysis Information

| | |
|---|---|
| **Procedure:** | **Definitive Low Level Perchlorate Analysis Utilizing Liquid Chromatography/Mass Spectrometry/Mass Spectrometry (LC/MS/MS) by EPA Method 6850 Modified (6850M)** |
| Analytical Method: | SW846 6850 Modified |
| Prep Method: | SW846 6850 Modified |
| Analytical Batch Number: | 1301785 |
| Prep Batch Number: | 1301783 |

## Sample Analysis

| Sample ID | Client ID |
|---|---|
| 325479002 | CAMO-13-30602 |
| 325479005 | CAMO-13-30564 |
| 1202876024 | Interference Check Sample (ICS) |
| 1202876020 | Method Blank (MB) |
| 1202876021 | Laboratory Control Sample (LCS) |
| 1202876022 | 325284004(CAMO-13-30592) Matrix Spike (MS) |
| 1202876023 | 325284004(CAMO-13-30592) Matrix Spike Duplicate (MSD) |

The samples in this SDG were analyzed on an "as received" basis.

## Preparation/Analytical Method Verification

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-067 REV# 10.

## Calibration Information

**Initial Calibration**
All initial calibration requirements have been met for this SDG. Due to software constraints, all Initial

Calibration Blanks must be designated as IPB001.

**ICV Requirements**
All associated initial calibration verification standard(s) (ICV) met the acceptance criteria.

**CCB Requirements**
All continuing calibration blanks (CCB) bracketing the analyses associated with this batch were within acceptance criteria.

**CCV Requirements**
All continuing calibration checks (CCV) requirements were met by all bracketing CCV standards.

**Low Level Standard (CRI) Requirements**
All low level calibration verification (CRI) requirements were met by all bracketing CRI standards.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Interference Check Sample (ICS)**
The ICS met all recovery acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recoveries met the acceptance limits.

**QC Sample Designation**
Client sample 325284004 (CAMO-13-30592) was chosen for matrix spike and matrix spike duplicate analysis.

**Matrix Spike (MS) Recovery Statement**
The MS recoveries were within the established acceptance limits.

**Matrix Spike Duplicate (MSD) Recovery Statement**
The MSD recoveries were within the established acceptance limits.

**MS/MSD Relative Percent Difference (RPD) Statement**
The RPD(s) between the MS and MSD met the acceptance limits.

**Retention Time Standard Area Acceptance**
The retention time standard areas were within the required acceptance criteria for all samples and QC.

**Retention Time**
During the analysis of Perchlorate by LC/MS/MS, retention time shifts are commonly observed. These retention time shifts, which are caused by fouling of the column by the sample matrices, are problematic when the retention time is used as one of the criterion for confirmation. To overcome this problem, a known amount of O(18) labeled Perchlorate was added to each sample as a retention time standard. The presence of Perchlorate was confirmed by the relative retention time (RRT) of the Perchlorate peak and the O(18) standard. A RRT window of 0.98 to 1.02, as required by Method 332.0, has been used. In addition to the isotopic ratio, the presence of Perchlorate in the samples associated with this data package have been confirmed using the relative retention criteria stated above, not the absolute retention time.

**Technical Information**

**Holding Time Specifications**
All samples in this SDG in this analytical batch met the specified holding time. GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those

holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

**Preparation/Analytical Method Verification**
All procedures were performed as stated in the SOP.

**Sample Dilutions**
Samples 1202876022 (CAMO-13-30592) and 1202876023 (CAMO-13-30592) were diluted to bring the over range concentrations within the calibration range.

**Sample Re-extraction/Re-analysis**
Sample 325479002 (CAMO-13-30602) was re-analyzed to confirm potential carryover from the previous sample analysis. The re-analysis was reported.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Manual Integrations**
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations.

**Method Comments**
The samples in this SDG were not originally analyzed using EPA Method 314.0.

**Additional Comments**
The Perchlorate Isotope Ratio on the Form I may differ slightly from the ratio on the corresponding raw data due to rounding rules and/or significant figures or due to software limitations when there are manual integrations, dilutions or other factors. The ratio value of the Form I is the correct value. The retention time marker, Perchlorate-O (18), is added to all samples, instrument blanks, and standards prior to injection. It is used to verify the retention time of Perchlorate and Perchlorate-101 and to insure an accurate injection occurred. Due to various anions affecting the recovery of Perchlorate-O (18) and not Perchlorate and Perchlorate-101, the calibration curves of Perchlorate and Perchlorate-101 are not internally corrected for using Perchlorate-O (18). They are external calibrations.

**Perchlorate Isotope Ratio**
The Perchlorate isotope ratio met acceptance criteria for all samples and QC samples. Please see the isotope ratio criteria in the Miscellaneous Section.

**System Configuration**

The laboratory utilizes a Waters LC 2795 liquid chromatography instrument for Perchlorate analysis. It is coupled with either a Micromass Quattro Micro Mass Spectrometer/ Mass Spectrometer, or a Micromass Quattro Ultima Mass Spectrometer/ Mass Spectrometer. Each being designated as LCMSMS #1 and LCMSMS #2, respectively. It is fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis. The laboratory may also utilize an Agilent 1100 liquid chromatography instrument for Perchlorate analysis. It is coupled with an Applied Biosystems 4000 Mass Spectrometer/ Mass Spectrometer, designated as LCMSMS #3 or LCMSMS #4. It is also fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages

electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Chromatographic Columns**

Chromatographic separation of Perchlorate is accomplished through analysis on the following anion column:

Dionex: IonPac AG-16 2 x 50 mm.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-822 GEL Work Order: 325479

**The Qualifiers in this report are defined as follows:**

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

**Review/Validation**

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

**Signature:** Pat Steele **Name: Patricia Steele**

**Date: 28 MAY 2013** **Title: Data Validator**

# Sample Data Summary

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1301783

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CAMO-13-30602

**Date Received:** 10-MAY-13

**GEL Job No (SDG):** 2013-822

**GEL Sample ID:** 325479002

**Date Filtered:** 15-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.739 | ug/L | | 1 | 21-MAY-13 14:31 | per0521016a |
| | Perchlorate Isotope Ratio | | | 3.13 | | | 1 | 21-MAY-13 14:31 | per0521016a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.738 | ug/L | | 1 | 21-MAY-13 14:31 | per0521016a |
| | Perchlorate-O(18) | | | 0.517 | ug/L | | 1 | 21-MAY-13 14:31 | per0521016a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1301783

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CAMO-13-30564

**Date Received:** 10-MAY-13

**GEL Job No (SDG):** 2013-822

**GEL Sample ID:** 325479005

**Date Filtered:** 15-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.725 | ug/L | | 1 | 20-MAY-13 17:53 | per0520036a |
| | Perchlorate Isotope Ratio | | | 3.14 | | | 1 | 20-MAY-13 17:53 | per0520036a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.718 | ug/L | | 1 | 20-MAY-13 17:53 | per0520036a |
| | Perchlorate-O(18) | | | 0.523 | ug/L | | 1 | 20-MAY-13 17:53 | per0520036a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Quality Control Summary

## Perchlorate Laboratory Control Sample

**Lab Name:** General Engineering Laboratories

**Lab Code:** GEL

**GEL Job No. (SDG):** 2013-822

**Extract Batch Code:** 1301783

**Date Filtered:** 15-MAY-13

**Matrix:** WATER

**Sample ID:** 1202876021

| Analyte^ | True | Found | Units | %Rec | Q | Control Limits |
|---|---|---|---|---|---|---|
| Perchlorate | 0.200 | .203 | ug/L | 102 | | 85 - 115 |
| Perchlorate Isotope Ratio | | 3 | | | | - |
| Perchlorate-101 | 0.200 | .21 | ug/L | 105 | | 85 - 115 |
| Perchlorate-O(18) | | .505 | ug/L | | | - |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

## Perchlorate Spike/Spike Duplicate Summary

**Lab Name:** General Engineering Laboratories

**Lab Code:** GEL

**GEL Job No (SDG):** 2013-822

**Extract Batch Code:** 1301783

**Date Extracted:** 15-MAY-13

**GEL MS/PS ID:** 1202876022

**Client ID:** CAMO-13-30592

**GEL MSD/PSD ID:** 1202876023

**QC Type:** MS

| Compound^ | Spike Added | Sample Conc | Units | MS Conc | MS Rec # | MSD Conc | MSD Rec # | RPD # | RPD Limit | Recovery Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| Perchlorate | 0.200 | 0.931 | ug/L | 1.11 | 90 | 1.16 | 114 | 4.19 | 30 | 75 - 125 |
| Perchlorate Isotope Ratio | 0 | 3.07 | | 3.13 | | 3.05 | | 2.52 | | - |
| Perchlorate-101 | 0.200 | 0.944 | ug/L | 1.10 | 80.5 | 1.18 | 119 | 6.71 | 30 | 75 - 125 |
| Perchlorate-O(18) | 0 | 0.994 | ug/L | 0.985 | | 1.02 | | 3.41 | | - |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

# Quality Control Data

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** EPA 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1301783

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
MB

**Date Received:** 15-MAY-13

**GEL Job No (SDG):** 2013-822

**GEL Sample ID:** 1202876020

**Date Filtered:** 15-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.050 | ug/L | U | 1 | 20-MAY-13 15:52 | per0520021a |
| | Perchlorate Isotope Ratio | | | | | | 1 | 20-MAY-13 15:52 | per0520021a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.050 | ug/L | U | 1 | 20-MAY-13 15:52 | per0520021a |
| | Perchlorate-O(18) | | | 0.496 | ug/L | | 1 | 20-MAY-13 15:52 | per0520021a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** EPA 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1301783

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
LCS

**Date Received:** 15-MAY-13

**GEL Job No (SDG):** 2013-822

**GEL Sample ID:** 1202876021

**Date Filtered:** 15-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.203 | ug/L | | 1 | 20-MAY-13 16:00 | per0520022a |
| | Perchlorate Isotope Ratio | | | 3 | | | 1 | 20-MAY-13 16:00 | per0520022a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.210 | ug/L | | 1 | 20-MAY-13 16:00 | per0520022a |
| | Perchlorate-O(18) | | | 0.505 | ug/L | | 1 | 20-MAY-13 16:00 | per0520022a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1301783

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
ICS

**Date Received:**

**GEL Job No (SDG):** 2013-822

**GEL Sample ID:** 1202876024

**Date Filtered:** 15-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.209 | ug/L | | 1 | 20-MAY-13 16:08 | per0520023a |
| | Perchlorate Isotope Ratio | | | 3.07 | | | 1 | 20-MAY-13 16:08 | per0520023a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.212 | ug/L | | 1 | 20-MAY-13 16:08 | per0520023a |
| | Perchlorate-O(18) | | | 0.506 | ug/L | | 1 | 20-MAY-13 16:08 | per0520023a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1301783

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CAMO-13-30592MS

**Date Received:** 08-MAY-13

**GEL Job No (SDG):** 2013-822

**GEL Sample ID:** 1202876022

**Date Filtered:** 15-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .1 | .4 | 1.11 | ug/L | | 2 | 20-MAY-13 19:29 | per0520048a |
| | Perchlorate Isotope Ratio | | | 3.13 | | | 2 | 20-MAY-13 19:29 | per0520048a |
| 14797-73-0 | Perchlorate-101 | .1 | .4 | 1.10 | ug/L | | 2 | 20-MAY-13 19:29 | per0520048a |
| | Perchlorate-O(18) | | | 0.985 | ug/L | | 2 | 20-MAY-13 19:29 | per0520048a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1301783

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CAMO-13-30592MSD

**Date Received:** 08-MAY-13

**GEL Job No (SDG):** 2013-822

**GEL Sample ID:** 1202876023

**Date Filtered:** 15-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .1 | .4 | 1.16 | ug/L | | 2 | 20-MAY-13 19:37 | per0520049a |
| | Perchlorate Isotope Ratio | | | 3.05 | | | 2 | 20-MAY-13 19:37 | per0520049a |
| 14797-73-0 | Perchlorate-101 | .1 | .4 | 1.18 | ug/L | | 2 | 20-MAY-13 19:37 | per0520049a |
| | Perchlorate-O(18) | | | 1.02 | ug/L | | 2 | 20-MAY-13 19:37 | per0520049a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Metals Analysis

# Case Narrative

**Metals Fractional Narrative**
**ARS International (ARSL)**
**SDG 2013-822**

## Sample Analysis

| Sample ID | Client ID |
|---|---|
| 325479002 | CAMO-13-30602 |
| 325479005 | CAMO-13-30564 |
| 1202874202 | Method Blank (MB) **ICP** |
| 1202874203 | Laboratory Control Sample (LCS) |
| 1202874206 | 325480002(CAMO-13-30589L) Serial Dilution (SD) |
| 1202874204 | 325480002(CAMO-13-30589D) Sample Duplicate (DUP) |
| 1202874205 | 325480002(CAMO-13-30589S) Matrix Spike (MS) |
| 1202874210 | Method Blank (MB) **ICP-MS** |
| 1202874211 | Laboratory Control Sample (LCS) |
| 1202874214 | 325480002(CAMO-13-30589L) Serial Dilution (SD) |
| 1202874212 | 325480002(CAMO-13-30589D) Sample Duplicate (DUP) |
| 1202874213 | 325480002(CAMO-13-30589S) Matrix Spike (MS) |
| 1202878660 | Method Blank (MB) **CVAA** |
| 1202878667 | Laboratory Control Sample (LCS) |
| 1202878664 | 325479002(CAMO-13-30602L) Serial Dilution (SD) |
| 1202878662 | 325479002(CAMO-13-30602D) Sample Duplicate (DUP) |
| 1202878666 | 325479002(CAMO-13-30602S) Matrix Spike (MS) |

## Method/Analysis Information

| | |
|---|---|
| **Analytical Batch:** | 1301065, 1301067, 1302856 and 1305711 |
| **Prep Batch :** | 1301064, 1301066 and 1302851 |
| **Standard Operating Procedures:** | GL-MA-E-013 REV# 22, GL-MA-E-006 REV# 9, GL-MA-E-014 REV# 25, GL-MA-E-010 REV# 26 and GL-GC-E-107 REV# 8 |
| **Analytical Method:** | SW846 3005/6010B, SW846 3005/6020 DOE-AL, EPA 245.1/245.2 and SM 2340 B |

**Prep Method :** SW846 3005A and EPA 245.1/245.2 Prep

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

**System Configuration**

The Hardness as CaCO3 is calculated from Calcium and Magnesium results.

The Metals analysis-ICP was performed on a P E 5300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis-ICP was performed on a PE 7300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN 9000 inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadruple mass spectrometer, and dual mode electron multiplier detector. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum. Operating conditions are set at 1400W power and combined argon pressures of 360+/-7 kPa for the plasma and auxiliary gases, and 0.85 L/min carrier gas flow, and an initial lens voltage of 5.2.

The Metals analysis-Mercury was performed on a Perkin-Elmer Flow Injection Mercury System (FIMS-100) automated mercury analyzer. The instrument consists of a cold vapor atomic absorption spectrometer set to detect mercury at a wavelength of 253.7 nm. Sample introduction through the flow injection system is performed via a peristaltic pump at 9 mL/min and nitrogen carrier gas rate of 80 mL/min.

**Calibration Information**

**Instrument Calibration**
All initial calibration requirements have been met for this sample delivery group (SDG).

**CRDL Requirements**
All CRDL standards met the referenced advisory control limits.

**ICSA/ICSAB Statement**
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

**Continuing Calibration Blank (CCB) Requirements**
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

**Continuing Calibration Verification (CCV) Requirements**
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MBs analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recoveries met the acceptance limits.

**Quality Control (QC) Sample Statement**
The following samples were selected as the quality control (QC) samples for this SDG: 325480002 (CAMO-13-30589)-ICP and ICP-MS and 325479002 (CAMO-13-30602)-CVAA.

**Matrix Spike (MS) Recovery Statement**
The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The MS met the recommended quality control acceptance criteria for percent recoveries for all applicable analytes with the exception of nickel

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. All applicable analytes met these requirements.

**Serial Dilution % Difference Statement**
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations that are 25X the IDL/MDL for CVAA, 50X the IDL/MDL for ICP, and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the acceptance criteria of less than 10% difference (%D).

## Technical Information

### Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

### Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

### Sample Dilutions
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. The samples in this SDG did not require dilutions.

### Preparation Information
The samples in this SDG were prepared exactly according to the cited SOP.

## Miscellaneous Information

### Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

### Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. The following DER was generated for this SDG: 1191916. A copy is included in the Miscellaneous Data section of this package.

### Additional Comments
Additional comments were not required for this SDG.
Total Hardness by Calculation is determined using the results of Total Calcium (Ca) and

Total Magnesium (Mg) determined by ICP or ICP-MS.

Hardness = 2.497 (Ca) + 4.118 (Mg)

Please refer to the Total Ca and Total Mg data to validate results appearing on the Hardness Summary sheet. Both results are in the Inorganic/metals section of the package. There is no Batch QC for calculated results, and thus no QC Summary for the Hardness by Calculation Batch. The MDLs and PQLs are calculated using the higher of the two calculated values of Ca or Mg.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

**Review Validation:**

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

**The following data validator verified the information presented in this case narrative:**

**Reviewer:**_____ **Date:** 06/05/13

# Sample Data Summary

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-822  GEL Work Order: 325479

**The Qualifiers in this report are defined as follows:**

* A quality control analyte recovery is outside of specified acceptance criteria

J Value is estimated

N Metals--The Matrix spike sample recovery is not within specified control limits

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____ 06/05/13

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−822 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

**SAMPLE ID:** 325479002 **BASIS:** As Received **DATE COLLECTED** 08−MAY−13

**CLIENT ID:** CAMO−13−30602 **LEVEL:** Low **DATE RECEIVED** 10−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7439−97−6 | Mercury | 0.20 | ug/L | U | 0.067 | 0.2 | 0.2 | 1 | AV | NOR1 | 05/21/13 12:31 | 052113W1−14 | 1302856 |

# METALS
## −1−
## INORGANICS ANALYSIS DATA PACKAGE

**SDG No:** 2013−822 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

**SAMPLE ID:** 325479002 **BASIS:** As Received **DATE COLLECTED** 08−MAY−13

**CLIENT ID:** CAMO−13−30602 **LEVEL:** Low **DATE RECEIVED** 10−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7429−90−5 | Aluminum | 200 | ug/L | U | 68 | 200 | 200 | 1 | P | HSC | 06/03/13 09:43 | 060313A−1 | 1301065 |
| 7440−36−0 | Antimony | 3 | ug/L | U | 1 | 3 | 3 | 1 | MS | PRB | 06/04/13 13:09 | 130604−13 | 1301067 |
| 7440−38−2 | Arsenic | 2.98 | ug/L | J | 1.7 | 5 | 5 | 1 | MS | BAJ | 06/04/13 04:22 | 130603−11 | 1301067 |
| 7440−39−3 | Barium | 25.2 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:43 | 060313A−1 | 1301065 |
| 7440−41−7 | Beryllium | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:43 | 060313A−1 | 1301065 |
| 7440−42−8 | Boron | 50 | ug/L | U | 15 | 50 | 50 | 1 | P | HSC | 06/03/13 09:43 | 060313A−1 | 1301065 |
| 7440−43−9 | Cadmium | 1 | ug/L | U | 0.11 | 1 | 1 | 1 | MS | BAJ | 06/01/13 14:51 | 130601−10 | 1301067 |
| 7440−70−2 | Calcium | 16800 | ug/L | | 50 | 200 | 200 | 1 | P | HSC | 06/03/13 09:43 | 060313A−1 | 1301065 |
| 7440−47−3 | Chromium | 131 | ug/L | | 2 | 10 | 10 | 1 | MS | BAJ | 06/01/13 02:07 | 130531−3 | 1301067 |
| 7440−48−4 | Cobalt | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:43 | 060313A−1 | 1301065 |
| 7440−50−8 | Copper | 10 | ug/L | U | 3 | 10 | 10 | 1 | P | HSC | 06/03/13 09:43 | 060313A−1 | 1301065 |
| 7439−89−6 | Iron | 100 | ug/L | U | 30 | 100 | 100 | 1 | P | HSC | 06/03/13 09:43 | 060313A−1 | 1301065 |
| 7439−92−1 | Lead | 2 | ug/L | U | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/04/13 04:22 | 130603−11 | 1301067 |
| 7439−95−4 | Magnesium | 4450 | ug/L | | 110 | 300 | 300 | 1 | P | HSC | 06/03/13 09:43 | 060313A−1 | 1301065 |
| 7439−96−5 | Manganese | 10 | ug/L | U | 2 | 10 | 10 | 1 | P | HSC | 06/03/13 09:43 | 060313A−1 | 1301065 |
| 7439−98−7 | Molybdenum | 1.53 | ug/L | | 0.165 | 0.5 | 0.5 | 1 | MS | BAJ | 06/01/13 08:48 | 130531−7 | 1301067 |
| 7440−02−0 | Nickel | 1.96 | ug/L | J | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/01/13 02:07 | 130531−3 | 1301067 |
| 7440−09−7 | Potassium | 1470 | ug/L | | 50 | 150 | 150 | 1 | P | HSC | 06/03/13 09:43 | 060313A−1 | 1301065 |
| 7782−49−2 | Selenium | 5 | ug/L | U | 1.5 | 5 | 5 | 1 | MS | BAJ | 06/04/13 04:22 | 130603−11 | 1301067 |
| 7631−86−9 | Silica | 57900 | ug/L | | 53 | 213 | 213 | 1 | P | HSC | 06/03/13 09:43 | 060313A−1 | 1301065 |
| 7440−22−4 | Silver | 1 | ug/L | U | 0.2 | 1 | 1 | 1 | MS | BAJ | 06/01/13 14:51 | 130601−10 | 1301067 |
| 7440−23−5 | Sodium | 12000 | ug/L | | 100 | 300 | 300 | 1 | P | HSC | 06/03/13 11:32 | 060313A−2 | 1301065 |
| 7440−24−6 | Strontium | 98.5 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:43 | 060313A−1 | 1301065 |
| 7440−28−0 | Thallium | 2 | ug/L | U | 0.45 | 2 | 2 | 1 | MS | BAJ | 06/04/13 07:33 | 130603−12 | 1301067 |
| 7440−31−5 | Tin | 10 | ug/L | U | 2.5 | 10 | 10 | 1 | P | HSC | 06/03/13 11:32 | 060313A−2 | 1301065 |
| 7440−61−1 | Uranium | 0.840 | ug/L | | 0.067 | 0.2 | 0.2 | 1 | MS | BAJ | 06/01/13 12:11 | 130601−8 | 1301067 |
| 7440−62−2 | Vanadium | 2.47 | ug/L | J | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:43 | 060313A−1 | 1301065 |
| 7440−66−6 | Zinc | 5.09 | ug/L | J | 3.3 | 10 | 10 | 1 | P | HSC | 06/03/13 09:43 | 060313A−1 | 1301065 |

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−822 **CONTRACT:** ESHL00210 **METHOD TYPE:**

**SAMPLE ID:** 325479002 **BASIS:** As Received **DATE COLLECTED** 08−MAY−13

**CLIENT ID:** CAMO−13−30602 **LEVEL:** Low **DATE RECEIVED** 10−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Hardness as CaCO3 | 60.2 | mg/L | | 0.453 | 1.24 | 1.24 | 1 | | JJ2 | 06/04/13 11:28 | | 1305711 |

**Prep Information:**

| Analytical Batch | Prep Batch | Prep Method | Initial wt./vol. | Units | Final wt./vol. | Units | Date | Analyst |
|---|---|---|---|---|---|---|---|---|
| 1301065 | 1301064 | SW846 3005A | 50 | mL | 50 | mL | 05/31/13 | MTM1 |
| 1301067 | 1301066 | SW846 3005A | 50 | mL | 50 | mL | 05/31/13 | MTM1 |
| 1302856 | 1302851 | EPA 245.1/245.2 Prep | 20 | mL | 20 | mL | 05/20/13 | AXS5 |

***Analytical Methods:**

| | |
|---|---|
| **MS** | **SW846 3005/6020 DOE−AL** |
| **P** | **SW846 3005/6010B** |
| **AV** | **EPA 245.1/245.2** |

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−822 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

**SAMPLE ID:** 325479005 **BASIS:** As Received **DATE COLLECTED** 08−MAY−13

**CLIENT ID:** CAMO−13−30564 **LEVEL:** Low **DATE RECEIVED** 10−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7439−97−6 | Mercury | 0.20 | ug/L | U | 0.067 | 0.2 | 0.2 | 1 | AV | NOR1 | 05/21/13 12:41 | 052113W1−14 | 1302856 |

# METALS
## −1−
## INORGANICS ANALYSIS DATA PACKAGE

**SDG No:** 2013−822 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

**SAMPLE ID:** 325479005 **BASIS:** As Received **DATE COLLECTED** 08−MAY−13

**CLIENT ID:** CAMO−13−30564 **LEVEL:** Low **DATE RECEIVED** 10−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7429−90−5 | Aluminum | 200 | ug/L | U | 68 | 200 | 200 | 1 | P | HSC | 06/03/13 09:46 | 060313A−1 | 1301065 |
| 7440−36−0 | Antimony | 3 | ug/L | U | 1 | 3 | 3 | 1 | MS | PRB | 06/04/13 13:12 | 130604−13 | 1301067 |
| 7440−38−2 | Arsenic | 5 | ug/L | U | 1.7 | 5 | 5 | 1 | MS | BAJ | 06/04/13 04:25 | 130603−11 | 1301067 |
| 7440−39−3 | Barium | 27.7 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:46 | 060313A−1 | 1301065 |
| 7440−41−7 | Beryllium | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:46 | 060313A−1 | 1301065 |
| 7440−42−8 | Boron | 50 | ug/L | U | 15 | 50 | 50 | 1 | P | HSC | 06/03/13 09:46 | 060313A−1 | 1301065 |
| 7440−43−9 | Cadmium | 1 | ug/L | U | 0.11 | 1 | 1 | 1 | MS | BAJ | 06/01/13 14:55 | 130601−10 | 1301067 |
| 7440−70−2 | Calcium | 17400 | ug/L | | 50 | 200 | 200 | 1 | P | HSC | 06/03/13 09:46 | 060313A−1 | 1301065 |
| 7440−47−3 | Chromium | 139 | ug/L | | 2 | 10 | 10 | 1 | MS | BAJ | 06/01/13 02:14 | 130531−3 | 1301067 |
| 7440−48−4 | Cobalt | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:46 | 060313A−1 | 1301065 |
| 7440−50−8 | Copper | 10 | ug/L | U | 3 | 10 | 10 | 1 | P | HSC | 06/03/13 09:46 | 060313A−1 | 1301065 |
| 7439−89−6 | Iron | 100 | ug/L | U | 30 | 100 | 100 | 1 | P | HSC | 06/03/13 09:46 | 060313A−1 | 1301065 |
| 7439−92−1 | Lead | 2 | ug/L | U | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/04/13 04:25 | 130603−11 | 1301067 |
| 7439−95−4 | Magnesium | 4590 | ug/L | | 110 | 300 | 300 | 1 | P | HSC | 06/03/13 09:46 | 060313A−1 | 1301065 |
| 7439−96−5 | Manganese | 10 | ug/L | U | 2 | 10 | 10 | 1 | P | HSC | 06/03/13 09:46 | 060313A−1 | 1301065 |
| 7439−98−7 | Molybdenum | 1.58 | ug/L | | 0.165 | 0.5 | 0.5 | 1 | MS | BAJ | 06/01/13 08:52 | 130531−7 | 1301067 |
| 7440−02−0 | Nickel | 2.11 | ug/L | | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/01/13 02:14 | 130531−3 | 1301067 |
| 7440−09−7 | Potassium | 1550 | ug/L | | 50 | 150 | 150 | 1 | P | HSC | 06/03/13 09:46 | 060313A−1 | 1301065 |
| 7782−49−2 | Selenium | 5 | ug/L | U | 1.5 | 5 | 5 | 1 | MS | BAJ | 06/04/13 04:25 | 130603−11 | 1301067 |
| 7631−86−9 | Silica | 59500 | ug/L | | 53 | 213 | 213 | 1 | P | HSC | 06/03/13 09:46 | 060313A−1 | 1301065 |
| 7440−22−4 | Silver | 1 | ug/L | U | 0.2 | 1 | 1 | 1 | MS | BAJ | 06/01/13 14:55 | 130601−10 | 1301067 |
| 7440−23−5 | Sodium | 12200 | ug/L | | 100 | 300 | 300 | 1 | P | HSC | 06/03/13 11:36 | 060313A−2 | 1301065 |
| 7440−24−6 | Strontium | 102 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:46 | 060313A−1 | 1301065 |
| 7440−28−0 | Thallium | 2 | ug/L | U | 0.45 | 2 | 2 | 1 | MS | BAJ | 06/04/13 07:40 | 130603−12 | 1301067 |
| 7440−31−5 | Tin | 10 | ug/L | U | 2.5 | 10 | 10 | 1 | P | HSC | 06/03/13 11:36 | 060313A−2 | 1301065 |
| 7440−61−1 | Uranium | 0.858 | ug/L | | 0.067 | 0.2 | 0.2 | 1 | MS | BAJ | 06/01/13 12:14 | 130601−8 | 1301067 |
| 7440−62−2 | Vanadium | 2.52 | ug/L | J | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:46 | 060313A−1 | 1301065 |
| 7440−66−6 | Zinc | 6.86 | ug/L | J | 3.3 | 10 | 10 | 1 | P | HSC | 06/03/13 09:46 | 060313A−1 | 1301065 |

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−822 **CONTRACT:** ESHL00210 **METHOD TYPE:**

**SAMPLE ID:** 325479005 **BASIS:** As Received **DATE COLLECTED** 08−MAY−13

**CLIENT ID:** CAMO−13−30564 **LEVEL:** Low **DATE RECEIVED** 10−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Hardness as CaCO3 | 62.2 | mg/L | | 0.453 | 1.24 | 1.24 | 1 | | JJ2 | 06/04/13 11:28 | | 1305711 |

**Prep Information:**

| Analytical Batch | Prep Batch | Prep Method | Initial wt./vol. | Units | Final wt./vol. | Units | Date | Analyst |
|---|---|---|---|---|---|---|---|---|
| 1301065 | 1301064 | SW846 3005A | 50 | mL | 50 | mL | 05/31/13 | MTM1 |
| 1301067 | 1301066 | SW846 3005A | 50 | mL | 50 | mL | 05/31/13 | MTM1 |
| 1302856 | 1302851 | EPA 245.1/245.2 Prep | 20 | mL | 20 | mL | 05/20/13 | AXS5 |

***Analytical Methods:**

| | |
|---|---|
| **MS** | **SW846 3005/6020 DOE−AL** |
| **P** | **SW846 3005/6010B** |
| **AV** | **EPA 245.1/245.2** |

# Quality Control Summary

**METALS**
**−3b−**
**PREPARATION BLANK SUMMARY**

**SDG NO.** 2013−822

**Contract:** ESHL00210

**Matrix:** W

| Sample ID | Analyte | Result | Units | Acceptance Window | Conc Qual | M* | MDL | RDL |
|---|---|---|---|---|---|---|---|---|
| 1202874202 | | | | | | | | |
| | Zinc | 3.3 | ug/L | +/−10 | U | P | 3.3 | 10 |
| | Aluminum | 68 | ug/L | +/−200 | U | P | 68 | 200 |
| | Beryllium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Boron | 15 | ug/L | +/−50 | U | P | 15 | 50 |
| | Barium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Calcium | 50 | ug/L | +/−200 | U | P | 50 | 200 |
| | Copper | 3 | ug/L | +/−10 | U | P | 3 | 10 |
| | Magnesium | 110 | ug/L | +/−300 | U | P | 110 | 300 |
| | Potassium | 64.3 | ug/L | +/−150 | J | P | 50 | 150 |
| | Vanadium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Tin | 2.5 | ug/L | +/−10 | U | P | 2.5 | 10 |
| | Strontium | 2.05 | ug/L | +/−5 | J | P | 1 | 5 |
| | Sodium | 100 | ug/L | +/−300 | U | P | 100 | 300 |
| | Silica | 53 | ug/L | +/−213 | U | P | 53 | 213 |
| | Manganese | 2 | ug/L | +/−10 | U | P | 2 | 10 |
| | Iron | 30 | ug/L | +/−100 | U | P | 30 | 100 |
| | Cobalt | 1.31 | ug/L | +/−5 | J | P | 1 | 5 |
| 1202874210 | | | | | | | | |
| | Antimony | 1 | ug/L | +/−3 | U | MS | 1 | 3 |
| | Arsenic | 1.7 | ug/L | +/−5 | U | MS | 1.7 | 5 |
| | Cadmium | 0.11 | ug/L | +/−1 | U | MS | 0.11 | 1 |
| | Chromium | 2 | ug/L | +/−10 | U | MS | 2 | 10 |
| | Lead | 0.5 | ug/L | +/−2 | U | MS | 0.5 | 2 |
| | Molybdenum | 0.165 | ug/L | +/−0.5 | U | MS | 0.165 | 0.5 |
| | Nickel | 0.5 | ug/L | +/−2 | U | MS | 0.5 | 2 |
| | Selenium | 1.5 | ug/L | +/−5 | U | MS | 1.5 | 5 |
| | Silver | 0.2 | ug/L | +/−1 | U | MS | 0.2 | 1 |
| | Thallium | 0.45 | ug/L | +/−2 | U | MS | 0.45 | 2 |
| | Uranium | 0.067 | ug/L | +/−0.2 | U | MS | 0.067 | 0.2 |
| 1202878660 | | | | | | | | |
| | Mercury | −0.074 | ug/L | +/−0.2 | J | AV | 0.067 | 0.2 |

***Analytical Methods:**

| | |
|---|---|
| **MS** | **SW846 3005/6020 DOE−AL** |
| **P** | **SW846 3005/6010B** |
| **AV** | **EPA 245.1/245.2** |

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−822 **Client ID** CAMO−13−30589S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 325480002 **Spike ID:** 1202874205

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | ug/L | 75−125 | 5060 | | 68 | U | 5000 | 101 | | P |
| Barium | ug/L | 75−125 | 504 | | 41.1 | | 500 | 92.5 | | P |
| Beryllium | ug/L | 75−125 | 473 | | 1 | U | 500 | 94.5 | | P |
| Boron | ug/L | 75−125 | 509 | | 42.3 | J | 500 | 93.4 | | P |
| Calcium | ug/L | | 68900 | | 63900 | | 5000 | 98.3 | N/A | P |
| Cobalt | ug/L | 75−125 | 438 | | 1 | U | 500 | 87.5 | | P |
| Copper | ug/L | 75−125 | 490 | | 6.12 | J | 500 | 96.7 | | P |
| Iron | ug/L | 75−125 | 4790 | | 30 | U | 5000 | 95.6 | | P |
| Magnesium | ug/L | 75−125 | 17600 | | 13000 | | 5000 | 92.7 | | P |
| Manganese | ug/L | 75−125 | 450 | | 2.92 | J | 500 | 89.5 | | P |
| Potassium | ug/L | 75−125 | 5640 | | 881 | | 5000 | 95.2 | | P |
| Silica | ug/L | | 75900 | | 65300 | | 10700 | 99 | N/A | P |
| Sodium | ug/L | | 30200 | | 25500 | | 5000 | 93.5 | N/A | P |
| Strontium | ug/L | 75−125 | 812 | | 305 | | 500 | 101 | | P |
| Tin | ug/L | 75−125 | 454 | | 2.5 | U | 500 | 90.8 | | P |
| Vanadium | ug/L | 75−125 | 469 | | 1 | U | 500 | 93.6 | | P |
| Zinc | ug/L | 75−125 | 430 | | 15.9 | | 500 | 82.8 | | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−822 **Client ID** CAMO−13−30589S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 325480002 **Spike ID:** 1202874213

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ug/L | 75−125 | 50.4 | | 1 | U | 50 | 100 | | MS |
| Arsenic | ug/L | 75−125 | 49.9 | | 1.7 | U | 50 | 99.9 | | MS |
| Cadmium | ug/L | 75−125 | 52.7 | | 0.11 | U | 50 | 105 | | MS |
| Chromium | ug/L | 75−125 | 135 | | 73.2 | | 50 | 124 | | MS |
| Lead | ug/L | 75−125 | 50.1 | | 0.5 | U | 50 | 100 | | MS |
| Molybdenum | ug/L | 75−125 | 55.4 | | 1.45 | | 50 | 108 | | MS |
| Nickel | ug/L | 75−125 | 104 | | 41.3 | | 50 | 126 | N | MS |
| Selenium | ug/L | 75−125 | 54.9 | | 1.5 | U | 50 | 108 | | MS |
| Silver | ug/L | 75−125 | 51.5 | | 0.2 | U | 50 | 103 | | MS |
| Thallium | ug/L | 75−125 | 45.7 | | 0.45 | U | 50 | 91.1 | | MS |
| Uranium | ug/L | 75−125 | 55 | | 1.27 | | 50 | 108 | | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−822 **Client ID** CAMO−13−30602S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 325479002 **Spike ID:** 1202878666

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | ug/L | 75−125 | 1.93 | | 0.067 | U | 2 | 96.6 | | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−822 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CAMO−13−30589D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325480002 **Duplicate ID:** 1202874204 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | ug/L | | 68 | U | 68 | U | | | P |
| Barium | ug/L | +/−20% | 41.1 | | 41.6 | | 1.31 | | P |
| Beryllium | ug/L | | 1 | U | 1 | U | | | P |
| Boron | ug/L | +/−50 | 42.3 | J | 42.5 | J | .481 | | P |
| Calcium | ug/L | +/−20% | 63900 | | 65400 | | 2.23 | | P |
| Cobalt | ug/L | | 1 | U | 1.08 | J | 200 | | P |
| Copper | ug/L | +/−10 | 6.12 | J | 6.13 | J | .16 | | P |
| Iron | ug/L | | 30 | U | 30 | U | | | P |
| Magnesium | ug/L | +/−20% | 13000 | | 13200 | | 1.48 | | P |
| Manganese | ug/L | +/−10 | 2.92 | J | 2.81 | J | 3.67 | | P |
| Potassium | ug/L | +/−20% | 881 | | 863 | | 2.09 | | P |
| Silica | ug/L | +/−20% | 65300 | | 66300 | | 1.56 | | P |
| Sodium | ug/L | +/−20% | 25500 | | 25500 | | .0667 | | P |
| Strontium | ug/L | +/−20% | 305 | | 312 | | 2.26 | | P |
| Tin | ug/L | | 2.5 | U | 2.5 | U | | | P |
| Vanadium | ug/L | | 1 | U | 1 | U | | | P |
| Zinc | ug/L | +/−10 | 15.9 | | 14.5 | | 9.43 | | P |

***Analytical Methods:**

**P SW846 3005/6010B**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−822 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CAMO−13−30589D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325480002 **Duplicate ID:** 1202874212 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Antimony | ug/L | | 1 | U | 1 | U | | | MS |
| Arsenic | ug/L | | 1.7 | U | 1.7 | U | | | MS |
| Cadmium | ug/L | | 0.11 | U | 0.11 | U | | | MS |
| Chromium | ug/L | +/−20% | 73.2 | | 72.1 | | 1.52 | | MS |
| Lead | ug/L | | 0.5 | U | 0.5 | U | | | MS |
| Molybdenum | ug/L | +/−.5 | 1.45 | | 1.44 | | .416 | | MS |
| Nickel | ug/L | +/−20% | 41.3 | | 40.3 | | 2.57 | | MS |
| Selenium | ug/L | | 1.5 | U | 1.5 | U | | | MS |
| Silver | ug/L | | 0.2 | U | 0.2 | U | | | MS |
| Thallium | ug/L | | 0.45 | U | 0.45 | U | | | MS |
| Uranium | ug/L | +/−20% | 1.27 | | 1.22 | | 4.25 | | MS |

***Analytical Methods:**

**MS SW846 3005/6020 DOE−AL**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−822 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CAMO−13−30602D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325479002 **Duplicate ID:** 1202878662 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | ug/L | | 0.067 | U | 0.067 | U | | | AV |

***Analytical Methods:**

**AV EPA 245.1/245.2**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−822

**Contract:** ESHL00210

**Aqueous LCS Source:** OS2I **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202874203 | | | | | | | | |
| | Aluminum | ug/L | 5000 | 5220 | | 104 | 80−120 | P |
| | Barium | ug/L | 500 | 478 | | 95.6 | 80−120 | P |
| | Boron | ug/L | 500 | 462 | | 92.4 | 80−120 | P |
| | Calcium | ug/L | 5000 | 4940 | | 98.8 | 80−120 | P |
| | Cobalt | ug/L | 500 | 465 | | 93.1 | 80−120 | P |
| | Copper | ug/L | 500 | 484 | | 96.9 | 80−120 | P |
| | Iron | ug/L | 5000 | 4950 | | 99.1 | 80−120 | P |
| | Magnesium | ug/L | 5000 | 4900 | | 98 | 80−120 | P |
| | Manganese | ug/L | 500 | 469 | | 93.8 | 80−120 | P |
| | Potassium | ug/L | 5000 | 4880 | | 97.6 | 80−120 | P |
| | Silica | ug/L | 10700 | 9820 | | 91.7 | 80−120 | P |
| | Sodium | ug/L | 5000 | 4920 | | 98.4 | 80−120 | P |
| | Strontium | ug/L | 500 | 513 | | 103 | 80−120 | P |
| | Tin | ug/L | 500 | 480 | | 96 | 80−120 | P |
| | Vanadium | ug/L | 500 | 476 | | 95.1 | 80−120 | P |
| | Zinc | ug/L | 500 | 443 | | 88.7 | 80−120 | P |
| | Beryllium | ug/L | 500 | 485 | | 97 | 80−120 | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−822

**Contract:** ESHL00210

**Aqueous LCS Source:** O2Si **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202874211 | | | | | | | | |
| | Antimony | ug/L | 50 | 52.9 | | 106 | 80−120 | MS |
| | Arsenic | ug/L | 50 | 52.2 | | 104 | 80−120 | MS |
| | Cadmium | ug/L | 50 | 52 | | 104 | 80−120 | MS |
| | Chromium | ug/L | 50 | 53 | | 106 | 80−120 | MS |
| | Lead | ug/L | 50 | 53.7 | | 107 | 80−120 | MS |
| | Molybdenum | ug/L | 50 | 50.7 | | 101 | 80−120 | MS |
| | Nickel | ug/L | 50 | 55.6 | | 111 | 80−120 | MS |
| | Selenium | ug/L | 50 | 55.4 | | 111 | 80−120 | MS |
| | Silver | ug/L | 50 | 52.5 | | 105 | 80−120 | MS |
| | Thallium | ug/L | 50 | 47.5 | | 95 | 80−120 | MS |
| | Uranium | ug/L | 50 | 51.5 | | 103 | 80−120 | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−822

**Contract:** ESHL00210

**Aqueous LCS Source:** GEL **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202878667 | | | | | | | | |
| | Mercury | ug/L | 2 | 1.99 | | 99.5 | 85−115 | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−822 **Client ID** CAMO−13−30589L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325480002 **Serial Dilution ID:** 1202874206

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Aluminum | 68 | U | 340 | U | | | | P |
| Barium | 41.1 | | 41.1 | | .033 | | | P |
| Beryllium | 1 | U | 5 | U | | | | P |
| Boron | 42.3 | J | 75 | U | 100 | | | P |
| Calcium | 63900 | | 64700 | | 1.18 | | 10 | P |
| Cobalt | 1 | U | 5 | U | | | | P |
| Copper | 6.12 | J | 15 | U | 100 | | | P |
| Iron | 30 | U | 150 | U | | | | P |
| Magnesium | 13000 | | 13000 | | .331 | | 10 | P |
| Manganese | 2.92 | J | 10 | U | 100 | | | P |
| Potassium | 881 | | 1120 | | 27.4 | | | P |
| Silica | 65300 | | 63400 | | 2.89 | | 10 | P |
| Sodium | 25500 | | 26000 | | 2.02 | | 10 | P |
| Strontium | 305 | | 311 | | 2.03 | | 10 | P |
| Tin | 2.5 | U | 12.5 | U | | | | P |
| Vanadium | 1 | U | 5 | U | | | | P |
| Zinc | 15.9 | | 16.5 | U | 100 | | | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−822 **Client ID** CAMO−13−30589L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325480002 **Serial Dilution ID:** 1202874214

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Antimony | 1 | U | 5 | U | | | | MS |
| Arsenic | 1.7 | U | 8.5 | U | | | | MS |
| Cadmium | .11 | U | .55 | U | | | | MS |
| Chromium | 73.2 | | 81.4 | | 11.2 | | | MS |
| Lead | .5 | U | 2.5 | U | | | | MS |
| Molybdenum | 1.45 | | 1.79 | J | 23.5 | | | MS |
| Nickel | 41.3 | | 43.4 | | 5.08 | | | MS |
| Selenium | 1.5 | U | 7.5 | U | | | | MS |
| Silver | .2 | U | 1 | U | | | | MS |
| Thallium | .45 | U | 2.65 | J | | | | MS |
| Uranium | 1.27 | | 1.3 | | 2.04 | | | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−822 **Client ID** CAMO−13−30602L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325479002 **Serial Dilution ID:** 1202878664

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Mercury | .067 | U | .335 | U | | | | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

# Miscellaneous

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 04-JUN-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| ICP/MS | SW846 3005/6020 DOE-AL | Liquid | ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1301067 | See Below | | |

**Potentially affected work order(s)(SDG):** **325283(2013-808),325284(2013-809),325285(2013-810),325394(2013-813),325410(2013-814),325479(2013-822),325480(2013-823)**

**Application Issues:**

Failed Recovery for MS/PS

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed Recovery for MS/PS:<br><br>QC 1202874213MS | The matrix spike recovery failed outside of the control limits for Ni due to possible matrix interferences and/or non-homogeneity. Per GEL's accredited methods and SOPs, a corrective action is not required and the data is qualified and reported. |

**Originator's Name:**
Elizabeth Janssen 04-JUN-13

**Data Validator/Group Leader:**
Paul Boyd 04-JUN-13

# General Chem Analysis

# Case Narrative

**General Chemistry Narrative**
**ARS International (ARSL)**
**SDG 2013-822**

## Method/Analysis Information

**Product:** **Carbon, Total Organic**

**Analytical Batch:** 1302095 **Method:** SW 9060 Total Organic Carbon

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9060:

| Sample ID | Client ID |
|---|---|
| 325479001 | CAMO-13-30586 |
| 325479004 | CAMO-13-30562 |
| 1202876780 | Method Blank (MB) |
| 1202876781 | 325479001(CAMO-13-30586) Sample Duplicate (DUP) |
| 1202876783 | 325479001(CAMO-13-30586) Post Spike (PS) |
| 1202876785 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-093 REV# 12.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Carbon analysis was performed on a O-I Analytical Model 1010 Total Organic Carbon Analyzer.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325479001 (CAMO-13-30586).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
A 15 mg/L Total Inorganic Carbon check standard is analyzed with each analytical run to prove that the instrument is effectively sparging away the inorganic carbon.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an

effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Specific Conductivity** | | |
| **Analytical Batch:** | 1304263 | **Method:** | EPA120.1 Specific Conductivity |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 120.1:

| Sample ID | Client ID |
|---|---|
| 325479002 | CAMO-13-30602 |
| 325479005 | CAMO-13-30564 |
| 1202882513 | Laboratory Control Sample (LCS) |
| 1202882514 | 325480002(CAMO-13-30589) Sample Duplicate (DUP) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-009 REV# 11.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Conductivity analysis was performed on a Orion 160 Conductivity Meter.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325480002 (CAMO-13-30589).

**Duplicate Relative Percent Difference (RPD) Statement**

The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

**Product:** **pH**

**Analytical Batch:** 1301230 **Method:** EPA 150.1 pH

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 150.1:

| Sample ID | Client ID |
|---|---|
| 325479002 | CAMO-13-30602 |
| 325479005 | CAMO-13-30564 |
| 1202874544 | 325479002(CAMO-13-30602) Sample Duplicate (DUP) |
| 1202874545 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-008 REV# 21.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Electrode analysis was performed on a PerpHect pH Meter Orion 370.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325479002 (CAMO-13-30602).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
The following samples from this sample group were received by the lab outside of the method specified holding time: 325479002 (CAMO-13-30602) and 325479005 (CAMO-13-30564).

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1190576 325479002 (CAMO-13-30602) and 325479005 (CAMO-13-30564).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Ion Chromatography** | | |
| **Analytical Batch:** | 1300945 | **Method:** | EPA 300.0 Anions Liquid 28 day |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

| Sample ID | Client ID |
|---|---|
| 325479002 | CAMO-13-30602 |
| 325479005 | CAMO-13-30564 |
| 1202873935 | Method Blank (MB) |
| 1202873936 | 325479002(CAMO-13-30602) Sample Duplicate (DUP) |
| 1202873937 | 325479002(CAMO-13-30602) Post Spike (PS) |
| 1202873938 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 21.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-5000 Ion Chromatograph.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325479002 (CAMO-13-30602).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The spike recovery falls outside of the established acceptance limits due to matrix interference: 1202873937 (CAMO-13-30602).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1191934 1202873937 (CAMO-13-30602).

**Manual Integrations**
The following samples from this sample group had to be manually integrated due to errors in the instrument software peak integration: 1202873936 (CAMO-13-30602), 1202873937 (CAMO-13-30602), 325479002 (CAMO-13-30602) and 325479005 (CAMO-13-30564).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Ammonia Nitrogen** | | |
| **Analytical Batch:** | 1301250 | **Method:** | EPA 350.1 Nitrogen and Ammonia L |
| **Prep Batch :** | 1301248 | **Method:** | EEPA 350.2 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 350.1:

| Sample ID | Client ID |
|---|---|
| 325479002 | CAMO-13-30602 |
| 325479005 | CAMO-13-30564 |
| 1202874615 | Method Blank (MB) |
| 1202874617 | 325479002(CAMO-13-30602) Sample Duplicate (DUP) |
| 1202874619 | 325479002(CAMO-13-30602) Matrix Spike (MS) |
| 1202874620 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-106 REV# 9.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325479002 (CAMO-13-30602).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample: 1202874617 (CAMO-13-30602).

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1187647 1202874617 (CAMO-13-30602).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Total Kjeldahl Nitrogen** | | |
| **Analytical Batch:** | 1300635 | **Method:** | Nitrogen and Total Kjeldahl (TKN) |
| **Prep Batch :** | 1300634 | **Method:** | EEPA 351.2 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 351.2:

| Sample ID | Client ID |
|---|---|
| 325479001 | CAMO-13-30586 |
| 325479004 | CAMO-13-30562 |
| 1202873058 | Method Blank (MB) |
| 1202873059 | 325283001(CAMO-13-30574) Sample Duplicate (DUP) |
| 1202873060 | 325283003(CAMO-13-30577) Sample Duplicate (DUP) |
| 1202873061 | 325283001(CAMO-13-30574) Matrix Spike (MS) |
| 1202873062 | 325283003(CAMO-13-30577) Matrix Spike (MS) |
| 1202873063 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-104 REV# 14.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following samples were selected for QC analysis: 325283001 (CAMO-13-30574) and 325283003 (CAMO-13-30577).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recoveries for this sample set were within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202873059 (CAMO-13-30574).

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The following samples were re-analyzed due to CCV failure: 1202873058 (MB), 1202873059 (CAMO-13-30574), 1202873060 (CAMO-13-30577), 1202873061 (CAMO-13-30574), 1202873062 (CAMO-13-30577) and 1202873063 (LCS).

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Nitrate Nitrite by Cadmium Reduction** | | |
| **Analytical Batch:** | 1301246 | **Method:** | EPA 353.2 Nitrogen and Nitrate/Nitrite |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 353.2:

| Sample ID | Client ID |
|---|---|
| 325479002 | CAMO-13-30602 |
| 325479005 | CAMO-13-30564 |
| 1202874598 | Method Blank (MB) |
| 1202874599 | 325284002(CAMO-13-30591) Sample Duplicate (DUP) |
| 1202874602 | 325284002(CAMO-13-30591) Post Spike (PS) |
| 1202874605 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-128 REV# 8.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8500 Series.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325284002 (CAMO-13-30591).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recoveries for this sample set were within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The following samples in this sample group were diluted due to high concentration: 1202874599 (CAMO-13-30591) and 1202874602 (CAMO-13-30591).

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Total Phosphorus** | | |
| **Analytical Batch:** | 1301773 | **Method:** | EPA 365.4 Phosphorus and Total in |
| **Prep Batch :** | 1301772 | **Method:** | EEPA 365.4 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 365.4:

| Sample ID | Client ID |
|---|---|
| 325479002 | CAMO-13-30602 |
| 325479005 | CAMO-13-30564 |
| 1202876007 | Method Blank (MB) |
| 1202876008 | 325479002(CAMO-13-30602) Sample Duplicate (DUP) |
| 1202876009 | 325479005(CAMO-13-30564) Sample Duplicate (DUP) |
| 1202876010 | 325479002(CAMO-13-30602) Matrix Spike (MS) |
| 1202876011 | 325479005(CAMO-13-30564) Matrix Spike (MS) |
| 1202876012 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-103 REV# 10.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following samples were selected for QC analysis: 325479002 (CAMO-13-30602) and 325479005 (CAMO-13-30564).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recoveries for this sample set were within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The following sample was re-analyzed due to instrument failure: 1202876012 (LCS).

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an

effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Solids, Total Dissolved** | | |
| **Analytical Batch:** | 1301226 | **Method:** | EPA 160.1 Solids and Dissolved-F |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 160.1:

| Sample ID | Client ID |
|---|---|
| 325479002 | CAMO-13-30602 |
| 325479005 | CAMO-13-30564 |
| 1202874534 | Method Blank (MB) |
| 1202874535 | 325479005(CAMO-13-30564) Sample Duplicate (DUP) |
| 1202874536 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-001 REV# 13.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Solids analysis was performed on a Sartorius Balance BAL216. Solids lab

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

## Quality Control (QC) Information

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325479005 (CAMO-13-30564).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Sample Aliquot**
A sufficient amount of sample was provided by the client for analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

**Product:** **Alkalinity**

**Analytical Batch:** 1302919 **Method:** EPA 310.1 Total Alkalinity

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 310.1:

| Sample ID | Client ID |
|---|---|
| 325479002 | CAMO-13-30602 |
| 325479005 | CAMO-13-30564 |
| 1202878877 | Laboratory Control Sample (LCS) |
| 1202878878 | 325649002(CAMO-13-30594) Sample Duplicate (DUP) |
| 1202878879 | 325649002(CAMO-13-30594) Matrix Spike (MS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-033 REV# 10.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Titration analysis was performed on a Manually operated buret.

**Initial Standardization**
The titrant was properly standardized

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325649002 (CAMO-13-30594).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

**Review Validation:**

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

**The following data validator verified the information presented in this case narrative:**

**Reviewer:**_____ **Date:**_____06Jun13_____

# Sample Data Summary

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-822  GEL Work Order: 325479

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

**  Analyte is a Tracer compound

**  Analyte is a surrogate compound

H  Analytical holding time was exceeded

J  Value is estimated

N  Metals--The Matrix spike sample recovery is not within specified control limits

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: June 6, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-822

Client Sample ID: CAMO-13-30586
Sample ID: 325479001
Matrix: W
Collect Date: 08-MAY-13 12:40
Receive Date: 10-MAY-13
Collector: Client
Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon Analysis | | | | | | | | | | | |
| SW 9060 Total Organic Carbon "As Received" | | | | | | | | | | | |
| Total Organic Carbon Average | J | 0.510 | 0.330 | 1.00 | mg/L | 1 | TSM | 05/16/13 | 1623 | 1302095 | 1 |
| Nutrient Analysis | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl (TKN) "As Received" | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | U | ND | 0.033 | 0.100 | mg/L | 1 | KLP1 | 05/14/13 | 1406 | 1300635 | 2 |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 351.2 Prep | EPA 351.2 Total Kjeldahl Nitrogen Prep | KLP1 | 05/13/13 | 1700 | 1300634 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | SW846 9060 | |
| 2 | EPA 351.2 | |

**Notes:**

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: June 6, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-822

Client Sample ID: CAMO-13-30602
Sample ID: 325479002
Matrix: W
Collect Date: 08-MAY-13 12:40
Receive Date: 10-MAY-13
Collector: Client
Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Conductivity Analysis | | | | | | | | | | | |
| EPA120.1 Specific Conductivity "As Received" | | | | | | | | | | | |
| Conductivity | | 186 | 1.00 | 1.00 | umhos/cm | 1 | LXA1 | 05/28/13 | 1132 | 1304263 | 1 |
| Electrode Analysis | | | | | | | | | | | |
| EPA 150.1 pH "As Received" | | | | | | | | | | | |
| pH at Temp 12.5C | H | 8.64 | 0.010 | 0.100 | SU | 1 | LYG1 | 05/13/13 | 0856 | 1301230 | 2 |
| Ion Chromatography | | | | | | | | | | | |
| EPA 300.0 Anions Liquid 28 day "As Received" | | | | | | | | | | | |
| Bromide | J | 0.0717 | 0.067 | 0.200 | mg/L | 1 | MAR1 | 06/01/13 | 0856 | 1300945 | 3 |
| Chloride | | 7.71 | 0.067 | 0.200 | mg/L | 1 | | | | | |
| Fluoride | | 0.181 | 0.033 | 0.100 | mg/L | 1 | | | | | |
| Sulfate | | 13.1 | 0.133 | 0.400 | mg/L | 1 | | | | | |
| Nutrient Analysis | | | | | | | | | | | |
| EPA 350.1 Nitrogen, Ammonia L "As Received" | | | | | | | | | | | |
| Nitrogen, Ammonia | | 0.0937 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/20/13 | 1555 | 1301250 | 4 |
| EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received" | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | 1.01 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 06/03/13 | 1224 | 1301246 | 5 |
| EPA 365.4 Phosphorus, Total in "As Received" | | | | | | | | | | | |
| Phosphorus, Total as P | J | 0.0458 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/21/13 | 1206 | 1301773 | 6 |
| Solids Analysis | | | | | | | | | | | |
| EPA 160.1 Solids, Dissolved-F "As Received" | | | | | | | | | | | |
| Total Dissolved Solids | | 141 | 3.40 | 14.3 | mg/L | | LYG1 | 05/13/13 | 0747 | 1301226 | 7 |
| Titration Analysis | | | | | | | | | | | |
| EPA 310.1 Total Alkalinity "As Received" | | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | 59.9 | 0.725 | 1.00 | mg/L | | LXA1 | 05/20/13 | 1441 | 1302919 | 8 |
| Carbonate alkalinity (CaCO3) | | 2.03 | 0.725 | 1.00 | mg/L | | | | | | |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 350.2 Prep | EPA 350.1 Ammonia Nitrogen Prep | KLP1 | 05/20/13 | 1320 | 1301248 |
| EPA 365.4 Prep | EPA 365.4 Phosphorus, Total in liquid PR | KLP1 | 05/20/13 | 1630 | 1301772 |

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## Certificate of Analysis

Report Date: June 6, 2013

| | | | |
|---|---|---|---|
| Company : | Los Alamos National Laboratory | | |
| Address : | PO Box 1663<br>TA-03, SM271, Drop Pt. 02U, Rm111<br>Los Alamos, New Mexico 87545 | | |
| Contact: | Keith Greene | Client SDG: | 2013-822 |
| Project: | LANL-WQH Water Samples | | |

| | | | |
|---|---|---|---|
| Client Sample ID: | CAMO-13-30602 | Project: | ESHL00210 |
| Sample ID: | 325479002 | Client ID: | ARSL001 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | EPA 120.1 | |
| 2 | EPA 150.1 | |
| 3 | EPA 300.0 | |
| 4 | EPA 350.1 | |
| 5 | EPA 353.2 | |
| 6 | EPA 365.4 | |
| 7 | EPA 160.1 | |
| 8 | EPA 310.1 | |

**Notes:**

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## Certificate of Analysis

Report Date: June 6, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-822

Client Sample ID: CAMO-13-30562
Sample ID: 325479004
Matrix: W
Collect Date: 08-MAY-13 12:40
Receive Date: 10-MAY-13
Collector: Client
Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon Analysis | | | | | | | | | | | |
| SW 9060 Total Organic Carbon "As Received" | | | | | | | | | | | |
| Total Organic Carbon Average | J | 0.703 | 0.330 | 1.00 | mg/L | 1 | TSM | 05/16/13 | 1725 | 1302095 | 1 |
| Nutrient Analysis | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl (TKN) "As Received" | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | U | ND | 0.033 | 0.100 | mg/L | 1 | KLP1 | 05/14/13 | 1407 | 1300635 | 2 |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 351.2 Prep | EPA 351.2 Total Kjeldahl Nitrogen Prep | KLP1 | 05/13/13 | 1700 | 1300634 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | SW846 9060 | |
| 2 | EPA 351.2 | |

**Notes:**

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## Certificate of Analysis

Report Date: June 6, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-822

Client Sample ID: CAMO-13-30564
Sample ID: 325479005
Matrix: W
Collect Date: 08-MAY-13 12:40
Receive Date: 10-MAY-13
Collector: Client
Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Conductivity Analysis | | | | | | | | | | | |
| EPA120.1 Specific Conductivity "As Received" | | | | | | | | | | | |
| Conductivity | | 188 | 1.00 | 1.00 | umhos/cm | 1 | LXA1 | 05/28/13 | 1134 | 1304263 | 1 |
| Electrode Analysis | | | | | | | | | | | |
| EPA 150.1 pH "As Received" | | | | | | | | | | | |
| pH at Temp 12.9C | H | 8.63 | 0.010 | 0.100 | SU | 1 | LYG1 | 05/13/13 | 0858 | 1301230 | 2 |
| Ion Chromatography | | | | | | | | | | | |
| EPA 300.0 Anions Liquid 28 day "As Received" | | | | | | | | | | | |
| Bromide | J | 0.179 | 0.067 | 0.200 | mg/L | 1 | MAR1 | 06/01/13 | 1030 | 1300945 | 3 |
| Chloride | | 7.73 | 0.067 | 0.200 | mg/L | 1 | | | | | |
| Fluoride | | 0.194 | 0.033 | 0.100 | mg/L | 1 | | | | | |
| Sulfate | | 13.1 | 0.133 | 0.400 | mg/L | 1 | | | | | |
| Nutrient Analysis | | | | | | | | | | | |
| EPA 350.1 Nitrogen, Ammonia L "As Received" | | | | | | | | | | | |
| Nitrogen, Ammonia | J | 0.0316 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/20/13 | 1601 | 1301250 | 4 |
| EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received" | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | 1.02 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 06/03/13 | 1225 | 1301246 | 5 |
| EPA 365.4 Phosphorus, Total in "As Received" | | | | | | | | | | | |
| Phosphorus, Total as P | J | 0.0426 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/21/13 | 1209 | 1301773 | 6 |
| Solids Analysis | | | | | | | | | | | |
| EPA 160.1 Solids, Dissolved-F "As Received" | | | | | | | | | | | |
| Total Dissolved Solids | | 154 | 3.40 | 14.3 | mg/L | | LYG1 | 05/13/13 | 0747 | 1301226 | 7 |
| Titration Analysis | | | | | | | | | | | |
| EPA 310.1 Total Alkalinity "As Received" | | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | 60.4 | 0.725 | 1.00 | mg/L | | LXA1 | 05/20/13 | 1448 | 1302919 | 8 |
| Carbonate alkalinity (CaCO3) | | 2.03 | 0.725 | 1.00 | mg/L | | | | | | |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 350.2 Prep | EPA 350.1 Ammonia Nitrogen Prep | KLP1 | 05/20/13 | 1320 | 1301248 |
| EPA 365.4 Prep | EPA 365.4 Phosphorus, Total in liquid PR | KLP1 | 05/20/13 | 1630 | 1301772 |

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## Certificate of Analysis

Report Date: June 6, 2013

| | | | |
|---|---|---|---|
| Company : | Los Alamos National Laboratory | | |
| Address : | PO Box 1663<br>TA-03, SM271, Drop Pt. 02U, Rm111<br>Los Alamos, New Mexico 87545 | | |
| Contact: | Keith Greene | Client SDG: | 2013-822 |
| Project: | LANL-WQH Water Samples | | |

| | | | |
|---|---|---|---|
| Client Sample ID: | CAMO-13-30564 | Project: | ESHL00210 |
| Sample ID: | 325479005 | Client ID: | ARSL001 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | EPA 120.1 | |
| 2 | EPA 150.1 | |
| 3 | EPA 300.0 | |
| 4 | EPA 350.1 | |
| 5 | EPA 353.2 | |
| 6 | EPA 365.4 | |
| 7 | EPA 160.1 | |
| 8 | EPA 310.1 | |

**Notes:**

# Quality Control Summary

# GEL LABORATORIES LLC

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## QC Summary

**Report Date: June 6, 2013**


**Los Alamos National Laboratory**
**PO Box 1663**
**TA-03, SM271, Drop Pt. 02U, Rm111**
**Los Alamos, New Mexico**

**Contact:** **Keith Greene**

**Workorder:** **325479**

| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Carbon Analysis** | | | | | | | | | | | | |
| Batch 1302095 | | | | | | | | | | | | |
| QC1202876781 325479001 DUP | | | | | | | | | | | | |
| Total Organic Carbon Average | | J | 0.510 | J | 0.511 | mg/L | 0.196 | ^ | | (+/-1.00) | TSM | 05/16/13 16:57 |
| QC1202876785 LCS | | | | | | | | | | | | |
| Total Organic Carbon Average | 10.0 | | | | 9.70 | mg/L | | | 97 | (85%-115%) | | 05/16/13 16:15 |
| QC1202876780 MB | | | | | | | | | | | | |
| Total Organic Carbon Average | | | | U | ND | mg/L | | | | | | 05/16/13 16:06 |
| QC1202876783 325479001 PS | | | | | | | | | | | | |
| Total Organic Carbon Average | 10.0 | J | 0.510 | | 10.4 | mg/L | | | 99 | (65%-120%) | | 05/16/13 17:16 |
| **Conductivity Analysis** | | | | | | | | | | | | |
| Batch 1304263 | | | | | | | | | | | | |
| QC1202882514 325480002 DUP | | | | | | | | | | | | |
| Conductivity | | | 611 | | 616 | umhos/cm | 0.815 | | | (0%-10%) | LXA1 | 05/28/13 11:35 |
| QC1202882513 LCS | | | | | | | | | | | | |
| Conductivity | 1410 | | | | 1450 | umhos/cm | | | 103 | (95%-105%) | | 05/28/13 11:31 |
| **Electrode Analysis** | | | | | | | | | | | | |
| Batch 1301230 | | | | | | | | | | | | |
| QC1202874544 325479002 DUP | | | | | | | | | | | | |
| pH | | H | 8.64 | H | 8.65 | SU | 0.116 | | | (0%-10%) | LYG1 | 05/13/13 08:57 |
| QC1202874545 LCS | | | | | | | | | | | | |
| pH | 7.00 | | | | 6.95 | SU | | | 99.3 | (99%-101%) | | 05/13/13 08:55 |
| **Ion Chromatography** | | | | | | | | | | | | |
| Batch 1300945 | | | | | | | | | | | | |
| QC1202873936 325479002 DUP | | | | | | | | | | | | |
| Bromide | | J | 0.0717 | J | 0.0726 | mg/L | 1.25 | ^ | | (+/-0.200) | MAR1 | 06/01/13 09:27 |
| Chloride | | | 7.71 | | 7.64 | mg/L | 0.958 | | | (0%-20%) | | |
| Fluoride | | | 0.181 | | 0.182 | mg/L | 0.937 | ^ | | (+/-0.100) | | |
| Sulfate | | | 13.1 | | 13.3 | mg/L | 1.31 | | | (0%-20%) | | |
| QC1202873938 LCS | | | | | | | | | | | | |
| Bromide | 1.25 | | | | 1.28 | mg/L | | | 102 | (90%-110%) | | 06/01/13 08:24 |

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## QC Summary

**Workorder: 325479**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Ion Chromatography** | | | | | | | | | | | |
| Batch 1300945 | | | | | | | | | | | |
| Chloride | 5.00 | | | | 4.66 | mg/L | | 93.3 | (90%-110%) | MAR1 | 06/01/13 08:24 |
| Fluoride | 2.50 | | | | 2.37 | mg/L | | 94.9 | (90%-110%) | | |
| Sulfate | 10.0 | | | | 9.94 | mg/L | | 99.4 | (90%-110%) | | |
| QC1202873935 MB | | | | | | | | | | | |
| Bromide | | | | U | ND | mg/L | | | | | 06/01/13 07:53 |
| Chloride | | | | U | ND | mg/L | | | | | |
| Fluoride | | | | U | ND | mg/L | | | | | |
| Sulfate | | | | U | ND | mg/L | | | | | |
| QC1202873937 325479002 PS | | | | | | | | | | | |
| Bromide | 1.25 | J | 0.0717 | | 1.30 | mg/L | | 98.3 | (90%-110%) | | 06/01/13 09:59 |
| Chloride | 5.00 | | 7.71 | | 13.3 | mg/L | | 111* | (90%-110%) | | |
| Fluoride | 2.50 | | 0.181 | | 2.49 | mg/L | | 92.2 | (90%-110%) | | |
| Sulfate | 10.0 | | 13.1 | | 23.5 | mg/L | | 104 | (90%-110%) | | |
| **Nutrient Analysis** | | | | | | | | | | | |
| Batch 1300635 | | | | | | | | | | | |
| QC1202873059 325283001 DUP | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | U | ND | U | ND | mg/L | N/A | | | KLP1 | 05/14/13 13:50 |
| QC1202873060 325283003 DUP | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | | 0.109 | | 0.123 | mg/L | 12.1 ^ | | (+/-0.100) | | 05/14/13 13:53 |
| QC1202873063 LCS | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | | | | 0.987 | mg/L | | 98.7 | (90%-110%) | | 05/14/13 13:48 |
| QC1202873058 MB | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | | | U | ND | mg/L | | | | | 05/14/13 13:47 |
| QC1202873061 325283001 MS | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | U | ND | | 0.991 | mg/L | | 99.1 | (90%-110%) | | 05/14/13 13:51 |
| QC1202873062 325283003 MS | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | | 0.109 | | 1.06 | mg/L | | 95.1 | (90%-110%) | | 05/14/13 13:53 |

## QC Summary

**Workorder: 325479**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Nutrient Analysis** | | | | | | | | | | | |
| Batch 1301246 | | | | | | | | | | | |
| QC1202874599 325284002 DUP | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | | 2.12 | | 2.10 | mg/L | 0.950 | | (0%-20%) | KLP1 | 06/03/13 14:03 |
| QC1202874605 LCS | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | 1.00 | | | | 0.979 | mg/L | | 97.9 | (90%-110%) | | 06/03/13 11:59 |
| QC1202874598 MB | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | | | U | ND | mg/L | | | | | 06/03/13 11:58 |
| QC1202874602 325284002 PS | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | 1.00 | | 0.423 | | 1.43 | mg/L | | 101 | (90%-110%) | | 06/03/13 14:04 |
| Batch 1301250 | | | | | | | | | | | |
| QC1202874617 325479002 DUP | | | | | | | | | | | |
| Nitrogen, Ammonia | | | 0.0937 | J | 0.0255 | mg/L | 114*^ | | (+/-0.050) | KLP1 | 05/20/13 15:59 |
| QC1202874620 LCS | | | | | | | | | | | |
| Nitrogen, Ammonia | 1.00 | | | | 1.04 | mg/L | | 104 | (90%-110%) | | 05/20/13 15:48 |
| QC1202874615 MB | | | | | | | | | | | |
| Nitrogen, Ammonia | | | | J | 0.0235 | mg/L | | | | | 05/20/13 15:48 |
| QC1202874619 325479002 MS | | | | | | | | | | | |
| Nitrogen, Ammonia | 1.00 | | 0.0937 | | 1.05 | mg/L | | 95.6 | (90%-110%) | | 05/20/13 16:00 |
| Batch 1301773 | | | | | | | | | | | |
| QC1202876008 325479002 DUP | | | | | | | | | | | |
| Phosphorus, Total as P | | J | 0.0458 | J | 0.0491 | mg/L | 6.95 ^ | | (+/-0.050) | KLP1 | 05/21/13 12:07 |
| QC1202876009 325479005 DUP | | | | | | | | | | | |
| Phosphorus, Total as P | | J | 0.0426 | J | 0.0436 | mg/L | 2.32 ^ | | (+/-0.050) | | 05/21/13 12:10 |
| QC1202876012 LCS | | | | | | | | | | | |
| Phosphorus, Total as P | 1.00 | | | | 1.04 | mg/L | | 104 | (76%-120%) | | 05/21/13 12:17 |
| QC1202876007 MB | | | | | | | | | | | |
| Phosphorus, Total as P | | | | J | 0.0287 | mg/L | | | | | 05/21/13 12:05 |
| QC1202876010 325479002 MS | | | | | | | | | | | |
| Phosphorus, Total as P | 1.00 | J | 0.0458 | | 0.786 | mg/L | | 74 | (62%-139%) | | 05/21/13 12:08 |
| QC1202876011 325479005 MS | | | | | | | | | | | |
| Phosphorus, Total as P | 1.00 | J | 0.0426 | | 0.978 | mg/L | | 93.5 | (62%-139%) | | 05/21/13 12:11 |
| **Solids Analysis** | | | | | | | | | | | |
| Batch 1301226 | | | | | | | | | | | |
| QC1202874535 325479005 DUP | | | | | | | | | | | |

## QC Summary

**Workorder: 325479**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Solids Analysis** | | | | | | | | | | |
| Batch 1301226 | | | | | | | | | | |
| Total Dissolved Solids | | 154 | | 141 | mg/L | 8.70 | | (0%-10%) | LYG1 | 05/13/13 07:47 |
| QC1202874536 LCS | | | | | | | | | | |
| Total Dissolved Solids | 300 | | | 289 | mg/L | | 96.2 | (95%-105%) | | 05/13/13 07:47 |
| QC1202874534 MB | | | | | | | | | | |
| Total Dissolved Solids | | | U | ND | mg/L | | | | | 05/13/13 07:47 |
| **Titration Analysis** | | | | | | | | | | |
| Batch 1302919 | | | | | | | | | | |
| QC1202878878 325649002 DUP | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | 54.8 | | 55.8 | mg/L | 1.83 | | (0%-20%) | LXA1 | 05/20/13 15:10 |
| Carbonate alkalinity (CaCO3) | U | ND | U | ND | mg/L | N/A | | | | |
| QC1202878877 LCS | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | 50.0 | | | 51.3 | mg/L | | 103 | (90%-110%) | | 05/20/13 11:51 |
| QC1202878879 325649002 MS | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | 50.0 | 54.8 | | 104 | mg/L | | 97.4 | (80%-120%) | | 05/20/13 15:17 |

**Notes:**

| | |
|---|---|
| ** | Analyte is a Tracer compound |
| ** | Analyte is a surrogate compound |
| < | Result is less than value reported |
| > | Result is greater than value reported |
| A | The TIC is a suspected aldol-condensation product |
| B | The target analyte was detected in the associated blank. |
| BD | Results are either below the MDC or tracer recovery is low |
| C | Analyte has been confirmed by GC/MS analysis |
| D | Results are reported from a diluted aliquot of the sample |
| E | %difference of sample and SD is >10%. Sample concentration must meet flagging criteria |
| E | Concentration of the target analyte exceeds the instrument calibration range |
| E | General Chemistry--Concentration of the target analyte exceeds the instrument calibration range |
| FA | Failed analysis. |
| FB | Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies |
| H | Analytical holding time was exceeded |
| J | Value is estimated |
| JNX | Non Calibrated Compound |

## QC Summary

**Workorder:** **325479**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|

| | |
|---|---|
| K | Analyte present. Reported value may be biased high. Actual value is expected to be lower. |
| L | Analyte present. Reported value may be biased low. Actual value is expected to be higher. |
| M | M if above MDC and less than LLD |
| M | REMP Result > MDC/CL and < RDL |
| N | Metals--The Matrix spike sample recovery is not within specified control limits |
| N | Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N | Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N/A | RPD or %Recovery limits do not apply. |
| N1 | See case narrative |
| ND | Analyte concentration is not detected above the detection limit |
| NJ | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| P | Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70% |
| Q | One or more quality control criteria have not been met. Refer to the applicable narrative or DER. |
| R | Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes. |
| R | Sample results are rejected |
| U | Analyte was analyzed for, but not detected above the MDL, MDA, or LOD. |
| UI | Gamma Spectroscopy--Uncertain identification |
| UJ | Compound cannot be extracted |
| UJ | Gamma Spectroscopy--Uncertain identification |
| UL | Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias. |
| X | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| Y | Other specific qualifiers were required to properly define the results. Consult case narrative. |
| Y | QC Samples were not spiked with this compound |
| Z | Paint Filter Test--Particulates passed through the filter, however no free liquids were observed. |
| ^ | RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry. |
| d | 5-day BOD--The 2:1 depletion requirement was not met for this sample |
| h | Preparation or preservation holding time was exceeded |

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

# Miscellaneous

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 20-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** LACHAT Flow Injection Analyzer | **Test / Method:** EPA 350.1 | **Matrix Type:** Liquid | **Client Code:** ALBR, ECWS, ESHL, GSTL, |
| **Batch ID:** 1301250 | **Sample Numbers:** See Below | | |

**Potentially affected work order(s)(SDG):** **325415,325433,325456,325465,325479(2013-822),325480(2013-823),325596,325598,325643(2013-832),325647(2013-831),325657,325730**

**Application Issues:**

Failed RPD for DUP

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed RPD for DUP:<br><br>QC 1202874617DUP | 1. The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample. |

**Originator's Name:**
Kristen Parson 20-MAY-13

**Data Validator/Group Leader:**
Thomas Lewis 21-MAY-13

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 30-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| ELECTRODE | EPA 150.1 | Liquid | ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1301230 | See below. | | |

**Potentially affected work order(s)(SDG): 325479(2013-822),325480(2013-823)**

**Application Issues:**

Sample received out of holding

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Sample received out of holding:<br><br>325479002, 325479005, and 325480002 | 1. Samples were received out of holding. |

**Originator's Name:**

Lisa Gregory 30-MAY-13

**Data Validator/Group Leader:**

Julia Hamilton 05-JUN-13

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 04-JUN-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| IC | EPA 300.0 | Liquid | ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1300945 | See Below | | |

**Potentially affected work order(s)(SDG): 325479(2013-822),325480(2013-823),325643(2013-832),325647(2013-831),325649(2013-830)**

**Application Issues:**

Failed Recovery for MS/PS

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed Recovery for MS/PS:<br><br>QC 1202873937PS | 1. The MS/PS mixture contains seven anions of interest. Of those, all requested anions except chloride met normal acceptance criteria for recovery (90 - 110%). This failure is attributed to the matrix of the sample because the successful recovery of the other compounds indicate that the laboratory process was in control. This variance is judged to have no negative impact on the data. The deviation is noted in the Case Narrative and DER, and the data has been reported. |

**Originator's Name:**

Mary Sherwood 05-JUN-13

**Data Validator/Group Leader:**

Virginia Wininger 06-JUN-13

# Radiological Analysis

**Radiochemistry Case Narrative**
**ARS International (ARSL)**
**SDG 2013-822**
**Work Order 325479**

**Method/Analysis Information**

| | |
|---|---|
| **Product:** | **Alphaspec Am241 Liquid** |
| Analytical Method: | DOE EML HASL-300, Am-05-RC Modified |
| Analytical Batch Number: | 1301466 |

| **Sample ID** | **Client ID** |
|---|---|
| 325479001 | CAMO-13-30586 |
| 325479004 | CAMO-13-30562 |
| 1202875202 | Method Blank (MB) |
| 1202875203 | 325479001(CAMO-13-30586) Sample Duplicate (DUP) |
| 1202875204 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 24.

**Calibration Information:**

**Calibration Information**
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

**Standards Information**
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

**Sample Geometry**
All counting sources were prepared in the same geometry as the calibration standards.

**Quality Control (QC) Information:**

**Blank Information**
Aliquots for samples 1202875202 (MB) and 1202875204 (LCS) were changed to 1.0 per client request.

**Designated QC**
The following sample was used for QC: 325479001 (CAMO-13-30586). The QC was from ARSL work order 325479.

**QC Information**
All of the QC samples meet the required acceptance limits with the following exceptions: Refer to Data Exception Report (DER).

**CSU**
The blank result is less than 1.65 times the CSU.

**Technical Information:**

**Holding Time**
All sample procedures for this sample set were performed within the required holding time.

**Sample Re-prep/Re-analysis**
None of the samples in this sample set required reprep or reanalysis.

**Miscellaneous Information:**

**Data Exception (DER) Documentation**
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. The following DER was generated for this SDG: DER 1188184 was generated due to RDL less than MDA. 1. Samples 325479001, 325479004, and 1202875203 do not meet the detection limits for Americium-241 due to the high standard deviation. 1. When a blank population is performed, the MDC is greater than the RDL due to the high standard deviation. Samples did achieve more than 400 tracer counts and were counted for the maximum count time of 1000 minutes. Reporting results.

**Manual Integration**
No manual integrations were performed on data in this batch.

**Additional Comments**
The MDCs are calculated using a blank population.

**Blank Decision Level**
The blank result is less than the decision level.

**Qualifier Information**

Manual qualifiers were not required.

**Method/Analysis Information**

| | |
|---|---|
| **Product:** | **Alphaspec Pu, Liquid** |
| Analytical Method: | DOE EML HASL-300, Pu-11-RC Modified |
| Analytical Batch Number: | 1301467 |

| Sample ID | Client ID |
|---|---|
| 325479001 | CAMO-13-30586 |
| 325479004 | CAMO-13-30562 |
| 1202875205 | Method Blank (MB) |
| 1202875206 | 325479001(CAMO-13-30586) Sample Duplicate (DUP) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 24.

**Calibration Information:**

**Calibration Information**
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

**Standards Information**
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

**Sample Geometry**
All counting sources were prepared in the same geometry as the calibration standards.

**Quality Control (QC) Information:**

**Blank Information**
Aliquots for samples 1202875205 (MB) and 1202875207 (LCS) were changed to 1.0 per client request.

**Designated QC**
The following sample was used for QC: 325479001 (CAMO-13-30586). The QC was from ARSL work order 325479.

**QC Information**
All of the QC samples met the required acceptance limits.

**CSU**
The Pu-239/240 blank result is greater than 1.65 times the CSU but less than the MDC. 1202875205 (MB).

**Technical Information:**

**Holding Time**
All sample procedures for this sample set were performed within the required holding time.

**Sample Re-prep/Re-analysis**
Samples 1202875206 (CAMO-13-30586) and 325479001 (CAMO-13-30586) were recounted due to a peak shift. The recounts are reported. Sample 325479004 (CAMO-13-30562) was recounted due to high MDAs. The recount had poor resolution and therefore we are reporting the original count.

**Miscellaneous Information:**

**Data Exception (DER) Documentation**
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. The following DER was generated for this SDG: DER 1188721 was generated due to RDL less than MDA. 1. Sample 325479004 did not meet the Pu-238 and Pu-239/240 detection limits. 1. When a blank population is performed the MDC is greater than the high standard deviation. The sample was counted the maximum count time of 1000 minutes in order to achieve the lowest possible MDC. Reporting

results.

**Manual Integration**
No manual integrations were performed on data in this batch.

**Additional Comments**
The MDCs are calculated using a blank population.

**Blank Decision Level**
The blank result is less than the decision level.

**Qualifier Information**

Manual qualifiers were not required.

**Method/Analysis Information**

| | |
|---|---|
| **Product:** | **Alphaspec U, Liquid** |
| Analytical Method: | DOE EML HASL-300, U-02-RC Modified |
| Analytical Batch Number: | 1301468 |

| Sample ID | Client ID |
|---|---|
| 325479001 | CAMO-13-30586 |
| 325479004 | CAMO-13-30562 |
| 1202875208 | Method Blank (MB) |
| 1202875209 | 325479001(CAMO-13-30586) Sample Duplicate (DUP) |
| 1202875210 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 24.

**Calibration Information:**

**Calibration Information**
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

**Standards Information**
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

**Sample Geometry**
All counting sources were prepared in the same geometry as the calibration standards.

**Quality Control (QC) Information:**

**Blank Information**
Aliquots for samples 1202875208 (MB) and 1202875210 (LCS) were changed to 1.0 per client request.

**Designated QC**
The following sample was used for QC: 325479001 (CAMO-13-30586). The QC was from ARSL work order 325479.

**QC Information**
All of the QC samples met the required acceptance limits.

**CSU**
The U-235/236 blank result is greater than 1.65 times the CSU but less than the MDC.

**Technical Information:**

**Holding Time**
All sample procedures for this sample set were performed within the required holding time.

**Sample Re-prep/Re-analysis**
Sample 325479001 (CAMO-13-30586) was recounted due to a peak shift. The recount is reported.

**Miscellaneous Information:**

**Data Exception (DER) Documentation**
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Manual Integration**
No manual integrations were performed on data in this batch.

**Additional Comments**
The MDCs are calculated using a blank population.

**Blank Decision Level**
The U-235/236 blank result is greater than the decision level but less than the MDC.

**Qualifier Information**

Manual qualifiers were not required.

**Method/Analysis Information**

| | |
|---|---|
| **Product:** | **Gammaspec** |
| Analytical Method: | EPA 901.1 |
| Analytical Batch Number: | 1302818 |

| Sample ID | Client ID |
|---|---|

| | |
|---|---|
| 325479001 | CAMO-13-30586 |
| 325479004 | CAMO-13-30562 |
| 1202878533 | Method Blank (MB) |
| 1202878534 | 326020001(CAMO-13-30584) Sample Duplicate (DUP) |
| 1202878535 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-013 REV# 25.

**Calibration Information:**

**Calibration Information**
All initial and continuing calibration requirements have been met. The initial Calibrations were performed in May 2012, July 2012 and August 2012.

**Standards Information**
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

**Sample Geometry**
All counting sources were prepared in the same geometry as the calibration standards.

**Quality Control (QC) Information:**

**Blank Information**
The blank volume is representative of the sample volume in this batch.

**Designated QC**
The following sample was used for QC: 326020001 (CAMO-13-30584). The QC was from ARSL work order 326020.

**QC Information**
All of the QC samples met the required acceptance limits.

**CSU**
The blank result is less than 1.65 times the CSU.

**Technical Information:**

**Holding Time**
All sample procedures for this sample set were performed within the required holding time.

**Sample Re-prep/Re-analysis**
None of the samples in this sample set required reprep or reanalysis.

**Miscellaneous Information:**

**Data Exception (DER) Documentation**
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this sample set.

**Blank Decision Level**
The blank result is less than the decision level.

**Qualifier Information**

Manual qualifiers were not required.

**Method/Analysis Information**

| | |
|---|---|
| **Product:** | **GFPC, Sr90, liquid** |
| Analytical Method: | EPA 905.0 Modified |
| Analytical Batch Number: | 1301365 |

| Sample ID | Client ID |
|---|---|
| 325479001 | CAMO-13-30586 |
| 325479004 | CAMO-13-30562 |
| 1202874957 | Method Blank (MB) |
| 1202874958 | 325479001(CAMO-13-30586) Sample Duplicate (DUP) |
| 1202874959 | 325479001(CAMO-13-30586) Matrix Spike (MS) |
| 1202874960 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-004 REV# 16.

**Calibration Information:**

**Calibration Information**
All initial and continuing calibration requirements have been met. The initial Calibration was performed in March 2013.

**Standards Information**
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

**Sample Geometry**
All counting sources were prepared in the same geometry as the calibration standards.

**Quality Control (QC) Information:**

**Blank Information**
Aliquots for samples 1202874957 (MB) and 1202874960 (LCS) were changed to 1.0 per client request.

**Designated QC**
The following sample was used for QC: 325479001 (CAMO-13-30586). The QC was from ARSL work order 325479.

**QC Information**
All of the QC samples met the required acceptance limits.

**CSU**
The blank result is less than 1.65 times the CSU.

**Technical Information:**

**Holding Time**
All sample procedures for this sample set were performed within the required holding time.

**Sample Re-prep/Re-analysis**
None of the samples in this sample set required reprep or reanalysis.

**Chemical Recoveries**
All chemical recoveries meet the required acceptance limits for this sample set.

**Miscellaneous Information:**

**Data Exception (DER) Documentation**
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
The matrix spike, 1202874959 (CAMO-13-30586), aliquot was reduced to conserve sample volume.

**Blank Decision Level**
The blank result is less than the decision level.

**Qualifier Information**

Manual qualifiers were not required.

**Method/Analysis Information**

| | |
|---|---|
| **Product:** | **WSP-GrossA/B** |
| Analytical Method: | EPA 900.0/SW846 9310 |
| Analytical Batch Number: | 1301385 |

| Sample ID | Client ID |
|---|---|
| 325479001 | CAMO-13-30586 |
| 325479004 | CAMO-13-30562 |
| 1202875025 | Method Blank (MB) |
| 1202875026 | 325284005(CAMO-13-30558) Sample Duplicate (DUP) |

| | |
|---|---|
| 1202875027 | 325284005(CAMO-13-30558) Matrix Spike (MS) |
| 1202875028 | 325284005(CAMO-13-30558) Matrix Spike Duplicate (MSD) |
| 1202875029 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-001 REV# 16.

**Calibration Information:**

**Calibration Information**
All initial and continuing calibration requirements have been met. The initial Calibration was performed in December 2012.

**Standards Information**
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

**Sample Geometry**
All counting sources were prepared in the same geometry as the calibration standards.

**Quality Control (QC) Information:**

**Blank Information**
Aliquots for samples 1202875025 (MB) and 1202875029 (LCS) were changed to 1.0 per client request.

**Designated QC**
The following sample was used for QC: 325284005 (CAMO-13-30558). The QC was from ARSL work order 325284.

**QC Information**
All of the QC samples met the required acceptance limits.

**CSU**
The blank 1202875025 (MB) alpha result is greater than 1.65 times the CSU but less than the MDC.

**Technical Information:**

**Holding Time**
All sample procedures for this sample set were performed within the required holding time.

**Sample Re-prep/Re-analysis**
None of the samples in this sample set required reprep or reanalysis.

**Chemical Recoveries**
All chemical recoveries meet the required acceptance limits for this sample set.

**Gross Alpha/Beta Preparation Information**
High hygroscopic salt content in evaporated samples can cause the sample mass to fluctuate due to moisture absorption. To minimize this interference, the salts are converted to oxides by heating the sample under a flame until a dull red color is obtained. The conversion to oxides stabilizes the sample weight and ensures that proper alpha/beta efficiencies are assigned for each sample. Volatile radioisotopes of carbon, hydrogen, technetium,

polonium and cesium may be lost during sample heating, especially to a dull red heat. For this sample set, the prepared planchet was counted for beta activity before being flamed. After flaming, the planchet was counted for alpha activity.

**Miscellaneous Information:**

**Data Exception (DER) Documentation**
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
The matrix spike and matrix spike duplicate, 1202875027 (CAMO-13-30558) and 1202875028 (CAMO-13-30558), aliquots were reduced to conserve sample volume.

**Blank Decision Level**
The blank 1202875025 (MB) alpha result is greater than the decision level but less than the MDC.

**Qualifier Information**

Manual qualifiers were not required.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-822  GEL Work Order: 325479

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

**  Analyte is a Tracer compound

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

**Review/Validation**

GEL requires all analytical data to be verified by a qualified data reviewer.  In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

**Signature:** Heather M. McCarty  **Name:** **Heather McCarty**

**Date:** **31 MAY 2013**  **Title:** **Analyst II**

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 21-MAY-13 | Radiochemistry | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| ALPHA SPECTROMETER | DOE EML HASL-300, Am-05-RC Modified | Liquid | ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1301466 | See Below | | |

**Potentially affected work order(s)(SDG): 325479(2013-822)**

**Application Issues:**

RDL less than MDA

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Samples 325479001, 325479004, and 1202875203 do not meet the detection limits for Americium-241 due to the high standard deviation. | 1. When a blank population is performed, the MDC is greater than the RDL due to the high standard deviation. Samples did achieve more than 400 tracer counts and were counted for the maximum count time of 1000 minutes. Reporting results. |

**Originator's Name:**

Matelon DeFreese 21-MAY-13

**Data Validator/Group Leader:**

Jessica Davis 30-MAY-13

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 23-MAY-13 | Radiochemistry | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| ALPHA SPECTROMETER | DOE EML HASL-300, Pu-11-RC Modified | Liquid | ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1301467 | See Below | | |

**Potentially affected work order(s)(SDG): 325479(2013-822)**

**Application Issues:**

RDL less than MDA

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Sample 325479004 did not meet the Pu-238 and Pu-239/240 detection limits. | 1. When a blank population is performed the MDC is greater than the high standard deviation. The sample was counted the maximum count time of 1000 minutes in order to achieve the lowest possible MDC. Reporting results. |

**Originator's Name:**

Melanie Aycock 23-MAY-13

**Data Validator/Group Leader:**

Jessica Davis 30-MAY-13

# Sample Data Summary

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

# Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: May 31, 2013

Contact: Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-30586
Sample ID: 325479001
Matrix: W
Collect Date: 08-MAY-13
Receive Date: 10-MAY-13
Collector: Client

Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | Uncertainty | MDC | TPU | RL | Units | DF | Analyst | Date | Time | Batch | Mtd. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Rad Alpha Spec Analysis** | | | | | | | | | | | | | |
| *Alphaspec Am241 Liquid "As Received"* | | | | | | | | | | | | | |
| Americium-241 | U | -0.00325 | +/-0.00562 | 0.0629 | +/-0.00563 | 0.050 | pCi/L | | NXP2 | 05/19/13 | 1400 | 1301466 | 1 |
| *Alphaspec Pu, Liquid "As Received"* | | | | | | | | | | | | | |
| Plutonium-238 | U | -0.00923 | +/-0.00863 | 0.0343 | +/-0.00863 | 0.050 | pCi/L | | NXP2 | 05/22/13 | 1154 | 1301467 | 2 |
| Plutonium-239/240 | U | 0.00 | +/-0.00652 | 0.0413 | +/-0.00652 | 0.050 | pCi/L | | | | | | |
| *Alphaspec U, Liquid "As Received"* | | | | | | | | | | | | | |
| Uranium-234 | | 0.563 | +/-0.0497 | 0.0949 | +/-0.063 | 1.00 | pCi/L | | NXP2 | 05/21/13 | 1707 | 1301468 | 3 |
| Uranium-235/236 | | 0.0512 | +/-0.0177 | 0.0441 | +/-0.0181 | 1.00 | pCi/L | | | | | | |
| Uranium-238 | | 0.286 | +/-0.0358 | 0.0573 | +/-0.0409 | 0.500 | pCi/L | | | | | | |
| **Rad Gamma Spec Analysis** | | | | | | | | | | | | | |
| *Gammaspec "As Received"* | | | | | | | | | | | | | |
| Cesium-137 | U | 0.346 | +/-1.40 | 4.95 | +/-1.40 | 8.00 | pCi/L | | RXF2 | 05/21/13 | 1342 | 1302818 | 4 |
| Cobalt-60 | U | 0.776 | +/-1.40 | 5.86 | +/-1.41 | 8.00 | pCi/L | | | | | | |
| Neptunium-237 | U | -0.32 | +/-3.01 | 10.7 | +/-3.01 | 10.0 | pCi/L | | | | | | |
| Potassium-40 | U | -2.88 | +/-18.7 | 72.8 | +/-18.7 | 10.0 | pCi/L | | | | | | |
| Sodium-22 | U | -1.33 | +/-1.54 | 5.41 | +/-1.57 | 10.0 | pCi/L | | | | | | |
| **Rad Gas Flow Proportional Counting** | | | | | | | | | | | | | |
| *GFPC, Sr90, liquid "As Received"* | | | | | | | | | | | | | |
| Strontium-90 | U | 0.162 | +/-0.145 | 0.494 | +/-0.145 | 0.500 | pCi/L | | BXF1 | 05/27/13 | 1417 | 1301365 | 5 |
| *WSP-GrossA/B "As Received"* | | | | | | | | | | | | | |
| Beta | | 4.15 | +/-0.985 | 2.83 | +/-1.04 | 3.00 | pCi/L | | DYT1 | 05/29/13 | 1234 | 1301385 | 6 |
| Alpha | U | 1.38 | +/-0.856 | 2.75 | +/-0.864 | 3.00 | pCi/L | | DYT1 | 05/30/13 | 1512 | 1301385 | 7 |

**The following Analytical Methods were performed**

| Method | Description |
|---|---|
| 1 | DOE EML HASL-300, Am-05-RC Modified |
| 2 | DOE EML HASL-300, Pu-11-RC Modified |
| 3 | DOE EML HASL-300, U-02-RC Modified |
| 4 | EPA 901.1 |
| 5 | EPA 905.0 Modified |
| 6 | EPA 900.0/SW846 9310 |
| 7 | EPA 900.0/SW846 9310 |

| Surrogate/Tracer Recovery | Test | Batch ID | Recovery% | Acceptable Limits |
|---|---|---|---|---|
| Americium-243 Tracer | Alphaspec Am241 Liquid "As Received" | 1301466 | 67.8 | (50%-105%) |
| Plutonium-242 Tracer | Alphaspec Pu, Liquid "As Received" | 1301467 | 76.1 | (50%-105%) |
| Uranium-232 Tracer | Alphaspec U, Liquid "As Received" | 1301468 | 51.3 | (50%-105%) |

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## Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: May 31, 2013

Contact: Keith Greene

Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-30586
Sample ID: 325479001

Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | Uncertainty | MDC | TPU | RL | Units | DF | Analyst | Date | Time | Batch | Mtd. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| Surrogate/Tracer Recovery | Test | Batch ID | Recovery% | Acceptable Limits |
|---|---|---|---|---|
| Strontium Carrier | GFPC, Sr90, liquid "As Received" | 1301365 | 86.5 | (50%-105%) |

**Notes:**

TPU and Counting Uncertainty are calculated at the 68% confidence level (1-sigma).

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Los Alamos, New Mexico 87545

Report Date: May 31, 2013

Contact: Keith Greene

Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-30562
Sample ID: 325479004
Matrix: W
Collect Date: 08-MAY-13
Receive Date: 10-MAY-13
Collector: Client

Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | Uncertainty | MDC | TPU | RL | Units | DF | Analyst | Date | Time | Batch | Mtd. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Rad Alpha Spec Analysis** | | | | | | | | | | | | | |
| *Alphaspec Am241 Liquid "As Received"* | | | | | | | | | | | | | |
| Americium-241 | U | 0.00 | +/-0.00452 | 0.062 | +/-0.00452 | 0.050 | pCi/L | | NXP2 | 05/19/13 | 1400 | 1301466 | 1 |
| *Alphaspec Pu, Liquid "As Received"* | | | | | | | | | | | | | |
| Plutonium-238 | U | 0.00 | +/-0.00965 | 0.0586 | +/-0.00965 | 0.050 | pCi/L | | NXP2 | 05/19/13 | 1359 | 1301467 | 2 |
| Plutonium-239/240 | U | 0.0158 | +/-0.00965 | 0.0706 | +/-0.00968 | 0.050 | pCi/L | | | | | | |
| *Alphaspec U, Liquid "As Received"* | | | | | | | | | | | | | |
| Uranium-234 | | 0.701 | +/-0.0471 | 0.0696 | +/-0.0659 | 1.00 | pCi/L | | NXP2 | 05/19/13 | 1353 | 1301468 | 3 |
| Uranium-235/236 | U | 0.0225 | +/-0.0106 | 0.0323 | +/-0.0107 | 1.00 | pCi/L | | | | | | |
| Uranium-238 | | 0.392 | +/-0.0347 | 0.042 | +/-0.0432 | 0.500 | pCi/L | | | | | | |
| **Rad Gamma Spec Analysis** | | | | | | | | | | | | | |
| *Gammaspec "As Received"* | | | | | | | | | | | | | |
| Cesium-137 | U | 4.24 | +/-1.72 | 4.42 | +/-1.73 | 8.00 | pCi/L | | RXF2 | 05/21/13 | 1342 | 1302818 | 4 |
| Cobalt-60 | U | -0.0409 | +/-1.90 | 7.09 | +/-1.90 | 8.00 | pCi/L | | | | | | |
| Neptunium-237 | U | 0.359 | +/-3.25 | 11.5 | +/-3.25 | 10.0 | pCi/L | | | | | | |
| Potassium-40 | U | 9.73 | +/-19.1 | 63.1 | +/-19.1 | 10.0 | pCi/L | | | | | | |
| Sodium-22 | U | 2.30 | +/-1.61 | 6.94 | +/-1.69 | 10.0 | pCi/L | | | | | | |
| **Rad Gas Flow Proportional Counting** | | | | | | | | | | | | | |
| *GFPC, Sr90, liquid "As Received"* | | | | | | | | | | | | | |
| Strontium-90 | U | 0.0627 | +/-0.141 | 0.497 | +/-0.141 | 0.500 | pCi/L | | BXF1 | 05/27/13 | 1417 | 1301365 | 5 |
| *WSP-GrossA/B "As Received"* | | | | | | | | | | | | | |
| Beta | | 2.93 | +/-0.873 | 2.48 | +/-0.907 | 3.00 | pCi/L | | DYT1 | 05/29/13 | 1230 | 1301385 | 6 |
| Alpha | U | -0.0718 | +/-0.668 | 2.97 | +/-0.668 | 3.00 | pCi/L | | DYT1 | 05/30/13 | 1512 | 1301385 | 7 |

**The following Analytical Methods were performed**

| Method | Description |
|---|---|
| 1 | DOE EML HASL-300, Am-05-RC Modified |
| 2 | DOE EML HASL-300, Pu-11-RC Modified |
| 3 | DOE EML HASL-300, U-02-RC Modified |
| 4 | EPA 901.1 |
| 5 | EPA 905.0 Modified |
| 6 | EPA 900.0/SW846 9310 |
| 7 | EPA 900.0/SW846 9310 |

| Surrogate/Tracer Recovery | Test | Batch ID | Recovery% | Acceptable Limits |
|---|---|---|---|---|
| Americium-243 Tracer | Alphaspec Am241 Liquid "As Received" | 1301466 | 74.3 | (50%-105%) |
| Plutonium-242 Tracer | Alphaspec Pu, Liquid "As Received" | 1301467 | 55.4 | (50%-105%) |
| Uranium-232 Tracer | Alphaspec U, Liquid "As Received" | 1301468 | 73.1 | (50%-105%) |
| Strontium Carrier | GFPC, Sr90, liquid "As Received" | 1301365 | 87.7 | (50%-105%) |

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## Certificate of Analysis

Company : Los Alamos National Laboratory
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Los Alamos, New Mexico 87545

Report Date: May 31, 2013

Contact: Keith Greene

Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-30562
Sample ID: 325479004

Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | Uncertainty | MDC | TPU | RL | Units | DF | Analyst | Date | Time | Batch | Mtd. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| Surrogate/Tracer Recovery | Test | Batch ID | Recovery% | Acceptable Limits |
|---|---|---|---|---|

**Notes:**

TPU and Counting Uncertainty are calculated at the 68% confidence level (1-sigma).

# Quality Control Data

## QC Summary

**Report Date: May 31, 2013**


**Client :** **Los Alamos National Laboratory**
**PO Box 1663**
**TA-03, SM271, Drop Pt. 02U, Rm111**
**Los Alamos, New Mexico**

**Contact:** **Keith Greene**

**Workorder:** **325479**

| Parmname | NOM | Sample | Qual | QC | Units | RER | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Rad Alpha Spec** | | | | | | | | | | |
| Batch 1301466 | | | | | | | | | | |
| QC1202875203 325479001 DUP | | | | | | | | | | |
| Americium-241 | U | -0.00325 | U | 0.00295 | pCi/L | 0.253 | | (0-1) | NXP2 | 05/19/1314:00 |
| | Uncert: | +/-0.00562 | | +/-0.0066 | | | | | | |
| | TPU: | +/-0.00563 | | +/-0.0066 | | | | | | |
| **Americium-243 Tracer | 2.62 | 1.78 | | 1.96 | pCi/L | | 74.9 | (50%-105%) | | |
| | Uncert: | +/-0.0918 | | +/-0.0876 | | | | | | |
| | TPU: | +/-0.149 | | +/-0.144 | | | | | | |
| QC1202875204 LCS | | | | | | | | | | |
| Americium-241 | 1.41 | | | 1.37 | pCi/L | | 96.9 | (80%-120%) | NXP2 | 05/19/1314:00 |
| | Uncert: | | | +/-0.0626 | | | | | | |
| | TPU: | | | +/-0.0891 | | | | | | |
| **Americium-243 Tracer | 2.09 | | | 1.29 | pCi/L | | 61.5 | (50%-105%) | | |
| | Uncert: | | | +/-0.0768 | | | | | | |
| | TPU: | | | +/-0.124 | | | | | | |
| QC1202875202 MB | | | | | | | | | | |
| Americium-241 | | | U | 0.00 | pCi/L | | | | NXP2 | 05/19/1314:00 |
| | Uncert: | | | +/-0.00417 | | | | | | |
| | TPU: | | | +/-0.00418 | | | | | | |
| **Americium-243 Tracer | 2.09 | | | 1.78 | pCi/L | | 85 | (50%-105%) | | |
| | Uncert: | | | +/-0.0657 | | | | | | |
| | TPU: | | | +/-0.110 | | | | | | |
| Batch 1301467 | | | | | | | | | | |
| QC1202875206 325479001 DUP | | | | | | | | | | |
| Plutonium-238 | U | -0.00923 | U | -0.00497 | pCi/L | 0.129 | | (0-1) | NXP2 | 05/22/1311:54 |
| | Uncert: | +/-0.00863 | | +/-0.00786 | | | | | | |
| | TPU: | +/-0.00863 | | +/-0.00786 | | | | | | |
| Plutonium-239/240 | U | 0.00 | U | 0.00497 | pCi/L | 0.151 | | (0-1) | | |
| | Uncert: | +/-0.00652 | | +/-0.00994 | | | | | | |
| | TPU: | +/-0.00652 | | +/-0.00994 | | | | | | |
| **Plutonium-242 Tracer | 2.44 | 1.86 | | 1.56 | pCi/L | | 64.1 | (50%-105%) | | |
| | Uncert: | +/-0.0755 | | +/-0.0782 | | | | | | |
| | TPU: | +/-0.127 | | +/-0.130 | | | | | | |
| QC1202875207 LCS | | | | | | | | | | |
| Plutonium-238 | | | U | 0.00965 | pCi/L | | | (80%-120%) | NXP2 | 05/19/1313:59 |
| | Uncert: | | | +/-0.00763 | | | | | | |
| | TPU: | | | +/-0.00764 | | | | | | |
| Plutonium-239/240 | 1.97 | | | 2.21 | pCi/L | | 112 | (80%-120%) | | |
| | Uncert: | | | +/-0.0737 | | | | | | |
| | TPU: | | | +/-0.124 | | | | | | |
| **Plutonium-242 Tracer | 1.95 | | | 1.50 | pCi/L | | 76.7 | (50%-105%) | | |
| | Uncert: | | | +/-0.0688 | | | | | | |
| | TPU: | | | +/-0.112 | | | | | | |
| QC1202875205 MB | | | | | | | | | | |

## QC Summary

**Workorder: 325479**



| Parmname | NOM | Sample | Qual | QC | Units | RER | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Rad Alpha Spec** | | | | | | | | | | |
| Batch 1301467 | | | | | | | | | | |
| Plutonium-238 | | | U | 0.00257 | pCi/L | | | | NXP2 | 05/19/1313:59 |
| | Uncert: | | | +/-0.00574 | | | | | | |
| | TPU: | | | +/-0.00574 | | | | | | |
| Plutonium-239/240 | | | U | 0.0154 | pCi/L | | | | | |
| | Uncert: | | | +/-0.00726 | | | | | | |
| | TPU: | | | +/-0.0073 | | | | | | |
| **Plutonium-242 Tracer | 1.95 | | | 1.36 | pCi/L | | 69.9 | (50%-105%) | | |
| | Uncert: | | | +/-0.0714 | | | | | | |
| | TPU: | | | +/-0.115 | | | | | | |
| Batch 1301468 | | | | | | | | | | |
| QC1202875209 325479001 DUP | | | | | | | | | | |
| Uranium-234 | | 0.563 | | 0.563 | pCi/L | 0.000672 | | (0-1) | NXP2 | 05/19/1313:54 |
| | Uncert: | +/-0.0497 | | +/-0.0392 | | | | | | |
| | TPU: | +/-0.063 | | +/-0.0535 | | | | | | |
| Uranium-235/236 | | 0.0512 | U | 0.00994 | pCi/L | 0.808 | | (0-1) | | |
| | Uncert: | +/-0.0177 | | +/-0.00741 | | | | | | |
| | TPU: | +/-0.0181 | | +/-0.00744 | | | | | | |
| Uranium-238 | | 0.286 | | 0.276 | pCi/L | 0.064 | | (0-1) | | |
| | Uncert: | +/-0.0358 | | +/-0.0275 | | | | | | |
| | TPU: | +/-0.0409 | | +/-0.0328 | | | | | | |
| **Uranium-232 Tracer | 2.70 | 1.38 | | 2.30 | pCi/L | | 85.1 | (50%-105%) | | |
| | Uncert: | +/-0.107 | | +/-0.0852 | | | | | | |
| | TPU: | +/-0.214 | | +/-0.194 | | | | | | |
| QC1202875210 LCS | | | | | | | | | | |
| Uranium-234 | | | | 2.66 | pCi/L | | | | NXP2 | 05/19/1313:54 |
| | Uncert: | | | +/-0.0765 | | | | | | |
| | TPU: | | | +/-0.189 | | | | | | |
| Uranium-235/236 | | | | 0.151 | pCi/L | | | | | |
| | Uncert: | | | +/-0.0213 | | | | | | |
| | TPU: | | | +/-0.0234 | | | | | | |
| Uranium-238 | 2.70 | | | 2.72 | pCi/L | | 100 | (80%-120%) | | |
| | Uncert: | | | +/-0.0771 | | | | | | |
| | TPU: | | | +/-0.192 | | | | | | |
| **Uranium-232 Tracer | 2.16 | | | 1.71 | pCi/L | | 79.2 | (50%-105%) | | |
| | Uncert: | | | +/-0.0687 | | | | | | |
| | TPU: | | | +/-0.156 | | | | | | |
| QC1202875208 MB | | | | | | | | | | |
| Uranium-234 | | | U | 0.0154 | pCi/L | | | | NXP2 | 05/19/1313:54 |
| | Uncert: | | | +/-0.0112 | | | | | | |
| | TPU: | | | +/-0.0113 | | | | | | |
| Uranium-235/236 | | | U | 0.0119 | pCi/L | | | | | |
| | Uncert: | | | +/-0.00715 | | | | | | |
| | TPU: | | | +/-0.00719 | | | | | | |
| Uranium-238 | | | U | 0.00193 | pCi/L | | | | | |
| | Uncert: | | | +/-0.0051 | | | | | | |
| | TPU: | | | +/-0.0051 | | | | | | |
| **Uranium-232 Tracer | 2.16 | | | 1.89 | pCi/L | | 87.5 | (50%-105%) | | |
| | Uncert: | | | +/-0.0648 | | | | | | |

## QC Summary

**Workorder:** **325479**



| Parmname | NOM | Sample | Qual | QC | Units | RER | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Rad Alpha Spec** | | | | | | | | | | |
| Batch 1301468 | | | | | | | | | | |
| | TPU: | | | +/-0.152 | | | | | | |
| **Rad Gamma Spec** | | | | | | | | | | |
| Batch 1302818 | | | | | | | | | | |
| QC1202878534 326020001 DUP | | | | | | | | | | |
| Cesium-137 | U | -2.71 | U | 0.179 | pCi/L | 0.437 | | (0-1) | RXF2 | 05/21/1316:26 |
| | Uncert: | +/-2.04 | | +/-1.17 | | | | | | |
| | TPU: | +/-2.13 | | +/-1.17 | | | | | | |
| Cobalt-60 | U | 0.898 | U | 0.493 | pCi/L | 0.0758 | | (0-1) | | |
| | Uncert: | +/-1.52 | | +/-1.13 | | | | | | |
| | TPU: | +/-1.54 | | +/-1.14 | | | | | | |
| Neptunium-237 | U | -1.95 | U | -7.13 | pCi/L | 0.393 | | (0-1) | | |
| | Uncert: | +/-3.36 | | +/-2.72 | | | | | | |
| | TPU: | +/-3.40 | | +/-3.20 | | | | | | |
| Potassium-40 | U | 31.2 | U | -3.8 | pCi/L | 0.357 | | (0-1) | | |
| | Uncert: | +/-29.3 | | +/-19.7 | | | | | | |
| | TPU: | +/-29.3 | | +/-19.7 | | | | | | |
| Sodium-22 | U | -1.32 | U | -0.176 | pCi/L | 0.199 | | (0-1) | | |
| | Uncert: | +/-1.70 | | +/-1.14 | | | | | | |
| | TPU: | +/-1.73 | | +/-1.14 | | | | | | |
| QC1202878535 LCS | | | | | | | | | | |
| Americium-241 | 2780 | | | 2580 | pCi/L | | 92.8 | (80%-120%) | RXF2 | 05/22/1307:19 |
| | Uncert: | | | +/-81.5 | | | | | | |
| | TPU: | | | +/-162 | | | | | | |
| Cesium-137 | 6020 | | | 6010 | pCi/L | | 99.8 | (80%-120%) | | |
| | Uncert: | | | +/-55.1 | | | | | | |
| | TPU: | | | +/-259 | | | | | | |
| Cobalt-60 | 5280 | | | 5230 | pCi/L | | 99.1 | (80%-120%) | | |
| | Uncert: | | | +/-57.7 | | | | | | |
| | TPU: | | | +/-219 | | | | | | |
| Neptunium-237 | | | U | 23.2 | pCi/L | | | | | |
| | Uncert: | | | +/-22.6 | | | | | | |
| | TPU: | | | +/-23.3 | | | | | | |
| Potassium-40 | | | U | 39.6 | pCi/L | | | | | |
| | Uncert: | | | +/-42.2 | | | | | | |
| | TPU: | | | +/-43.3 | | | | | | |
| Sodium-22 | | | U | -4.66 | pCi/L | | | | | |
| | Uncert: | | | +/-7.30 | | | | | | |
| | TPU: | | | +/-7.38 | | | | | | |
| QC1202878533 MB | | | | | | | | | | |
| Cesium-137 | | | U | -0.355 | pCi/L | | | | RXF2 | 05/21/1313:43 |
| | Uncert: | | | +/-1.63 | | | | | | |
| | TPU: | | | +/-1.64 | | | | | | |
| Cobalt-60 | | | U | 0.174 | pCi/L | | | | | |
| | Uncert: | | | +/-1.40 | | | | | | |
| | TPU: | | | +/-1.40 | | | | | | |
| Neptunium-237 | | | U | 1.54 | pCi/L | | | | | |
| | Uncert: | | | +/-2.90 | | | | | | |
| | TPU: | | | +/-2.92 | | | | | | |

## QC Summary

**Workorder: 325479**



| Parmname | NOM | Sample | Qual | QC | Units | RER | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Rad Gamma Spec** | | | | | | | | | | |
| Batch 1302818 | | | | | | | | | | |
| Potassium-40 | | | U | -0.822 | pCi/L | | | | | |
| Uncert: | | | | +/-17.3 | | | | | | |
| TPU: | | | | +/-17.3 | | | | | | |
| Sodium-22 | | | U | -3.57 | pCi/L | | | | | |
| Uncert: | | | | +/-1.89 | | | | | | |
| TPU: | | | | +/-2.06 | | | | | | |
| **Rad Gas Flow** | | | | | | | | | | |
| Batch 1301365 | | | | | | | | | | |
| QC1202874958 325479001 DUP | | | | | | | | | | |
| Strontium-90 | U | 0.162 | U | -0.143 | pCi/L | 0.541 | | (0-1) | BXF1 | 05/27/1314:18 |
| Uncert: | | +/-0.145 | | +/-0.136 | | | | | | |
| TPU: | | +/-0.145 | | +/-0.136 | | | | | | |
| **Strontium Carrier | 8.55 | 7.40 | | 7.60 | mg | | 88.9 | (50%-105%) | | |
| QC1202874960 LCS | | | | | | | | | | |
| Strontium-90 | 24.3 | | | 25.1 | pCi/L | | 103 | (80%-120%) | BXF1 | 05/27/1314:18 |
| Uncert: | | | | +/-0.560 | | | | | | |
| TPU: | | | | +/-2.09 | | | | | | |
| **Strontium Carrier | 8.55 | | | 7.60 | mg | | 88.9 | (50%-105%) | | |
| QC1202874957 MB | | | | | | | | | | |
| Strontium-90 | | | U | 0.0327 | pCi/L | | | | BXF1 | 05/27/1314:18 |
| Uncert: | | | | +/-0.0567 | | | | | | |
| TPU: | | | | +/-0.0568 | | | | | | |
| **Strontium Carrier | 8.55 | | | 7.50 | mg | | 87.7 | (50%-105%) | | |
| QC1202874959 325479001 MS | | | | | | | | | | |
| Strontium-90 | 243 U | 0.162 | | 252 | pCi/L | | 104 | (75%-125%) | BXF1 | 05/27/1314:18 |
| Uncert: | | +/-0.145 | | +/-5.59 | | | | | | |
| TPU: | | +/-0.145 | | +/-22.3 | | | | | | |
| **Strontium Carrier | 8.55 | 7.40 | | 7.90 | mg | | 92.4 | (50%-105%) | | |
| Batch 1301385 | | | | | | | | | | |
| QC1202875026 325284005 DUP | | | | | | | | | | |
| Alpha | U | 0.231 | U | 0.0554 | pCi/L | 0.0999 | | (0-1) | DYT1 | 05/30/1315:12 |
| Uncert: | | +/-0.513 | | +/-0.366 | | | | | | |
| TPU: | | +/-0.513 | | +/-0.366 | | | | | | |
| Beta | U | 0.489 | U | 0.254 | pCi/L | 0.0715 | | (0-1) | | 05/29/1312:31 |
| Uncert: | | +/-0.823 | | +/-0.820 | | | | | | |
| TPU: | | +/-0.825 | | +/-0.820 | | | | | | |
| QC1202875029 LCS | | | | | | | | | | |
| Alpha | 12.3 | | | 14.1 | pCi/L | | 115 | (80%-120%) | DYT1 | 05/30/1314:16 |
| Uncert: | | | | +/-0.738 | | | | | | |
| TPU: | | | | +/-1.41 | | | | | | |
| Beta | 48.5 | | | 54.5 | pCi/L | | 112 | (80%-120%) | | 05/29/1312:31 |
| Uncert: | | | | +/-0.952 | | | | | | |
| TPU: | | | | +/-4.62 | | | | | | |
| QC1202875025 MB | | | | | | | | | | |
| Alpha | | | U | 0.200 | pCi/L | | | | DYT1 | 05/30/1315:12 |
| Uncert: | | | | +/-0.0958 | | | | | | |
| TPU: | | | | +/-0.0972 | | | | | | |
| Beta | | | U | 0.166 | pCi/L | | | | | 05/29/1312:31 |

## QC Summary

**Workorder:** **325479**



| Parmname | NOM | Sample | Qual | QC | Units | RER | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Rad Gas Flow** | | | | | | | | | | |
| Batch 1301385 | | | | | | | | | | |
| | Uncert: | | | +/-0.133 | | | | | | |
| | TPU: | | | +/-0.134 | | | | | | |
| QC1202875027 325284005 MS | | | | | | | | | | |
| Alpha | 494 | 0.231 | U | 495 | pCi/L | | 100 | (75%-125%) | DYT1 | 05/30/1314:16 |
| | Uncert: | +/-0.513 | | +/-24.7 | | | | | | |
| | TPU: | +/-0.513 | | +/-48.6 | | | | | | |
| Beta | 1940 | 0.489 | U | 2260 | pCi/L | | 116 | (75%-125%) | | 05/29/1312:31 |
| | Uncert: | +/-0.823 | | +/-39.9 | | | | | | |
| | TPU: | +/-0.825 | | +/-193 | | | | | | |
| QC1202875028 325284005 MSD | | | | | | | | | | |
| Alpha | 494 | 0.231 | U | 522 | pCi/L | 0.134 | 106 | (0-1) | DYT1 | 05/30/1314:16 |
| | Uncert: | +/-0.513 | | +/-25.7 | | | | | | |
| | TPU: | +/-0.513 | | +/-50.8 | | | | | | |
| Beta | 1940 | 0.489 | U | 2140 | pCi/L | 0.162 | 110 | (0-1) | | 05/29/1312:31 |
| | Uncert: | +/-0.823 | | +/-37.9 | | | | | | |
| | TPU: | +/-0.825 | | +/-182 | | | | | | |

**Notes:**

TPU and Counting Uncertainty are calculated at the 68% confidence level (1-sigma).

The Qualifiers in this report are defined as follows:

| | |
|---|---|
| ** | Analyte is a Tracer compound |
| ** | Analyte is a surrogate compound |
| < | Result is less than value reported |
| > | Result is greater than value reported |
| A | The TIC is a suspected aldol-condensation product |
| B | The target analyte was detected in the associated blank. |
| BD | Results are either below the MDC or tracer recovery is low |
| C | Analyte has been confirmed by GC/MS analysis |
| D | Results are reported from a diluted aliquot of the sample |
| E | %difference of sample and SD is >10%. Sample concentration must meet flagging criteria |
| E | Concentration of the target analyte exceeds the instrument calibration range |
| E | General Chemistry--Concentration of the target analyte exceeds the instrument calibration range |
| FA | Failed analysis. |
| FB | Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies |
| H | Analytical holding time was exceeded |
| J | Value is estimated |
| JNX | Non Calibrated Compound |
| K | Analyte present. Reported value may be biased high. Actual value is expected to be lower. |
| L | Analyte present. Reported value may be biased low. Actual value is expected to be higher. |
| M | M if above MDC and less than LLD |
| M | REMP Result > MDC/CL and < RDL |
| N | Metals--The Matrix spike sample recovery is not within specified control limits |
| N | Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |

## QC Summary

**Workorder:** **325479**



| Parmname | NOM | Sample | Qual | QC | Units | RER | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|

| | |
|---|---|
| N | Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N/A | RPD or %Recovery limits do not apply. |
| N1 | See case narrative |
| ND | Analyte concentration is not detected above the detection limit |
| NJ | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| P | Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70% |
| Q | One or more quality control criteria have not been met. Refer to the applicable narrative or DER. |
| R | Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes. |
| R | Sample results are rejected |
| U | Analyte was analyzed for, but not detected above the MDL, MDA, or LOD. |
| UI | Gamma Spectroscopy--Uncertain identification |
| UJ | Compound cannot be extracted |
| UJ | Gamma Spectroscopy--Uncertain identification |
| UL | Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias. |
| X | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| Y | Other specific qualifiers were required to properly define the results. Consult case narrative. |
| Y | QC Samples were not spiked with this compound |
| Z | Paint Filter Test--Particulates passed through the filter, however no free liquids were observed. |
| ^ | RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry. |
| d | 5-day BOD--The 2:1 depletion requirement was not met for this sample |
| h | Preparation or preservation holding time was exceeded |

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
** Indicates analyte is a surrogate/tracer compound.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

American Radiation Services - Primary

1726 Wooddale Court
Baton Rouge LA 70806

# Chain of Custody/Analysis Request

**COC/Lab Request #:** 2013-818



**Client Contact:**

**Lab Agreement # :** 63641-001-10

**Project Number :**

**Analysis Turnaround Time:**

- 24 Hour - ☐ Other - ☐
- 7 Day - ☐
- 14 Day - ☐
- 21 Day - ☐
- 28 Day - ☒

**Site Name:** Los Alamos National Laboratory

**Rad Screening Info:** Yes, Below Background

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | WSP-LL-H-3 | Special Instructions: |
|---|---|---|---|---|---|
| CAMO-13-30586 | May 8 2013 | 12:40 | W | 1 | |
| CAMO-13-30562 | May 8 2013 | 12:40 | W | 1 | |

**Special Instructions:**

| Relinquished by: | | Date/Time: | Received by: | |
|---|---|---|---|---|
| Melissa Mosby | | 5/8/13 3:00 | | |
| Relinquished by: | | Date/Time: | Received by: | |
| Relinquished by: | | Date/Time: | Received by: | |

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30562

**WORK ORDER:**

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | 5/8/2013 | FIELD MATRIX: WG | | ok |
| TIME COLLECTED (HH:MM): | | 1240 | MEDIA: UA | | |
| PRS ID: | | ok | SAMPLE TECH CODE: UA | | GSP |
| LOCATION ID: R-62 | | | FIELD PREP: UF | | ok |
| LOCATION TYPE: | | | FIELD QC TYPE: FD | | |
| PORT: SINGLE COMPLETION | | | SAMPLE USAGE: QC | | |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| N/A | WSP-8260B-VOA | 40 ML SEPTUM AMBER GLASS | 2 | HCL | Y | N/A |
| | WSP-8270C-SVOA | 1 LITER AMBER GLASS | 1 ~~2~~ 3 | ICE 5/8/13 | | |
| | WSP-GrossA/B | 1 LITER POLY | 1 | NONE | | |
| | WSP-LL-H-3 | 1 LITER POLY | 1 | NONE | | |
| | WSP-RAD | 1 GAL POLY | 1 | HNO3 | | |
| | WSP-TKN+TOC | 500 ML AMBER GLASS | 1 | H2SO4 | | |

**SAMPLE COMMENTS:**

**LOCATION COMMENTS:** N/A

**FIELD PARAMETERS:**

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

**COLLECTED BY (PRINT)** A Stockon

| RELINQUISHED BY | Date/Time | RECEIVED BY | Date/Time |
|---|---|---|---|
| (Printed Name) William Shear<br>(Signature) | 5/8/13 1240 | (Printed Name) M. Martz<br>(Signature) | 5/8/13 1340 |
| RELINQUISHED BY<br>(Printed Name)<br>(Signature) | Date/Time | RECEIVED BY<br>(Printed Name)<br>(Signature) | Date/Time |

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30586

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | 5/8/2013 | FIELD MATRIX: | WG | ok |
| TIME COLLECTED (HH:MM): | | 1240 | MEDIA: | UA | ✓ |
| PRS ID: | | OK | SAMPLE TECH CODE: | UA | G-SP |
| LOCATION ID: | R-62 | ✓ | FIELD PREP: | UF | ok |
| LOCATION TYPE: | MON | ✓ | FIELD QC TYPE: | REG | ✓ |
| PORT: | SINGLE COMPLETION | ✓ | SAMPLE USAGE: | INV | ✓ |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| N/A | WSP-8260B-VOA | 40 ML SEPTUM AMBER GLASS | 2 | HCL | Y | N/A |
| ✓ | WSP-8270C-SVOA | 1 LITER AMBER GLASS | 1 | ICE 5/8/13 | ✓ | ✓ |
| ✓ | WSP-GrossA/B | 1 LITER POLY | 1 | NONE | ✓ | ✓ |
| ✓ | WSP-LL-H-3 | 1 LITER POLY | 1 | NONE | ✓ | ✓ |
| ✓ | WSP-RAD | 1 GAL POLY | 1 | HNO3 | ✓ | ✓ |
| ✓ | WSP-TKN+TOC | 500 ML AMBER GLASS | 1 | H2SO4 | ✓ | ✓ |

**SAMPLE COMMENTS:** Diesel generator running ~ 40' away while sampling

**LOCATION COMMENTS:** N/A

**FIELD PARAMETERS:**

Dissolved Oxygen 5.03 mg/L Oxidation-Reduction Potential 192.2 MV pH 8.52 SU

Specific Conductance 178 uS/cm Temperature 19.67 deg C Turbidity 4.5 NTU

**COLLECTED BY (PRINT)** A. Stocker

| RELINQUISHED BY | Date/Time | RECEIVED BY | Date/Time |
|---|---|---|---|
| (Printed Name) William Shaw (Signature) | 5/8/13 1340 | (Printed Name) A. Montoya (Signature) | 5/8/13 1340 |
| RELINQUISHED BY (Printed Name) (Signature) | Date/Time | RECEIVED BY (Printed Name) (Signature) | Date/Time |

Data Validation Report

Chain Of Custody No. 2013-818

**1. Distribution Of Samples In EDD.**

| SDG | Analytical Method | Regular Samples | Field Duplicates | Trip Blanks | Field Blanks | Equipment Blanks |
|---|---|---|---|---|---|---|
| ARS1-13-00932 | Generic:Low_Level_Tritium | 1 | 1 | | | |

| SDG | Analytical Method | Analysis Lot ID | Prep Lot ID | Regular Samples | Field Duplicates | Trip Blanks | Field Blanks | Equipment Blanks | Method Blanks | Matrix Spikes | Matrix Spike Dups |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ARS1-13-00932 | Generic:Low_Level_Tritium | ARS1-B13-00960 | ARS1-B13-00960 | 1 | 1 | | | | 1 | | |

**2. Distribution Of Analytes In EDD.**

| Analytical Method | Method Category | Field Sample ID | Lab Sample ID | Sample Purpose | Target Analytes | Surrogates | Spikes | TICS |
|---|---|---|---|---|---|---|---|---|
| Generic:Low_Level_Tritium | RAD | CAMO-13-30562 | ARS1-B13-00960-14 | FD | 1 | 0 | 0 | 0 |
| Generic:Low_Level_Tritium | RAD | CAMO-13-30586 | ARS1-B13-00960-13 | REG | 1 | 0 | 0 | 0 |
| Generic:Low_Level_Tritium | RAD | LCS | ARS1-B13-00960-01 | LCS | 0 | 0 | 1 | 0 |
| Generic:Low_Level_Tritium | RAD | LCSD | ARS1-B13-00960-02 | LCSD | 0 | 0 | 1 | 0 |
| Generic:Low_Level_Tritium | RAD | MB | ARS1-B13-00960-03 | MB | 1 | 0 | 0 | 0 |

**3. Are any analytes missing?**

No.

**4. Were any holding times exceeded?**

No.

**5. Any contaminants in blanks?**

No.

**Any samples affected by the presence of contaminants in blanks?**

No.

**6. Any surrogate recoveries outside the control limits?**

No.

**7. Any MS/MSD recoveries or RPDs outside the control limits?**

No.

**8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?**

Data Validation Report for:

Chain Of Custody No. 2013-818

| Analytical Spikes | Post-Digestion Spikes | Lab Control Samples | Lab Control Sample Dups | Blank Spikes | Blank Spike Dups | Lab Duplicates | Storage Blanks | Preparation Blanks | Reagent Blanks |
|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 1 | | | | | | |

| LCS Sample ID | LCSD Sample ID | Analytical Method | Parameter Name | Lab Lot ID | Analysis Date | Sample Matrix | LCS Recovery | LCSD Recovery | Upper Limit | Lower Limit | Lower Reject Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ARS1-B13-00960-01 | ARS1-B13-00960-02 | Generic:Low_Level_Tritium | Tritium | ARS1-B13-00960 | 5/21/2013 | W | 70 | 95 | 120 | 80 | 10 |

**9. Any Field Duplicate RPDs outside the desired limits?**

No.

**10. Any Lab Duplicate RPDs outside the desired limits?**

No.

**11. Any required reporting limits exceeded?**

No.

**12. Additional Validator's Coments.**

None.

**13. Display Flagged Data.**

| Location ID | Chain Of Custody No | Field Sample ID | Sample Purpose | Analysis Type Code | Analytical Suite | Analytical Method | Parameter Name | Lab Qualifier | Validation Qualifier | Validation Reason Codes | Detected |
|---|---|---|---|---|---|---|---|---|---|---|---|
| R-62 | 2013-818 | CAMO-13-30562 | FD | INIT | RAD | Generic:Low_Level_Tritium | Tritium | | J- | R12a | Y |
| R-62 | 2013-818 | CAMO-13-30586 | REG | INIT | RAD | Generic:Low_Level_Tritium | Tritium | | J- | R12a | Y |

| Reason Code | Description |
|---|---|
| R12a | The LCS percent recovery was <the LAL but >10%. Follow the external laboratory limits located within the associated data package. |

**14. Useable Result Count.**

| Field Sample ID | Location ID | Sample Purpose | Analytical Method | No. Unuseable Records | Total No. Of Records |
|---|---|---|---|---|---|
| CAMO-13-30562 | R-62 | FD | Generic:Low_Level_Tritium | 0 | 1 |
| CAMO-13-30586 | R-62 | REG | Generic:Low_Level_Tritium | 0 | 1 |

Data Validation Report for:

Chain Of Custody No. 2013-818

| Upper Reject Limit | RPD | RPD Limit |
|---|---|---|
| | 31.224 | |

| Lab Result | Lab Units | Report Result | Report Units | Report MDA | Report Uncertainty | Lab Matrix | Sample Date | Percent Moisture | Analysis Lot ID | Validation Status Code | Use Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3.95 | pCi/L | 3.95 | pCi/L | 2.37 | 0.98 | W | 5/8/2013 | | ARS1-B13-00960 | VAL | Y |
| 4.46 | pCi/L | 4.46 | pCi/L | 2.36 | 1.03 | W | 5/8/2013 | | ARS1-B13-00960 | VAL | Y |

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# American Radiation Services Analytical Reports

for

# Los Alamos National Laboratory

# Request Number: 2013-818

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# American Radiation Services Analytical Reports

for

# Los Alamos National Laboratory Request: 2013-818

# Original COC

American Radiation Services - Primary

1726 Wooddale Court
Baton Rouge LA 70806

# Chain of Custody/Analysis Request

**COC/Lab Request #:** 2013-818



**Client Contact:**

**Lab Agreement # :** 63641-001-10

**Project Number :**

**Analysis Turnaround Time:**

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

**Site Name:** Los Alamos National Laboratory

**Rad Screening Info:** Yes, Below Background

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | WSP-LL-H-3 |
|---|---|---|---|---|
| CAMO-13-30586 | May 8 2013 | 12:40 | W | 1 |
| CAMO-13-30562 | May 8 2013 | 12:40 | W | 1 |

**Special Instructions:**

Special Instructions:

| Relinquished by: | | Date/Time: | Received by: | |
|---|---|---|---|---|
| Melissa Montoya | | 5/8/13 3:00 | [illegible] 5-9-13/1030 | |
| Relinquished by: | | Date/Time: | Received by: | |
| Relinquished by: | | Date/Time: | Received by: | |

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# American Radiation Services Analytical Reports

for

# Los Alamos National Laboratory Request: 2013-818

# Case Narrative

ARS INTERNATIONAL

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

June 3, 2013

LANL
Keith Greene
PO Box 1663 MS M992
Los Alamos, NM 87545

Request Number: **2013-818**
LANL Sample ID: **CAMO-13-30586; CAMO-13-30562.**

Dear Mr. Greene;

On May 9, 2013, ARS International received two (2) water samples to be analyzed for Low Level Tritium.

The samples underwent enrichment and were counted using the appropriate counting equipment and QA/QC for this type of analysis. Results of the analysis and QA/QC are attached in the data package.

The client and QA/QC samples were counted with a count time sufficient to meet quality control parameters for counting equipment and were within acceptance criteria and statistical sound detection limits.

If you have any questions please do not hesitate to call at 225.381.2991 or email LANL@amrad.com.

Sincerely,

Eugene Mulligan

Laboratory Management
**ARS International**

ARS INTERNATIONAL
2609 North River Road • Port Allen, Louisiana 70767
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# COVER PAGE

**PROJECT SAMPLE IDENTIFICATION**
**CROSS-REFERENCE**
## TO ARS SAMPLE LABORATORY IDs
Subcontract (LANL Agreement Number) 63641-001-10

| Request Number | LANL PROJECT SAMPLE ID NUMBER | American Radiation Services SAMPLE ID NUMBER(S) |
|---|---|---|
| 2013-818 | CAMO-13-30586 | ARS1-13-00932-001 |
| 2013-818 | CAMO-13-30562 | ARS1-13-00932-002 |

**ANALYTICAL METHODS**
Tritium analyses were performed using **ARS-040 Tritium Assay in Water Samples Using Electrolytic Enrichment.**

**ANALYTICAL RESULTS**
The result data that are flagged with "U" indicate that the activity is below the MDC.
Sample B13-00960-02, the LCSD, had a milky appearance after addition of the cocktail (see technical note). Therefore, the remaining 5.07 ml was mixed with cocktail and counted. This reduced volume resulted in a higher MDC, but LCSD passed all other QC criteria. Percent RPD for Batch B13-00960 exceeded QC requirements but other duplicate criteria were met.

**American Radiation Services Project Manager/Laboratory Director's Comments:**
*"I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this sample data package and the computer-readable EDD, as applicable, submitted on diskette or by modem, has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature."*

*"I certify that this electronic image and all hardcopies produced from this image accurately represent the data and is in compliance with the LANL specific requirements, both technically and for completeness, other than the conditions detailed above or in the sample data package narrative. Release, by submission through email, the data contained in this electronic image and the computer-readable EDD (as applicable), has been authorized by the laboratory Manager/Technical Director or the Manager's designee."*

| Eugene Mellegan | Laboratory Management, ARS International | 6-4-13 |
|---|---|---|
| **Signature** | **Title** | **Date** |

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# American Radiation Services Analytical Reports

for

# Los Alamos National Laboratory

# Low Level Tritium by Low Level Liquid Scintillation Counting

AMRAD
AMERICAN RADIATION SERVICES, LLC

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

| | | | |
|---|---|---|---|
| **ARS Sample Delivery Group:** | ARS1-13-00932 | **Request or PO Number:** | 2013-818 |
| **Client Sample ID:** | CAMO-13-30586 | **ARS Sample ID:** | ARS1-13-00932-001 |
| **Sample Collection Date:** | 05/08/13 | **Date Received:** | 05/09/13 |
| **Sample Matrix:** | Aqueous | **Report Date:** | 06/03/13 |

| Analysis Description | Analysis Results | Analysis Error +/- 1 s | MDC | DLC | Qual | Analysis Units | Analysis Test Method | Analysis Date/Time | Analysis Technician | Tracer/Chem Recovery |
|---|---|---|---|---|---|---|---|---|---|---|
| Enriched H-3 | 4.460 | 1.030 | 2.360 | 1.140 | | pCi/L | ARS-040 | 05/30/13 01:20 | PDS | NA |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

**NOTES: Lab Agreement 63641-001-10**

Project Manager Review

***Notes:*** *American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the American Radiation Services, Inc.*

LELAP Certificate# 01949

AMRAD
AMERICAN RADIATION SERVICES, LLC

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

| | | | |
|---|---|---|---|
| **ARS Sample Delivery Group:** | ARS1-13-00932 | **Request or PO Number:** | 2013-818 |
| **Client Sample ID:** | CAMO-13-30562 | **ARS Sample ID:** | ARS1-13-00932-002 |
| **Sample Collection Date:** | 05/08/13 | **Date Received:** | 05/09/13 |
| **Sample Matrix:** | Aqueous | **Report Date:** | 06/03/13 |

| Analysis Description | Analysis Results | Analysis Error +/- 1 s | MDC | DLC | Qual | Analysis Units | Analysis Test Method | Analysis Date/Time | Analysis Technician | Tracer/Chem Recovery |
|---|---|---|---|---|---|---|---|---|---|---|
| Enriched H-3 | 3.950 | 0.980 | 2.370 | 1.140 | | pCi/L | ARS-040 | 05/30/13 05:31 | PDS | NA |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

**NOTES: Lab Agreement 63641-001-10**

Project Manager Review

***Notes:*** *American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the American Radiation Services, Inc.*

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# QC Results Report

**Sample Delivery Group:** ARS1-13-00932
**Date Received:** 5/9/2013

## Laboratory Control Sample Evaluation

| Analysis Batch | QC Type | Analyte | Analysis Results | CSU 1 (1s) | MDC | Expected Value | Qual | Report Units | Analysis Test Method | Analysis Date/Time | Analysis Technician | Percent Recovery (%) | LCS Acceptance Range |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ARS1-B13-00960 | LCS | H3 | 23.660 | 3.869 | 3.745 | 24.784 | | pCi/L | ARS-040 | 5/21/13 19:57 | PDS | 95 | 80%-120% |

## Blank Evaluation

| Analysis Batch | QC Type | Analyte | Analysis Results | CSU 1 (1s) | MDC | Expected Value | Qual | Report Units | Analysis Test Method | Analysis Date/Time | Analysis Technician |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ARS1-B13-00960 | MBL | H3 | 1.458 | 0.658 | 2.008 | NA | U | pCi/L | ARS-040 | 5/21/13 19:57 | PDS |

## Sample RER Duplicate Evaluation

| Analysis Batch | QC Type | Analysis Description | Result 1 | CSU 1 (1s) | Result 2 | CSU 2 (2s) | Qual | Analysis Units | Analysis Test Method | Analysis Date/Time | Analysis Technician | RER | RER AcceptanceRange |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ARS1-B13-00960 | LCSD | H3 | 23.660 | 3.869 | 17.270 | 2.764 | | pCi/L | ARS-040 | 5/21/13 19:57 | PDS | 0.96 | < 1 |

## Sample DER Duplicate Evaluation

| Analysis Batch | QC Type | Analysis Description | Result 1 | CSU 1 (1s) | Result 2 | CSU 2 (2s) | Qual | Analysis Units | Analysis Test Method | Analysis Date/Time | Analysis Technician | DER | DER AcceptanceRange |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ARS1-B13-00960 | LCSD | H3 | 23.660 | 3.869 | 17.270 | 2.764 | | pCi/L | ARS-040 | 5/21/13 19:57 | PDS | 2.69 | < 3 |

Project Manager Review

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of ARS International.

LELAP Certificate# 01949 NELAP Certificate # E87558

# QC Evaluation

**EPA Method: ARS-040**
**Batch ID: ARS1-B13-00960**
**SDG's: ARS1-13-00743; 869; 870; 930; 931; 932**

| | | | |
|---|---|---|---|
| LCS | 17.2700 | CSU (2s) | 5.4170 |
| LCSD | 23.6600 | CSU-D (2s) | 7.5820 |

**DER =** $\frac{\text{abs(LSC-LSCD)}}{\text{sqr((2s CSU/2)^2)+(( 2s CSU-D/2)^2)}}$ = **< 3**

*at 1 sigma*

**DER** $\frac{6.39}{4.659147}$ = 1.371496 **< 3**

**% RPD=** $\frac{\text{ABS( LCS - LSCD)}}{\text{(LCS+LCSD)/2}}$ * 100 = **< 25%**

**%RPD** $\frac{6.39}{20.465}$ *100 = 31.22404 **< 25%**

The *RPD* shall be less than 25% or other client-applied criteria

**RER=** $\frac{\text{abs((LCS-LCSD))}}{\text{(CSU)+(CSD)}}$ = **<1** ***<--LANL Requirement***

*at 2 sigma*

**RER =** $\frac{6.39}{12.9990}$ 0.491576275 **<1**

**Blank Information**

| | Act | CSU(2s) | MDA | Act>MDA |
|---|---|---|---|---|
| **AM-241** | | | | |
| **U-234** | | | | |
| **U-235** | | | | |
| **U-238** | | | | |
| **Pu-238** | | | | |
| **Pu-239/240** | | | | |
| **Th-228** | | | | |
| **Th-230** | | | | |
| **Th-232** | | | | |
| **H3** | 1.458 | 1.289 | 2.008 | |
| **Ra-226** | | | | |
| **Ra-228** | | | | |
| **Total U** | | | | |
| **Pb-210** | | | | |
| **Po-209** | | | | |
| **Sr-90** | | | | |
| **TC-99** | | | | |
| **NI-63** | | | | |

*MDA should be below RDL
*Blank activity must be below MDA
*Blank activity must be < 1.65*CSU (DOE only)

ACT = 1.458
CSU = 1.289
Is ACT<1.65*CSU? YES

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

# American Radiation Services Analytical Reports

for

# Los Alamos National Laboratory

# Low Level Tritium by Low Level Liquid Scintillation Counting

# Laboratory Records

# Analysis Batch Report



AMRAD
AMERICAN RADIATION SERVICES, LLC

**Analysis Batch ID** **ARS1-B13-00960**

| Method | ARS-040 | Analysis | LSC-A-022 | Matrix | AQ |
|---|---|---|---|---|---|
| Description | Low Level Tritium by Electrolytic Enrichment | | | | |

| ABatch Sample ID | Type | Blind Iso1 | Blind Iso2 | Blind Iso3 | SDG | FR | Run | Client ID | Isotope Group | Lab Deadline |
|---|---|---|---|---|---|---|---|---|---|---|
| ARS1-B13-00960-01 | LCS | B-15414 | | | | | | | | |
| ARS1-B13-00960-02 | LCSD | B-15415 | | | | | | | | |
| ARS1-B13-00960-03 | MBL | | | | | | | | | |
| ARS1-B13-00960-04 | TRG | | | | **ARS1-13-00743** | 010 | 2 | CAPA-13-29585 | STD | 05/13/13 |
| ARS1-B13-00960-05 | TRG | | | | **ARS1-13-00869** | 001 | 1 | CAPA - 13 - 29574 | STD | 05/27/13 |
| ARS1-B13-00960-06 | TRG | | | | **ARS1-13-00869** | 002 | 1 | CAPA - 13 - 29531 | STD | 05/27/13 |
| ARS1-B13-00960-07 | TRG | | | | **ARS1-13-00869** | 003 | 1 | CAPA - 13 - 29575 | STD | 05/27/13 |
| ARS1-B13-00960-08 | TRG | | | | **ARS1-13-00870** | 001 | 1 | CAPA-13-29667 | STD | 05/27/13 |
| ARS1-B13-00960-09 | TRG | | | | **ARS1-13-00870** | 002 | 1 | CAPA-13-29651 | STD | 05/27/13 |
| ARS1-B13-00960-10 | TRG | | | | **ARS1-13-00870** | 003 | 1 | CAPA-13-29653 | STD | 05/27/13 |
| ARS1-B13-00960-11 | TRG | | | | **ARS1-13-00930** | 001 | 1 | CAMO-13-30558 | STD | 06/03/13 |
| ARS1-B13-00960-12 | TRG | | | | **ARS1-13-00931** | 001 | 1 | CAMO-13-30616 | STD | 06/03/13 |
| ARS1-B13-00960-13 | TRG | | | | **ARS1-13-00932** | 001 | 1 | CAMO-13-30586 | STD | 06/03/13 |
| ARS1-B13-00960-14 | TRG | | | | **ARS1-13-00932** | 002 | 1 | CAMO-13-30562 | STD | 06/03/13 |

American Radiation Services
Baton Rouge Laboratory

# LCS Report
## Analytical Batch: ARS1-B13-00960



| BlindID | ABatch | ABatchSampleID | BlindGroup | StdID | Isotope | ExpectedAddition | ExpectedValue | EmptyWt | GrossWt | NetWt | UserID | ModDate | ExpectedValue_CT | MidPointCountDate | KnownValue |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B-15414 | ARS1-B13-00960 | ARS1-B13-00960-01 | B-H3 | S-0279 | H-3 | 5 | 2.485052914 | 13.2473 | 18.2614 | 5.0141 | BSTEFFENS | 5/6/2013 | 2.479317597 | 5/21/2013 | 12.43154636 |
| B-15415 | ARS1-B13-00960 | ARS1-B13-00960-02 | B-H3 | S-0279 | H-3 | 5 | 2.485052914 | 13.3736 | 18.3908 | 5.0172 | BSTEFFENS | 5/6/2013 | 2.478935714 | 5/22/2013 | 12.43731626 |

| ID_31001_040 | ABatch | AnalysisCode | ABatchSampleID | ClientID | IC_ID | S01_1_EnrichCellNo |
|---|---|---|---|---|---|---|
| 632 | ARS1-B13-00960 | LSC-A-022 | ARS1-B13-00960-01 | | | 20 |
| 633 | ARS1-B13-00960 | LSC-A-022 | ARS1-B13-00960-02 | | | 8 |
| 634 | ARS1-B13-00960 | LSC-A-022 | ARS1-B13-00960-03 | | | 87 |
| 635 | ARS1-B13-00960 | LSC-A-022 | ARS1-B13-00960-04 | CAPA-13-29585 | | 48 |
| 636 | ARS1-B13-00960 | LSC-A-022 | ARS1-B13-00960-05 | CAPA - 13 - 29574 | | 74 |
| 637 | ARS1-B13-00960 | LSC-A-022 | ARS1-B13-00960-06 | CAPA - 13 - 29531 | | 1 |
| 638 | ARS1-B13-00960 | LSC-A-022 | ARS1-B13-00960-07 | CAPA - 13 - 29575 | | 94 |
| 639 | ARS1-B13-00960 | LSC-A-022 | ARS1-B13-00960-08 | CAPA-13-29667 | | 45 |
| 640 | ARS1-B13-00960 | LSC-A-022 | ARS1-B13-00960-09 | CAPA-13-29651 | | 38 |
| 641 | ARS1-B13-00960 | LSC-A-022 | ARS1-B13-00960-10 | CAPA-13-29653 | | 0 |
| 642 | ARS1-B13-00960 | LSC-A-022 | ARS1-B13-00960-11 | CAMO-13-30558 | | 1 |
| 643 | ARS1-B13-00960 | LSC-A-022 | ARS1-B13-00960-12 | CAMO-13-30616 | | 40 |
| 644 | ARS1-B13-00960 | LSC-A-022 | ARS1-B13-00960-13 | CAMO-13-30586 | | 3 |
| 645 | ARS1-B13-00960 | LSC-A-022 | ARS1-B13-00960-14 | CAMO-13-30562 | | 85 |

| S01_2_TareCell | S01_3_TareResv | S02_GrossWtResv | S03_1_WtNa2O2 | C_GrossSampleAdded | S04_1_ElectrolSD |
|---|---|---|---|---|---|
| 331.94 | 199.93 | 700.3 | 2 | 500.37 | 05/06/2013 13:40:00 |
| 324.5 | 206.69 | 708.6 | 2.01 | 501.91 | 05/06/2013 13:40:00 |
| 338.22 | 214.45 | 714.45 | 2.03 | 500 | 05/06/2013 13:40:00 |
| 339.87 | 214.67 | 639.72 | 1.75 | 425.05 | 05/06/2013 13:40:00 |
| 323.86 | 210.34 | 710.34 | 2.01 | 500 | 05/06/2013 13:40:00 |
| 332.83 | 205.78 | 705.78 | 2.05 | 500 | 05/06/2013 13:40:00 |
| 334.19 | 206.42 | 706.44 | 2.06 | 500.02 | 05/06/2013 13:40:00 |
| 333.28 | 216.99 | 717 | 2 | 500.01 | 05/06/2013 13:40:00 |
| 331.28 | 222.75 | 722.78 | 2.05 | 500.03 | 05/06/2013 13:40:00 |
| 330.48 | 194.67 | 694.67 | 2.02 | 497 | 05/06/2013 13:40:00 |
| 332.56 | 211.57 | 711.57 | 2.01 | 500 | 05/10/2013 13:47:00 |
| 330.87 | 208.6 | 708.66 | 2.04 | 500.06 | 05/10/2013 13:47:00 |
| 335.85 | 210.2 | 710.26 | 2.05 | 500.06 | 05/10/2013 13:47:00 |
| 339.12 | 201.4 | 701.4 | 2 | 500 | 05/10/2013 13:47:00 |

| S04_2_StartAmp | S04_3_StartBathC | S05_1_ElectrolED | S05_2_EndBathC | S05_3_EndCellWt | C_GrossSmplRec |
|---|---|---|---|---|---|
| 5 | 2 | 05/21/2013 07:16:00 | 2 | 548.8 | 16.93 |
| 5 | 2 | 05/21/2013 07:18:00 | 2 | 548.2 | 17.01 |
| 5 | 2 | 05/21/2013 09:59:00 | 2 | 568.58 | 15.91 |
| 5 | 2 | 05/21/2013 07:20:00 | 2 | 571.55 | 17.01 |
| 5 | 2 | 05/21/2013 07:22:00 | 2 | 551.2 | 17 |
| 5 | 2 | 05/21/2013 10:01:00 | 2 | 555.26 | 16.65 |
| 5 | 2 | 05/21/2013 10:03:00 | 2 | 557.44 | 16.83 |
| 5 | 2 | 05/22/2013 08:59:00 | 2 | 567.35 | 17.08 |
| 5 | 2 | 05/22/2013 09:01:00 | 2 | 571.05 | 17.02 |
| 5 | 2 | 05/21/2013 09:56:00 | 2 | 540.93 | 15.78 |
| 5 | 2 | | | | |
| 5 | 2 | | | | |
| 5 | 2 | | | | |
| 5 | 2 | | | | |

| C_EnrichmentF | S06_TareWt | S07_GrossWt | C_RecoveredWa | S08_TearWtLSCVial | S09_VialPlusSmpl | C_NetSample |
|---|---|---|---|---|---|---|
| 29.55522741 | 108.89 | 121.74 | 12.85 | 6.53 | 16.54 | 10.01 |
| 29.50676073 | 110.9 | 126.48 | 15.58 | 6.57 | 11.64 | 5.07 |
| 31.42677561 | 108.48 | 121.58 | 13.1 | 6.54 | 16.57 | 10.03 |
| 24.98824221 | 104.91 | 119.82 | 14.91 | 6.62 | 16.63 | 10.01 |
| 29.41176471 | 94.55 | 109.62 | 15.07 | 6.5 | 16.53 | 10.03 |
| 30.03003003 | 93.46 | 106.81 | 13.35 | 6.52 | 16.53 | 10.01 |
| 29.71004159 | 101.54 | 114.93 | 13.39 | 6.51 | 16.55 | 10.04 |
| 29.27459016 | 95.35 | 110.53 | 15.18 | 6.55 | 16.57 | 10.02 |
| 29.37896592 | 93.42 | 106.65 | 13.23 | 6.36 | 16.39 | 10.03 |
| 31.68567807 | 100.94 | 113.85 | 12.91 | 6.43 | 16.55 | 10.12 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

| S10_1_WtVislSmplDrWatFill | C_NetDeadWaterAdded | C_TareWtBFCocktail | S10_2_GrossWtVSC | C_NetWtCocktailAdded |
|---|---|---|---|---|
| 0 | 0 | 16.54 | 26.98 | 10.44 |
| 0 | 0 | 11.64 | 21.88 | 10.24 |
| 0 | 0 | 16.57 | 26.84 | 10.27 |
| 0 | 0 | 16.63 | 26.89 | 10.26 |
| 0 | 0 | 16.53 | 26.76 | 10.23 |
| 0 | 0 | 16.53 | 26.79 | 10.26 |
| 0 | 0 | 16.55 | 26.79 | 10.24 |
| 0 | 0 | 16.57 | 26.93 | 10.36 |
| 0 | 0 | 16.39 | 26.64 | 10.25 |
| 0 | 0 | 16.55 | 26.83 | 10.28 |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

| UserID | ModDate |
|---|---|
| AMRAD\PSIMS | 05/21/2013 13:18:42 |
| AMRAD\PSIMS | 05/21/2013 13:36:34 |
| AMRAD\PSIMS | 05/21/2013 13:40:19 |
| AMRAD\PSIMS | 05/21/2013 13:44:24 |
| AMRAD\PSIMS | 05/21/2013 13:46:12 |
| AMRAD\PSIMS | 05/21/2013 13:48:13 |
| AMRAD\PSIMS | 05/21/2013 13:50:11 |
| AMRAD\PSIMS | 05/22/2013 12:27:10 |
| AMRAD\PSIMS | 05/22/2013 12:29:15 |
| AMRAD\PSIMS | 05/21/2013 13:42:52 |
| AMRAD\PSIMS | 05/10/2013 13:47:48 |
| AMRAD\PSIMS | 05/10/2013 13:47:55 |
| AMRAD\PSIMS | 05/10/2013 13:48:01 |
| AMRAD\PSIMS | 05/10/2013 13:48:07 |

LANL

**ARS Batch Number:** ARS1-B13 - 00960

Enter these Values for LCS

| | | Report Name | Field Name on the Report |
|---|---|---|---|
| Current ACT | 5.5041 | Standards Report | ACT at Date Above (dpm/g) |
| NetWt | 5.0141 | LCS Report | NetWt |
| Aliquot | 0.5004 | Tritium Enrichment Data | Gross Sample Added/1000 |

Enter these Values for LCSD

| | | Report Name | Field Name on the Report |
|---|---|---|---|
| Current ACT | 5.5041 | Standards Report | ACT at Date Above (dpm/g) |
| NetWt | 5.0172 | LCS Report | NetWt |
| Aliquot | 0.5019 | Tritium Enrichment Data | Gross Sample Added/1000 |

## Expected Value Calculations

LANL

**ARS Batch Number:** ARS1-B11 - 00960

**LCS** **CALCULATED EXPECTED VALUE** = 24.845

**Range** 19.876 – 29.814

**LCSD** **CALCULATED EXPECTED VALUE** = 24.784

**Range** 19.827 – 29.741

AMRAD
AMERICAN RADIATION SERVICES, LLC

# LSC Instrument Data Transfer Report

\\Packard3170\Results\H3 Low Level\Low Level H3_2\

| Batch Sample ID | Non-BKG Samples Transferred | Samples Eligible To Save | |
|---|---|---|---|
| ARS1-B13-00960 | 4 | 4 | LSC 1 |

| LIMS Batch Sample ID | LSC P# | LSC PID | LSC S# | LSC SMPL_ID | LSC Count Date | LSC CPMA | LSC tSIE | LSC EFF | LSC Count Dur | Analysis Batch | LIMS SDG | LIMS Run |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BKG | 11 | | 1 | BACKGROUND | 05/21/13 15:47 | 1.03 | 375.34 | 24.4800 | 240.00 | ARS1-B13-00960 | | |
| ARS1-B13-00960-01 | 11 | | 2 | B13-00960-01 | 05/21/13 19:57 | 3.50 | 395.77 | 25.3500 | 240.00 | ARS1-B13-00960 | | |
| ARS1-B13-00960-02 | 11 | | 3 | B13-00960-02 | 05/22/13 00:09 | 3.04 | 493.94 | 29.7300 | 240.00 | ARS1-B13-00960 | | |
| ARS1-B13-00960-03 | 11 | | 4 | B13-00960-03 | 05/22/13 04:23 | 1.26 | 390.45 | 25.0900 | 240.00 | ARS1-B13-00960 | | |
| ARS1-B13-00960-04 | 11 | | 5 | B13-00960-04 | 05/22/13 08:34 | 1.35 | 386.96 | 24.9300 | 240.00 | ARS1-B13-00960 | ARS1-13-00743 | 2 |

SNC Protocol

Calibration Information
Software Version IC: 2.12
Software Version EC: 2.03
Instrument Model: Tri-Carb 3170TR/SL
Instrument Serial Number: 423814
3H Chi Square: 13.63 Date Processed: 5/24/2013 8:32:03 AM
14C Chi Square: 27.74 Date Processed: 5/24/2013 8:32:03 AM
3H E^2/B (1-18.6 keV): 2103.96 Date Processed: 5/24/2013 8:32:03 AM
14C E^2/B (4-156 keV): 12016.20 Date Processed: 5/24/2013 8:32:03 AM
3H Efficiency (0-18.6 keV): 62.41 Date Processed: 5/24/2013 8:32:03 AM
14C Efficiency (0-156 keV): 95.93 Date Processed: 5/24/2013 8:32:03 AM
IPA Background Date Processed: 5/24/2013 8:32:03 AM
3H Background CPM (0-18.6 keV): 1.92 Date Processed: 5/24/2013 8:32:03 AM
14C Background CPM (0-156 keV): 2.08 Date Processed: 5/24/2013 8:32:03 AM
3H Calibration DPM: 268700
3H Reference Date: 9/2/2011
14C Calibration DPM: 127700
===== IPA Errors and Warnings for Last Aquired Data Per Parameter ====
2/15/2009 2:09:35 AM: IPA Error - Insufficient 14C data to calculate Chi Square.
== End of IPA Errors and Warnings for Last Aquired Data Per Parameter ==

Calibration Information
Software Version IC: 2.12
Software Version EC: 2.03
Instrument Model: Tri-Carb 3170TR/SL
Instrument Serial Number: 423814
3H Chi Square: 16.92 Date Processed: 5/24/2013 2:35:30 PM
14C Chi Square: 15.25 Date Processed: 5/24/2013 2:35:30 PM
3H E^2/B (1-18.6 keV): 1753.54 Date Processed: 5/24/2013 2:35:30 PM
14C E^2/B (4-156 keV): 6442.47 Date Processed: 5/24/2013 2:35:30 PM
3H Efficiency (0-18.6 keV): 62.42 Date Processed: 5/24/2013 2:35:30 PM
14C Efficiency (0-156 keV): 96.19 Date Processed: 5/24/2013 2:35:30 PM
IPA Background Date Processed: 5/24/2013 2:35:30 PM
3H Background CPM (0-18.6 keV): 2.31 Date Processed: 5/24/2013 2:35:30 PM
14C Background CPM (0-156 keV): 2.66 Date Processed: 5/24/2013 2:35:30 PM
3H Calibration DPM: 268700
3H Reference Date: 9/2/2011
14C Calibration DPM: 127700
===== IPA Errors and Warnings for Last Aquired Data Per Parameter ====
2/15/2009 2:09:35 AM: IPA Error - Insufficient 14C data to calculate Chi Square.
== End of IPA Errors and Warnings for Last Aquired Data Per Parameter ==

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_2\20130521_1538
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_2\20130521_1538\20130521_1538.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_2\20130521_1538\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_2\20130521_1538\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3_2.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 240.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

| Regions | LL | UL | 2Sigma % Terminator |
|---|---|---|---|
| A | 2.0 | 18.6 | 0.50 |
| B | 0.0 | 2000.0 | 0.00 |
| C | 0.0 | 2000.0 | 0.00 |

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

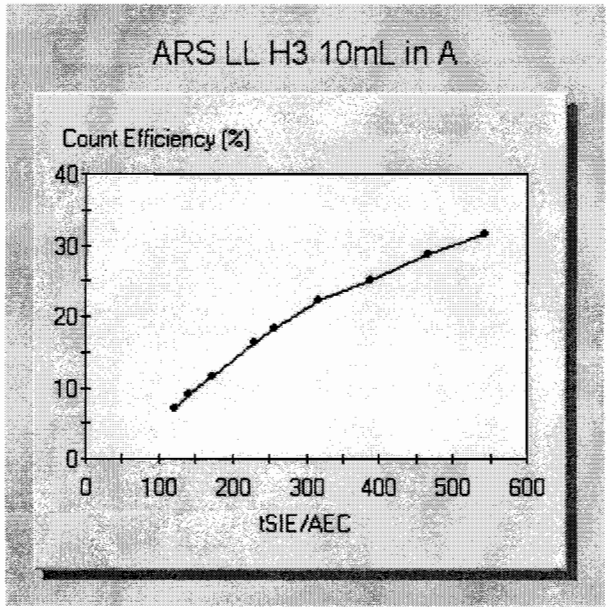
Half Life-

Half Life Correction: Off

| Regions | Half Life | Units | Reference Date | Reference Time |
|---|---|---|---|---|

A
B
C

Cycle 1 Results
Quench Curve Block Data




Date Acquired: 11/20/2012
Date Modified:
ARS LL H3 10mL in A

| tSIE/AEC | Count Efficiency (%) |
|---|---|
| 543.57 | 31.51 |
| 466.44 | 28.74 |
| 387.42 | 24.95 |
| 316.48 | 22.21 |
| 257.14 | 18.18 |
| 229.94 | 16.37 |
| 172.56 | 11.68 |
| 142.07 | 9.08 |
| 121.26 | 7.13 |

| P# | S# | SMPL_ID | CPMA | DPM1 | tSIE | Eff Nucl In A | Count Time | DATE | TIME | MESSAGES |
|---|---|---|---|---|---|---|---|---|---|---|
| 11 | 1 | BACKGROUND | 1.034 | 4.22 | 375.34 | 24.48 | 240.00 | 5/21/2013 | 3:47:07 PM | |
| 11 | 2 | B13-00960-01 | 3.497 | 13.80 | 395.77 | 25.35 | 240.00 | 5/21/2013 | 7:57:55 PM | |
| 11 | 3 | B13-00960-02 | 3.035 | 10.21 | 493.94 | 29.73 | 240.00 | 5/22/2013 | 12:09:04 AM | |
| 11 | 4 | B13-00960-03 | 1.264 | 5.04 | 390.45 | 25.09 | 240.00 | 5/22/2013 | 4:23:45 AM | |
| 11 | 5 | B13-00960-04 | 1.345 | 5.40 | 386.96 | 24.93 | 240.00 | 5/22/2013 | 8:34:39 AM | |

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20130523_0550
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20130523_0550\20130523_0550.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20130523_0550\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20130523_0550\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 240.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

| Regions | LL | UL | 2Sigma % Terminator |
|---|---|---|---|
| A | 2.0 | 18.6 | 0.50 |
| B | 0.0 | 2000.0 | 0.00 |
| C | 0.0 | 2000.0 | 0.00 |

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

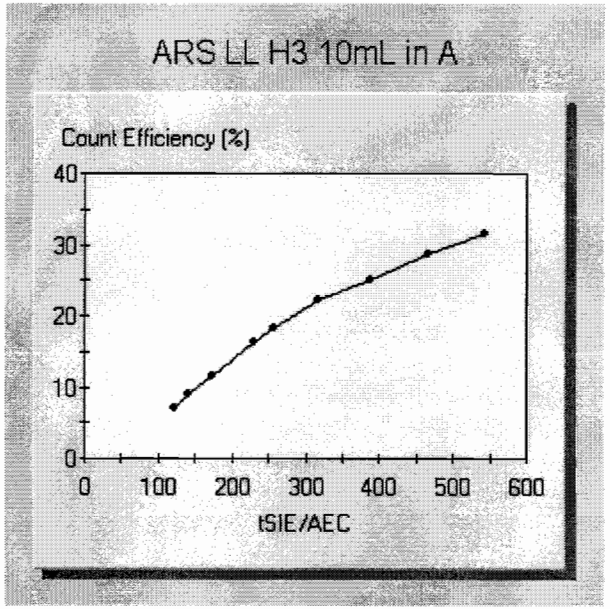
Half Life-

Half Life Correction: Off

| Regions | Half Life | Units | Reference Date | Reference Time |
|---|---|---|---|---|

A
B
C

Cycle 1 Results
Quench Curve Block Data




Date Acquired: 11/20/2012
Date Modified:
ARS LL H3 10mL in A

| tSIE/AEC | Count Efficiency (%) |
|---|---|
| 543.57 | 31.51 |
| 466.44 | 28.74 |
| 387.42 | 24.95 |
| 316.48 | 22.21 |
| 257.14 | 18.18 |
| 229.94 | 16.37 |
| 172.56 | 11.68 |
| 142.07 | 9.08 |
| 121.26 | 7.13 |

| P# | S# | SMPL_ID | CPMA | DPM1 | tSIE | Eff Nucl In A | Count Time | DATE | TIME | MESSAGES |
|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 1 | B13-00960-05 | 1.108 | 4.34 | 399.35 | 25.52 | 240.00 | 5/23/2013 | 5:59:04 AM | |
| 2 | 2 | B13-00960-06 | 1.144 | 4.43 | 406.41 | 25.86 | 240.00 | 5/23/2013 | 10:10:06 AM | |
| 2 | 3 | B13-00960-07 | 1.060 | 4.13 | 402.24 | 25.66 | 240.00 | 5/23/2013 | 2:21:04 PM | |
| 2 | 4 | B13-00960-08 | 1.050 | 4.09 | 402.34 | 25.66 | 240.00 | 5/23/2013 | 6:32:03 PM | |
| 2 | 5 | B13-00960-09 | 1.117 | 4.39 | 398.13 | 25.46 | 240.00 | 5/23/2013 | 10:43:01 PM | |
| 2 | 6 | B13-00960-10 | 1.155 | 4.56 | 395.63 | 25.34 | 240.00 | 5/24/2013 | 2:54:08 AM | |

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_2\20130524_1435
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_2\20130524_1435\20130524_1435.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_2\20130524_1435\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_2\20130524_1435\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3_2.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 240.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

| Regions | LL | UL | 2Sigma % Terminator |
|---|---|---|---|
| A | 2.0 | 18.6 | 0.50 |
| B | 0.0 | 2000.0 | 0.00 |
| C | 0.0 | 2000.0 | 0.00 |

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

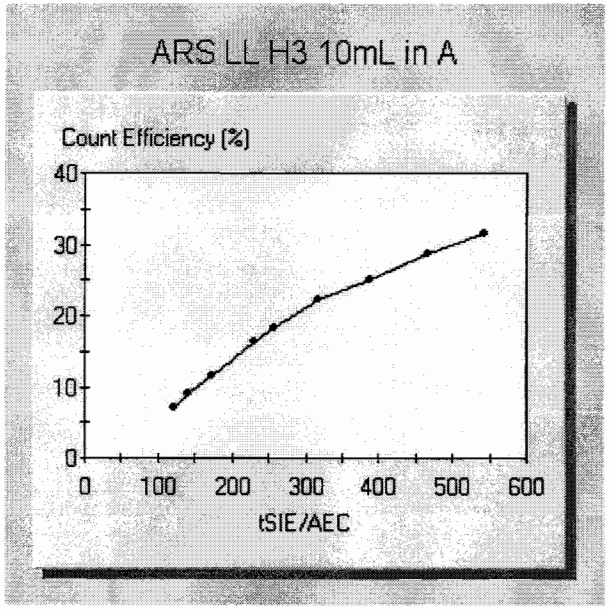
Half Life-

Half Life Correction: Off

| Regions | Half Life | Units | Reference Date | Reference Time |
|---|---|---|---|---|

A
B
C

Cycle 1 Results
Quench Curve Block Data




Date Acquired: 11/20/2012
Date Modified:
ARS LL H3 10mL in A

| tSIE/AEC | Count Efficiency (%) |
|---|---|
| 543.57 | 31.51 |
| 466.44 | 28.74 |
| 387.42 | 24.95 |
| 316.48 | 22.21 |
| 257.14 | 18.18 |
| 229.94 | 16.37 |
| 172.56 | 11.68 |
| 142.07 | 9.08 |
| 121.26 | 7.13 |

| P# | S# | SMPL_ID | CPMA | DPM1 | tSIE | Eff Nucl In A | Count Time | DATE | TIME | MESSAGES |
|---|---|---|---|---|---|---|---|---|---|---|
| 11 | 1 | B13-00960-11 | 1.493 | 5.81 | 403.54 | 25.72 | 240.00 | 5/24/2013 | 2:44:26 PM | |
| 11 | 2 | B13-00960-12 | 1.183 | 4.74 | 387.57 | 24.96 | 240.00 | 5/24/2013 | 6:55:19 PM | |
| 11 | 3 | B13-00960-13 | 1.868 | 7.46 | 389.19 | 25.03 | 240.00 | 5/24/2013 | 11:06:19 PM | |
| 11 | 4 | B13-00960-14 | 1.838 | 7.27 | 394.30 | 25.28 | 240.00 | 5/25/2013 | 3:17:22 AM | |

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_2\20130529_1449
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_2\20130529_1449\20130529_1449.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_2\20130529_1449\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_2\20130529_1449\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3_2.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 240.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

| Regions | LL | UL | 2Sigma % Terminator |
|---|---|---|---|
| A | 2.0 | 18.6 | 0.50 |
| B | 0.0 | 2000.0 | 0.00 |
| C | 0.0 | 2000.0 | 0.00 |

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

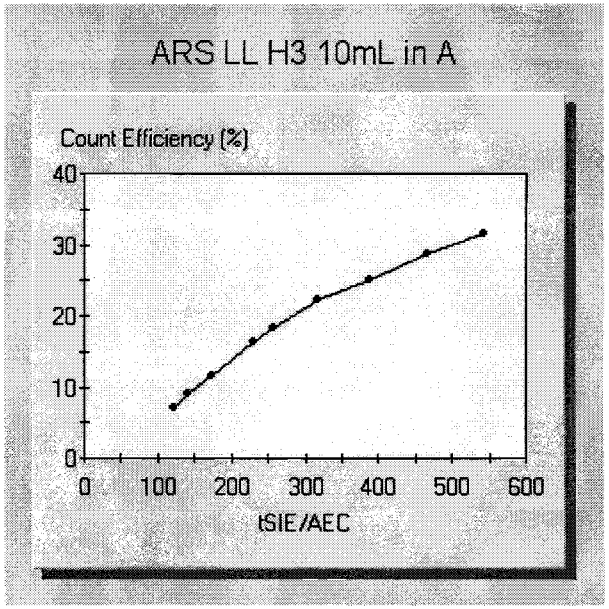
Half Life-

Half Life Correction: Off

| Regions | Half Life | Units | Reference Date | Reference Time |
|---|---|---|---|---|

A
B
C

Cycle 1 Results
Quench Curve Block Data




Date Acquired: 11/20/2012
Date Modified:
ARS LL H3 10mL in A

| tSIE/AEC | Count Efficiency (%) |
|---|---|
| 543.57 | 31.51 |
| 466.44 | 28.74 |
| 387.42 | 24.95 |
| 316.48 | 22.21 |
| 257.14 | 18.18 |
| 229.94 | 16.37 |
| 172.56 | 11.68 |
| 142.07 | 9.08 |
| 121.26 | 7.13 |

AMRAD
AMERICAN RADIATION SERVICES, LLC

# LSC Instrument Data Transfer Report

\\Packard3170\Results\H3 Low Level\Low Level H3_2\

| Batch Sample ID | Non-BKG Samples Transferred | Samples Eligible To Save | |
|---|---|---|---|
| ARS1-B13-00960 | 14 | 14 | LSC 1 |

| LIMS Batch Sample ID | LSC P# | LSC PID | LSC S# | LSC SMPL_ID | LSC Count Date | LSC CPMA | LSC tSIE | LSC EFF | LSC Count Dur | Analysis Batch | LIMS SDG | LIMS Run |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BKG | 11 | | 1 | BACKGROUND | 05/21/13 15:47 | 1.03 | 375.34 | 24.4800 | 240.00 | ARS1-B13-00960 | | |
| ARS1-B13-00960-01 | 11 | | 2 | B13-00960-01 | 05/21/13 19:57 | 3.50 | 395.77 | 25.3500 | 240.00 | ARS1-B13-00960 | | |
| ARS1-B13-00960-02 | 11 | | 3 | B13-00960-02 | 05/22/13 00:09 | 3.04 | 493.94 | 29.7300 | 240.00 | ARS1-B13-00960 | | |
| ARS1-B13-00960-03 | 11 | | 4 | B13-00960-03 | 05/22/13 04:23 | 1.26 | 390.45 | 25.0900 | 240.00 | ARS1-B13-00960 | | |
| ARS1-B13-00960-04 | 11 | | 5 | B13-00960-04 | 05/22/13 08:34 | 1.35 | 386.96 | 24.9300 | 240.00 | ARS1-B13-00960 | ARS1-13-00743 | 2 |
| ARS1-B13-00960-05 | 2 | | 1 | B13-00960-05 | 05/23/13 05:59 | 1.11 | 399.35 | 25.5200 | 240.00 | ARS1-B13-00960 | ARS1-13-00869 | 1 |
| ARS1-B13-00960-06 | 2 | | 2 | B13-00960-06 | 05/23/13 10:10 | 1.14 | 406.41 | 25.8600 | 240.00 | ARS1-B13-00960 | ARS1-13-00869 | 1 |
| ARS1-B13-00960-07 | 2 | | 3 | B13-00960-07 | 05/23/13 14:21 | 1.06 | 402.24 | 25.6600 | 240.00 | ARS1-B13-00960 | ARS1-13-00869 | 1 |
| ARS1-B13-00960-08 | 2 | | 4 | B13-00960-08 | 05/23/13 18:32 | 1.05 | 402.34 | 25.6600 | 240.00 | ARS1-B13-00960 | ARS1-13-00870 | 1 |
| ARS1-B13-00960-09 | 2 | | 5 | B13-00960-09 | 05/23/13 22:43 | 1.12 | 398.13 | 25.4600 | 240.00 | ARS1-B13-00960 | ARS1-13-00870 | 1 |
| ARS1-B13-00960-10 | 2 | | 6 | B13-00960-10 | 05/24/13 02:54 | 1.16 | 395.63 | 25.3400 | 240.00 | ARS1-B13-00960 | ARS1-13-00870 | 1 |
| ARS1-B13-00960-11 | 11 | | 1 | B13-00960-11 | 05/24/13 14:44 | 1.49 | 403.54 | 25.7200 | 240.00 | ARS1-B13-00960 | ARS1-13-00930 | 1 |
| ARS1-B13-00960-12 | 11 | | 2 | B13-00960-12 | 05/24/13 18:55 | 1.18 | 387.57 | 24.9600 | 240.00 | ARS1-B13-00960 | ARS1-13-00931 | 1 |
| ARS1-B13-00960-13 | 11 | | 3 | B13-00960-13 | 05/24/13 23:06 | 1.87 | 389.19 | 25.0300 | 240.00 | ARS1-B13-00960 | ARS1-13-00932 | 1 |
| ARS1-B13-00960-14 | 11 | | 4 | B13-00960-14 | 05/25/13 03:17 | 1.84 | 394.30 | 25.2800 | 240.00 | ARS1-B13-00960 | ARS1-13-00932 | 1 |

| ARS-040 Calculation Results | |
|---|---|
| ARS1-B13-00960 | |
| ACF | 1 |
| UCF | 2.22 |
| Sys Error | 0.15 |

| AnalysisCode | ABatchSampleID | Average_Sample_CPM | Bkg_CPM | tSIE | Detector_Eff_decimal | Aliquot | AliqUnits | Activity_reference_date | Start_Date_of_Count | Sample_Count_Duration_min |
|---|---|---|---|---|---|---|---|---|---|---|
| LSC-A-022 | ARS1-B13-00960-01 | 3.497 | 1.034 | 395.770 | 0.254 | 0.01001 | L | 9/7/2012 | 5/21/2013 | 240.000 |
| LSC-A-022 | ARS1-B13-00960-02 | 3.035 | 1.034 | 493.940 | 0.297 | 0.00507 | L | 9/7/2012 | 5/22/2013 | 240.000 |
| LSC-A-022 | ARS1-B13-00960-03 | 1.264 | 1.034 | 390.450 | 0.251 | 0.01003 | L | 5/21/2013 | 5/22/2013 | 240.000 |
| LSC-A-022 | ARS1-B13-00960-04 | 1.345 | 1.034 | 386.960 | 0.249 | 0.01001 | L | 4/10/2013 | 5/22/2013 | 240.000 |
| LSC-A-022 | ARS1-B13-00960-05 | 1.108 | 1.034 | 399.350 | 0.255 | 0.01003 | L | 4/25/2013 | 5/23/2013 | 240.000 |
| LSC-A-022 | ARS1-B13-00960-06 | 1.144 | 1.034 | 406.410 | 0.259 | 0.01001 | L | 4/25/2013 | 5/23/2013 | 240.000 |
| LSC-A-022 | ARS1-B13-00960-07 | 1.060 | 1.034 | 402.240 | 0.257 | 0.01004 | L | 4/25/2013 | 5/23/2013 | 240.000 |
| LSC-A-022 | ARS1-B13-00960-08 | 1.050 | 1.034 | 402.340 | 0.257 | 0.01002 | L | 4/25/2013 | 5/23/2013 | 240.000 |
| LSC-A-022 | ARS1-B13-00960-09 | 1.117 | 1.034 | 398.130 | 0.255 | 0.01003 | L | 4/25/2013 | 5/23/2013 | 240.000 |
| LSC-A-022 | ARS1-B13-00960-10 | 1.155 | 1.034 | 395.630 | 0.253 | 0.01012 | L | 4/25/2013 | 5/24/2013 | 240.000 |
| LSC-A-022 | ARS1-B13-00960-11 | 1.493 | 1.034 | 403.540 | 0.257 | 0.01003 | L | 5/6/2013 | 5/24/2013 | 240.000 |
| LSC-A-022 | ARS1-B13-00960-12 | 1.183 | 1.034 | 387.570 | 0.250 | 0.01001 | L | 5/7/2013 | 5/24/2013 | 240.000 |
| LSC-A-022 | ARS1-B13-00960-13 | 1.868 | 1.034 | 389.190 | 0.250 | 0.01002 | L | 5/8/2013 | 5/24/2013 | 240.000 |
| LSC-A-022 | ARS1-B13-00960-14 | 1.838 | 1.034 | 394.300 | 0.253 | 0.01003 | L | 5/8/2013 | 5/25/2013 | 240.000 |

| ARS-040 Calculation Results | |
|---|---|
| ARS1-B13-00960 | |
| ACF | 1 |
| UCF | 2.22 |
| Sys Error | 0.15 |

| AnalysisCode | ABatchSampleID | Total_Bkg_Count_Duration_min | DF | Sample_Activity_Conc | Standard_Counting_Uncertainty | CU_1 | CSU_1 | CU_1_96 | CSU_1_96 | MDC | DLC | ActivityReportUnits |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LSC-A-022 | ARS1-B13-00960-01 | 240.000 | 0.96133 | 17.270 | 0.963 | 0.963 | 2.764 | 1.888 | 5.417 | 2.221 | 1.071 | pCi |
| LSC-A-022 | ARS1-B13-00960-02 | 240.000 | 0.96119 | 23.660 | 1.540 | 1.540 | 3.869 | 3.018 | 7.582 | 3.745 | 1.806 | pCi |
| LSC-A-022 | ARS1-B13-00960-03 | 240.000 | 0.99985 | 1.458 | 0.620 | 0.620 | 0.658 | 1.216 | 1.289 | 2.008 | 0.968 | pCi |
| LSC-A-022 | ARS1-B13-00960-04 | 240.000 | 0.99355 | 2.564 | 0.821 | 0.821 | 0.907 | 1.609 | 1.777 | 2.611 | 1.259 | pCi |
| LSC-A-022 | ARS1-B13-00960-05 | 240.000 | 0.99570 | 0.499 | 0.637 | 0.637 | 0.641 | 1.248 | 1.257 | 2.135 | 1.029 | pCi |
| LSC-A-022 | ARS1-B13-00960-06 | 240.000 | 0.99570 | 0.715 | 0.619 | 0.619 | 0.628 | 1.213 | 1.231 | 2.058 | 0.992 | pCi |
| LSC-A-022 | ARS1-B13-00960-07 | 240.000 | 0.99570 | 0.172 | 0.617 | 0.617 | 0.617 | 1.209 | 1.210 | 2.091 | 1.008 | pCi |
| LSC-A-022 | ARS1-B13-00960-08 | 240.000 | 0.99570 | 0.108 | 0.629 | 0.629 | 0.629 | 1.233 | 1.233 | 2.138 | 1.031 | pCi |
| LSC-A-022 | ARS1-B13-00960-09 | 240.000 | 0.99554 | 0.560 | 0.639 | 0.639 | 0.644 | 1.252 | 1.263 | 2.137 | 1.031 | pCi |
| LSC-A-022 | ARS1-B13-00960-10 | 240.000 | 0.99554 | 0.754 | 0.595 | 0.595 | 0.606 | 1.167 | 1.188 | 1.974 | 0.952 | pCi |
| LSC-A-022 | ARS1-B13-00960-11 | 240.000 | 0.99723 | 3.076 | 0.688 | 0.688 | 0.828 | 1.348 | 1.623 | 2.122 | 1.023 | pCi |
| LSC-A-022 | ARS1-B13-00960-12 | 240.000 | 0.99738 | 1.026 | 0.662 | 0.662 | 0.679 | 1.297 | 1.332 | 2.180 | 1.051 | pCi |
| LSC-A-022 | ARS1-B13-00960-13 | 240.000 | 0.99738 | 5.713 | 0.753 | 0.753 | 1.141 | 1.476 | 2.236 | 2.169 | 1.046 | pCi |
| LSC-A-022 | ARS1-B13-00960-14 | 240.000 | 0.99738 | 5.459 | 0.743 | 0.743 | 1.106 | 1.456 | 2.167 | 2.150 | 1.037 | pCi |

| ARS-040 Calculation Results | |
|---|---|
| ARS1-B13-00960 | |
| ACF | 1 |
| UCF | 2.22 |
| Sys Error | 0.15 |

| AnalysisCode | ABatchSampleID | Initial_Mass_sample_g | Mass_Na2O2_added_g | Final_mass_electrolyzed_sample_NaOH_g | Mass_equivalent_NaOH_g | Final_Mass_Electrolyzed_sample_g | VolumeFactor_X | Enrichment_Factor_Y |
|---|---|---|---|---|---|---|---|---|
| LSC-A-022 | ARS1-B13-00960-01 | 500.370 | 2.000 | 16.930 | 2.052 | 14.878 | 0.030 | 26.335 |
| LSC-A-022 | ARS1-B13-00960-02 | 501.910 | 2.010 | 17.010 | 2.062 | 14.948 | 0.030 | 26.295 |
| LSC-A-022 | ARS1-B13-00960-03 | 500.000 | 2.030 | 15.910 | 2.083 | 13.827 | 0.028 | 28.236 |
| LSC-A-022 | ARS1-B13-00960-04 | 425.050 | 1.750 | 17.010 | 1.796 | 15.215 | 0.036 | 22.035 |
| LSC-A-022 | ARS1-B13-00960-05 | 500.000 | 2.010 | 17.000 | 2.062 | 14.938 | 0.030 | 26.215 |
| LSC-A-022 | ARS1-B13-00960-06 | 500.000 | 2.050 | 16.650 | 2.103 | 14.547 | 0.029 | 26.892 |
| LSC-A-022 | ARS1-B13-00960-07 | 500.020 | 2.060 | 16.830 | 2.114 | 14.716 | 0.029 | 26.595 |
| LSC-A-022 | ARS1-B13-00960-08 | 500.010 | 2.000 | 17.080 | 2.052 | 15.028 | 0.030 | 26.064 |
| LSC-A-022 | ARS1-B13-00960-09 | 500.030 | 2.050 | 17.020 | 2.103 | 14.917 | 0.030 | 26.252 |
| LSC-A-022 | ARS1-B13-00960-10 | 497.000 | 2.020 | 15.780 | 2.073 | 13.707 | 0.028 | 28.309 |
| LSC-A-022 | ARS1-B13-00960-11 | 500.000 | 2.010 | 17.050 | 2.062 | 14.988 | 0.030 | 26.131 |
| LSC-A-022 | ARS1-B13-00960-12 | 500.060 | 2.040 | 17.010 | 2.093 | 14.917 | 0.030 | 26.253 |
| LSC-A-022 | ARS1-B13-00960-13 | 500.060 | 2.050 | 17.000 | 2.103 | 14.897 | 0.030 | 26.288 |
| LSC-A-022 | ARS1-B13-00960-14 | 500.000 | 2.000 | 16.980 | 2.052 | 14.928 | 0.030 | 26.232 |

| ARS-040 Calculation Results | |
|---|---|
| ARS1-B13-00960 | |
| ACF | 1 |
| UCF | 2.22 |
| Sys Error | 0.15 |

| AnalysisCode | ABatchSampleID | AliquotReportUnits | UserID | ModDate |
|---|---|---|---|---|
| LSC-A-022 | ARS1-B13-00960-01 | L | AMRAD\PSIMS | 5/28/2013 |
| LSC-A-022 | ARS1-B13-00960-02 | L | AMRAD\PSIMS | 5/28/2013 |
| LSC-A-022 | ARS1-B13-00960-03 | L | AMRAD\PSIMS | 5/28/2013 |
| LSC-A-022 | ARS1-B13-00960-04 | L | AMRAD\PSIMS | 5/28/2013 |
| LSC-A-022 | ARS1-B13-00960-05 | L | AMRAD\PSIMS | 5/28/2013 |
| LSC-A-022 | ARS1-B13-00960-06 | L | AMRAD\PSIMS | 5/28/2013 |
| LSC-A-022 | ARS1-B13-00960-07 | L | AMRAD\PSIMS | 5/28/2013 |
| LSC-A-022 | ARS1-B13-00960-08 | L | AMRAD\PSIMS | 5/28/2013 |
| LSC-A-022 | ARS1-B13-00960-09 | L | AMRAD\PSIMS | 5/28/2013 |
| LSC-A-022 | ARS1-B13-00960-10 | L | AMRAD\PSIMS | 5/28/2013 |
| LSC-A-022 | ARS1-B13-00960-11 | L | AMRAD\PSIMS | 5/28/2013 |
| LSC-A-022 | ARS1-B13-00960-12 | L | AMRAD\PSIMS | 5/28/2013 |
| LSC-A-022 | ARS1-B13-00960-13 | L | AMRAD\PSIMS | 5/28/2013 |
| LSC-A-022 | ARS1-B13-00960-14 | L | AMRAD\PSIMS | 5/28/2013 |

# ARS Tritium Enrichment Calculations

| | |
|---|---|
| ***Procedures*** | ARS-040 , ARS-060 |
| ***ARS File ID Number*** | ARS1-13-00930-001; 932-001,002 |
| ***ARS Batch ID Number*** | ARS1-B13-00960 |

| Enrichment Factor Curve coeff. - Power y = a * x^b | |
|---|---|
| a | 8.978E-01 |
| b | -9.611E-01 |

| | | | |
|---|---|---|---|
| **lambda** | 1.5403E-04 | **ACF (def. = 1)** | 1 |
| Syserror (%) | 15% | **Reporting Units** | pCi |
| Coverage Factor | 1 | UCF | 2.22 |

| Sample ID | Initial Mass sample (g) $V_i$ | Mass Na2O2 added (g) mi | Final mass electrolyzed sample w/ NaOH (g) $V_f$ | Mass equivalent NaOH (g) $m_f$ | Final Mass Electrolyzed sample (g pure H2O) $V_f$ | Volume factor X | Enrichment Factor Y | Average Sample CPM $R_s$ | Bkg CPM $R_b$ | QIP tSIE | Detector Eff (decimal) Eff | Aliquot Aliquot | Enter aliq. in final Rep. Units Units | Activity reference date $T_o$ | Start Date of Count $T_c$ | Total Sample Count Duration (min) t cnt (min) | Total Bkg Count Duration (min) t cnt (min) | Decay Correction to To DF | Sample Activity Conc. $AC_i$ | Standard Counting Uncertainty CU | Counting Uncertainty 1s CU | Combined Standard Uncertainty 1s CSU | Minimum Detectable Conc. MDC | Decision Level Conc. DLC | Reporting Units Units |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B13-00960-11 | 500.00 | 2.01 | 17.05 | 2.062 | 14.99 | 0.0300 | 26.13 | 1.320 | 1.149 | 380.68 | 0.2469 | 0.01003 | L | 5/6/2013 | 5/29/2013 | 240 | 240 | 0.99645 | 1.19 | 0.71 | 0.71 | 0.73 | 2.33 | 1.12 | pCi/L |
| B13-00960-13 | 500.06 | 2.05 | 17.00 | 2.103 | 14.90 | 0.0298 | 26.29 | 1.779 | 1.149 | 368.67 | 0.2422 | 0.01002 | L | 5/8/2013 | 5/29/2013 | 240 | 240 | 0.99676 | 4.46 | 0.78 | 0.78 | 1.03 | 2.36 | 1.14 | pCi/L |
| B13-00960-14 | 500.00 | 2.00 | 16.98 | 2.052 | 14.93 | 0.0299 | 26.23 | 1.704 | 1.149 | 367.01 | 0.2416 | 0.01003 | L | 5/8/2013 | 5/30/2013 | 240 | 240 | 0.9966 | 3.95 | 0.78 | 0.78 | 0.98 | 2.37 | 1.14 | pCi/L |
| XXX | xx | xx | xx | | | | | xx | xx | xx | xx | xx | xx | xx | xx | xx | xx | | | | | | | | pCi/xx |
| XXX | xx | xx | xx | | | | | xx | xx | xx | xx | xx | xx | xx | xx | xx | xx | | | | | | | | pCi/xx |
| XXX | xx | xx | xx | | | | | xx | xx | xx | xx | xx | xx | xx | xx | xx | xx | | | | | | | | pCi/xx |
| XXX | xx | xx | xx | | | | | xx | xx | xx | xx | xx | xx | xx | xx | xx | xx | | | | | | | | pCi/xx |
| XXX | xx | xx | xx | | | | | xx | xx | xx | xx | xx | xx | xx | xx | xx | xx | | | | | | | | pCi/xx |
| XXX | xx | xx | xx | | | | | xx | xx | xx | xx | xx | xx | xx | xx | xx | xx | | | | | | | | pCi/xx |
| XXX | xx | xx | xx | | | | | xx | xx | xx | xx | xx | xx | xx | xx | xx | xx | | | | | | | | pCi/xx |
| XXX | xx | xx | xx | | | | | xx | xx | xx | xx | xx | xx | xx | xx | xx | xx | | | | | | | | pCi/xx |
| XXX | xx | xx | xx | | | | | xx | xx | xx | xx | xx | xx | xx | xx | xx | xx | | | | | | | | pCi/xx |
| XXX | xx | xx | xx | | | | | xx | xx | xx | xx | xx | xx | xx | xx | xx | xx | | | | | | | | pCi/xx |
| XXX | xx | xx | xx | | | | | xx | xx | xx | xx | xx | xx | xx | xx | xx | xx | | | | | | | | pCi/xx |
| XXX | xx | xx | xx | | | | | xx | xx | xx | xx | xx | xx | xx | xx | xx | xx | | | | | | | | pCi/xx |
| XXX | xx | xx | xx | | | | | xx | xx | xx | xx | xx | xx | xx | xx | xx | xx | | | | | | | | pCi/xx |
| XXX | xx | xx | xx | | | | | xx | xx | xx | xx | xx | xx | xx | xx | xx | xx | | | | | | | | pCi/xx |
| XXX | xx | xx | xx | | | | | xx | xx | xx | xx | xx | xx | xx | xx | xx | xx | | | | | | | | pCi/xx |
| XXX | xx | xx | xx | | | | | xx | xx | xx | xx | xx | xx | xx | xx | xx | xx | | | | | | | | pCi/xx |
| XXX | xx | xx | xx | | | | | xx | xx | xx | xx | xx | xx | xx | xx | xx | xx | | | | | | | | pCi/xx |
| XXX | xx | xx | xx | | | | | xx | xx | xx | xx | xx | xx | xx | xx | xx | xx | | | | | | | | pCi/xx |
| XXX | xx | xx | xx | | | | | xx | xx | xx | xx | xx | xx | xx | xx | xx | xx | | | | | | | | pCi/xx |
| XXX | xx | xx | xx | | | | | xx | xx | xx | xx | xx | xx | xx | xx | xx | xx | | | | | | | | pCi/xx |
| XXX | xx | xx | xx | | | | | xx | xx | xx | xx | xx | xx | xx | xx | xx | xx | | | | | | | | pCi/xx |
| XXX | xx | xx | xx | | | | | xx | xx | xx | xx | xx | xx | xx | xx | xx | xx | | | | | | | | pCi/xx |



T:\ARS TRAX Reports\Calculations\ARS1-B13-00960\B13-00960 Recount TritiumLowLevel-Enriched-Rev6 verified.xls
Printed: 6/3/2013 3:52 PM
H-3_Enrichment)_V5XX.xls

EXIT Exit

AMRAD AMERICAN RADIATION SERVICES, LLC

# Standards Activity as of: 05/21/13 19:57

| Active | Std ID | Isotope | PSCLT | Verification Date | Exp Date | Status | Ref Date | Ref ACT (dpm) | ACT at Date Above (dpm/g) | Halflife (days) | Parent ID | Expended Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **A** | **S-0279** | H-3 | **SL** | 09/10/12 | 09/10/13 | OK | 09/07/12 | 5.7255E+00 | **5.5041** | 4.500E+03 | **S-0237** | |

# Beta Liquid Scintillation Counter Log Book

| Date | Time | ARS Sample I.D. Number | Batch Number | Liquid Scintillation File Number | Technician Initials |
|---|---|---|---|---|---|
| 5-16-13 | 14:36 | SNC 16 | QA | QA | PDJ |
| ↓ | ↓ | Background | B13-01007 | | PDJ |
| ↓ | ↓ | B13-01007-04 | ↓ | ↓ | PDJ |
| ↓ | ↓ | B13-01007-05 | ↓ | ↓ | PDJ |
| ↓ | ↓ | B13-01007-06 | ↓ | ↓ | PDJ |
| 5-21-13 | 13:55 | SNC 16 | QA | QA | PDJ |
| ↓ | ↓ | Background | B13-00960 | | PDJ |
| ↓ | ↓ | B13-00960-01 | ↓ | ↓ | PDJ |
| ↓ | ↓ | B13-00960-02 | ↓ | ↓ | PDJ |
| ↓ | ↓ | B13-00960-03 | ↓ | ↓ | PDJ |
| ↓ | ↓ | B13-00960-04 | ↓ | ↓ | PDJ |
| 5-22-13 | 12:30 | SNC 16 | QA | QA | PDJ |
| ↓ | ↓ | B13-00960-05 | B13-00960 | 1538 | PDJ |
| ↓ | ↓ | B13-00960-06 | ↓ | ↓ | PDJ |
| ↓ | ↓ | B13-00960-07 | ↓ | ↓ | PDJ |
| ↓ | ↓ | B13-00960-08 | ↓ | ↓ | PDJ |
| ↓ | ↓ | B13-00960-09 | ↓ | ↓ | PDJ |
| ↓ | ↓ | B13-00960-10 | ↓ | ↓ | PDJ |
| ↓ | ↓ | ~~B13-00960~~ 5-22-13 PDJ SNC 16 | QA | QA | PDJ |
| 5-24-13 | 13:02 | SNC 16 | QA | QA | PDJ |



Reviewed By: SOL Date: 5-29-13
Initials

# Beta Liquid Scintillation Counter Log Book

| Date | Time | ARS Sample I.D. Number | Batch Number | Liquid Scintillation File Number | Technician Initials |
|---|---|---|---|---|---|
| 5-24-13 | 13:02 | B13-00960-11 | B13-00960 | | PDJ |
| ↓ | ↓ | B13-00960-12 | ↓ | ↓ | PDJ |
| ↓ | ↓ | B13-00960-13 | ↓ | ↓ | PDJ |
| ↓ | ↓ | B13-00960-14 | ↓ | ↓ | PDJ |
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No data
SDL
5-29-13



Reviewed By: SDL Date: 5-29-13
Initials

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_2\20130529_1449
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_2\20130529_1449\20130529_1449.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_2\20130529_1449\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_2\20130529_1449\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3_2.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 240.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

| Regions | LL | UL | 2Sigma % Terminator |
|---|---|---|---|
| A | 2.0 | 18.6 | 0.50 |
| B | 0.0 | 2000.0 | 0.00 |
| C | 0.0 | 2000.0 | 0.00 |

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

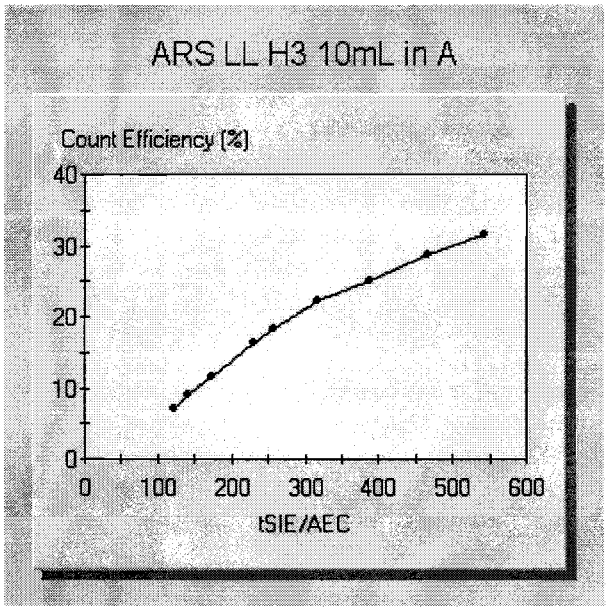
Half Life-

Half Life Correction: Off

| Regions | Half Life | Units | Reference Date | Reference Time |
|---|---|---|---|---|

A
B
C

Cycle 1 Results
Quench Curve Block Data




Date Acquired: 11/20/2012
Date Modified:
ARS LL H3 10mL in A

| tSIE/AEC | Count Efficiency (%) |
|---|---|
| 543.57 | 31.51 |
| 466.44 | 28.74 |
| 387.42 | 24.95 |
| 316.48 | 22.21 |
| 257.14 | 18.18 |
| 229.94 | 16.37 |
| 172.56 | 11.68 |
| 142.07 | 9.08 |
| 121.26 | 7.13 |

| P# | S# | SMPL_ID | CPMA | DPM1 | tSIE | Eff Nucl In A | Count Time | DATE | TIME | MESSAGES |
|---|---|---|---|---|---|---|---|---|---|---|
| 11 | 1 | BACKGROUND | 1.149 | 4.71 | 373.04 | 24.39 | 240.00 | 5/29/2013 | 2:58:26 PM | |
| 11 | 2 | B13-00960-11 | 1.320 | 5.35 | 380.68 | 24.69 | 240.00 | 5/29/2013 | 7:09:16 PM | |
| 11 | 3 | B13-00960-13 | 1.779 | 7.34 | 368.67 | 24.22 | 240.00 | 5/29/2013 | 11:20:19 PM | |
| 11 | 4 | B13-00960-14 | 1.704 | 7.05 | 367.01 | 24.16 | 240.00 | 5/30/2013 | 3:31:17 AM | |

AMRAD
AMERICAN RADIATION SERVICES, LLC

# LSC Instrument Data Transfer Report

\\Packard3170\Results\H3 Low Level\Low Level H3_2\

| Batch Sample ID | Non-BKG Samples Transferred | Samples Eligible To Save | |
|---|---|---|---|
| ARS1-B13-00960 | 17 | 17 | LSC 1 |

| LIMS Batch Sample ID | LSC P# | LSC PID | LSC S# | LSC SMPL_ID | LSC Count Date | LSC CPMA | LSC tSTE | LSC EFF | LSC Count Dur | Analysis Batch | LIMS SDG | LIMS Run |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BKG | 11 | | 1 | BACKGROUND | 05/21/13 15:47 | 1.03 | 375.34 | 24.4800 | 240.00 | ARS1-B13-00960 | | |
| ARS1-B13-00960-01 | 11 | | 2 | B13-00960-01 | 05/21/13 19:57 | 3.50 | 395.77 | 25.3500 | 240.00 | ARS1-B13-00960 | | |
| ARS1-B13-00960-02 | 11 | | 3 | B13-00960-02 | 05/22/13 00:09 | 3.04 | 493.94 | 29.7300 | 240.00 | ARS1-B13-00960 | | |
| ARS1-B13-00960-03 | 11 | | 4 | B13-00960-03 | 05/22/13 04:23 | 1.26 | 390.45 | 25.0900 | 240.00 | ARS1-B13-00960 | | |
| ARS1-B13-00960-04 | 11 | | 5 | B13-00960-04 | 05/22/13 08:34 | 1.35 | 386.96 | 24.9300 | 240.00 | ARS1-B13-00960 | ARS1-13-00743 | 2 |
| ARS1-B13-00960-05 | 2 | | 1 | B13-00960-05 | 05/23/13 05:59 | 1.11 | 399.35 | 25.5200 | 240.00 | ARS1-B13-00960 | ARS1-13-00869 | 1 |
| ARS1-B13-00960-06 | 2 | | 2 | B13-00960-06 | 05/23/13 10:10 | 1.14 | 406.41 | 25.8600 | 240.00 | ARS1-B13-00960 | ARS1-13-00869 | 1 |
| ARS1-B13-00960-07 | 2 | | 3 | B13-00960-07 | 05/23/13 14:21 | 1.06 | 402.24 | 25.6600 | 240.00 | ARS1-B13-00960 | ARS1-13-00869 | 1 |
| ARS1-B13-00960-08 | 2 | | 4 | B13-00960-08 | 05/23/13 18:32 | 1.05 | 402.34 | 25.6600 | 240.00 | ARS1-B13-00960 | ARS1-13-00870 | 1 |
| ARS1-B13-00960-09 | 2 | | 5 | B13-00960-09 | 05/23/13 22:43 | 1.12 | 398.13 | 25.4600 | 240.00 | ARS1-B13-00960 | ARS1-13-00870 | 1 |
| ARS1-B13-00960-10 | 2 | | 6 | B13-00960-10 | 05/24/13 02:54 | 1.16 | 395.63 | 25.3400 | 240.00 | ARS1-B13-00960 | ARS1-13-00870 | 1 |
| ARS1-B13-00960-11 | 11 | | 1 | B13-00960-11 | 05/24/13 14:44 | 1.49 | 403.54 | 25.7200 | 240.00 | ARS1-B13-00960 | ARS1-13-00930 | 1 |
| ARS1-B13-00960-12 | 11 | | 2 | B13-00960-12 | 05/24/13 18:55 | 1.18 | 387.57 | 24.9600 | 240.00 | ARS1-B13-00960 | ARS1-13-00931 | 1 |
| ARS1-B13-00960-13 | 11 | | 3 | B13-00960-13 | 05/24/13 23:06 | 1.87 | 389.19 | 25.0300 | 240.00 | ARS1-B13-00960 | ARS1-13-00932 | 1 |
| ARS1-B13-00960-14 | 11 | | 4 | B13-00960-14 | 05/25/13 03:17 | 1.84 | 394.30 | 25.2800 | 240.00 | ARS1-B13-00960 | ARS1-13-00932 | 1 |
| ARS1-B13-00960-11 | 11 | | 2 | B13-00960-11 | 05/29/13 19:09 | 1.32 | 380.68 | 24.6900 | 240.00 | ARS1-B13-00960 | ARS1-13-00930 | 1 |
| ARS1-B13-00960-13 | 11 | | 3 | B13-00960-13 | 05/29/13 23:20 | 1.78 | 368.67 | 24.2200 | 240.00 | ARS1-B13-00960 | ARS1-13-00932 | 1 |
| ARS1-B13-00960-14 | 11 | | 4 | B13-00960-14 | 05/30/13 03:31 | 1.70 | 367.01 | 24.1600 | 240.00 | ARS1-B13-00960 | ARS1-13-00932 | 1 |

# Beta Liquid Scintillation Counter Log Book

| Date | Time | ARS Sample I.D. Number | Batch Number | Liquid Scintillation File Number | Technician Initials |
|---|---|---|---|---|---|
| 5-24-13 | 13:02 | D13-00460-11 | D13-00460 | | PDJ |
| ↓ | ↓ | D13-00460-12 | ↓ | ↓ | PDJ |
| ↓ | ↓ | D13-00460-13 | ↓ | ↓ | PDJ |
| ↓ | ↓ | D13-00460-14 | ↓ | ↓ | PDJ |
| 5-24-13 | 13:16 | SWC 16 | QA | QA | PDJ |
| ↓ | ↓ | Background | D13-00460 | | PDJ |
| ↓ | ↓ | D13-00460-11 | ↓ | ↓ | PDJ |
| ↓ | ↓ | D13-00460-13 | ↓ | ↓ | PDJ |
| ↓ | ↓ | D13-00460-14 | ↓ | ↓ | PDJ |
| | | No data SDR 6-3-13 | | | |

Page 71 of 200
CE-13

Reviewed By: SDR Initials Date: 6-3-13

# Technical Notes



| | | |
|---|---|---|
| Batch | ARS1-B13-00960 | |
| Analysis Code | LSC-A-022 | |
| Procedure No | ARS-040 | |
| Matrix | AQ | |

| # | Date | Dept | Batch Technical Notes | User ID |
|---|---|---|---|---|
| 1 | 05/21/13 13:54 | CHEMISTRY | Sample B13-00960-02,LCSD, after cryo-distillation presented a problem with the first 10ml when mixed with cocktail. So the remainder which consisted of 5.07ml was mixed with cocktail and used as the LCSD and was counted. | AMRAD\PSIMS |

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

# American Radiation Services Analytical Reports

for

# Los Alamos National Laboratory

# Low Level Tritium by Low Level Liquid Scintillation Counting

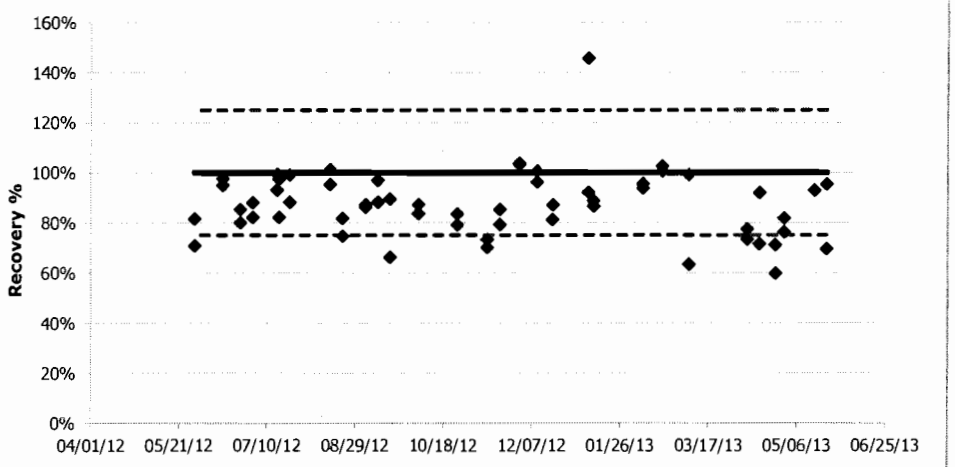
# Control Charts

American Radiation Services
Baton Rouge Laboratory

# QC Chart

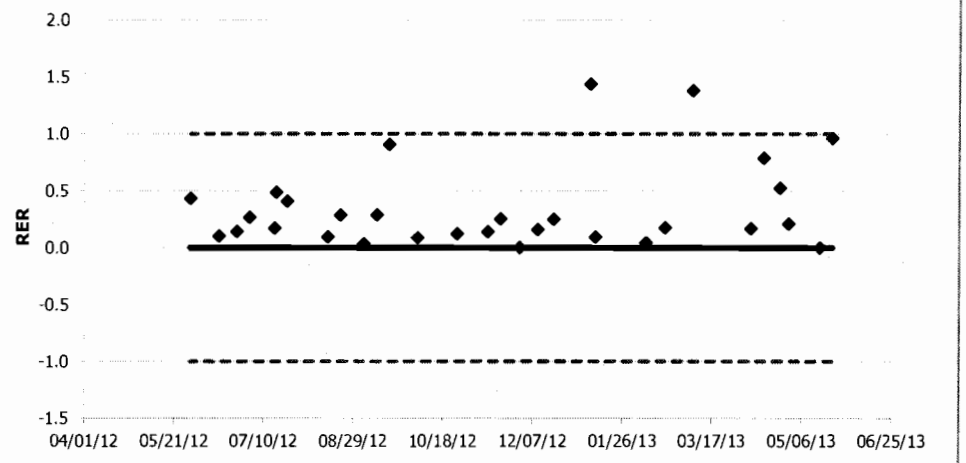


## LLH-3 LCS



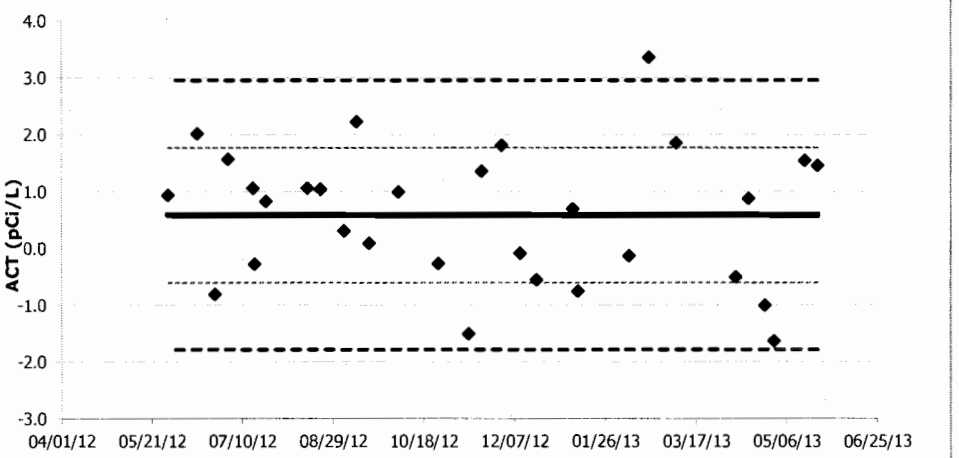

| Average | STDEV | n | UCL | LCL |
|---|---|---|---|---|
| 0.8744 | 0.1322 | 30 | 1.2500 | 0.7500 |

## LLH-3 RER



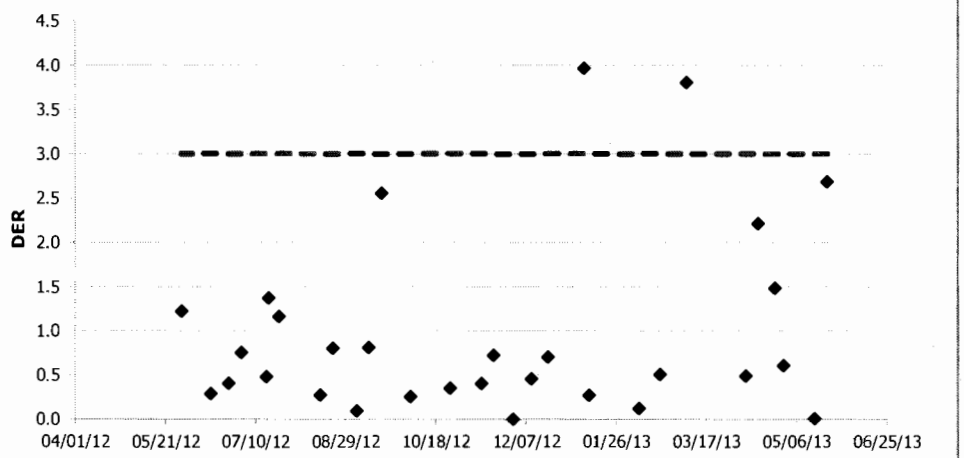

| | | n | UCL | LCL |
|---|---|---|---|---|
| | | 30 | 1.0000 | -1.0000 |

## LLH-3 Blank




| Average | STDEV | n | UCL | LCL |
|---|---|---|---|---|
| 0.5867 | 1.1847 | 30 | 2.9561 | -1.7827 |

## LLH-3 DER




| | | n | UCL | |
|---|---|---|---|---|
| | | 30 | 3.0000 | |

3H Efficiency
Total # pts : 5629
Valid # pts : 152
Mean : 62.76
SD : 0.27

| Date | Value | Valid Pt |
|---|---|---|
| May 23, 2012 | 62.99 | X |
| May 30, 2012 | 63.26 | X |
| May 31, 2012 | 63.37 | X |
| Jun 06, 2012 | 62.83 | X |
| Jun 13, 2012 | 63.22 | X |
| Jun 21, 2012 | 63.04 | X |
| Jun 22, 2012 | 63.16 | X |
| Jun 25, 2012 | 63.09 | X |
| Jun 27, 2012 | 62.70 | X |
| Jun 27, 2012 | 62.99 | X |
| Jun 28, 2012 | 63.05 | X |
| Jun 29, 2012 | 62.93 | X |
| Jun 30, 2012 | 62.97 | X |
| Jul 05, 2012 | 62.86 | X |
| Jul 11, 2012 | 63.07 | X |
| Jul 12, 2012 | 62.85 | X |
| Jul 16, 2012 | 63.12 | X |
| Jul 20, 2012 | 63.22 | X |
| Jul 22, 2012 | 63.22 | X |
| Jul 26, 2012 | 63.19 | X |
| Jul 27, 2012 | 63.52 | X |
| Aug 09, 2012 | 62.77 | X |
| Aug 13, 2012 | 63.03 | X |
| Aug 14, 2012 | 62.90 | X |
| Aug 16, 2012 | 62.85 | X |
| Aug 17, 2012 | 63.22 | X |
| Aug 18, 2012 | 63.03 | X |
| Aug 21, 2012 | 62.94 | X |
| Aug 22, 2012 | 63.04 | X |
| Aug 26, 2012 | 63.29 | X |
| Aug 27, 2012 | 62.99 | X |
| Aug 27, 2012 | 63.17 | X |
| Sep 05, 2012 | 63.39 | X |
| Sep 09, 2012 | 62.96 | X |
| Sep 11, 2012 | 63.03 | X |
| Sep 17, 2012 | 63.15 | X |
| Sep 18, 2012 | 62.86 | X |
| Sep 20, 2012 | 62.86 | X |
| Sep 20, 2012 | 62.80 | X |
| Sep 24, 2012 | 63.14 | X |
| Sep 28, 2012 | 63.03 | X |
| Oct 01, 2012 | 62.85 | X |

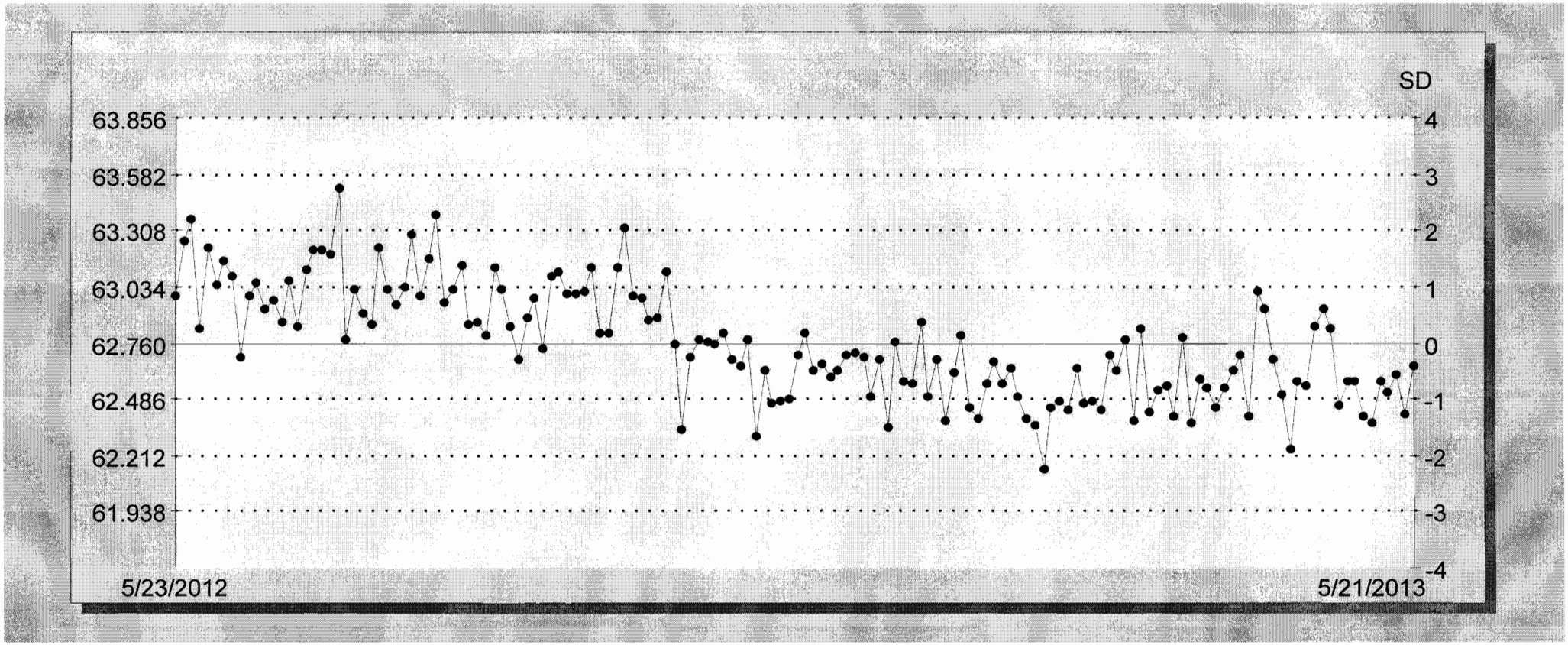
| | | |
|---|---|---|
| Oct 04, 2012 | 62.68 | X |
| Oct 05, 2012 | 62.88 | X |
| Oct 06, 2012 | 62.98 | X |
| Oct 11, 2012 | 62.74 | X |
| Oct 12, 2012 | 63.08 | X |
| Oct 13, 2012 | 63.12 | X |
| Oct 17, 2012 | 63.00 | X |
| Oct 19, 2012 | 63.00 | X |
| Oct 22, 2012 | 63.02 | X |
| Oct 23, 2012 | 63.13 | X |
| Oct 23, 2012 | 62.80 | X |
| Oct 23, 2012 | 62.81 | X |
| Oct 23, 2012 | 63.13 | X |
| Oct 25, 2012 | 63.32 | X |
| Oct 27, 2012 | 62.99 | X |
| Oct 31, 2012 | 62.98 | X |
| Nov 02, 2012 | 62.87 | X |
| Nov 02, 2012 | 62.89 | X |
| Nov 04, 2012 | 63.11 | X |
| Nov 05, 2012 | 62.76 | X |
| Nov 10, 2012 | 62.33 | X |
| Nov 12, 2012 | 62.69 | X |
| Nov 12, 2012 | 62.77 | X |
| Nov 13, 2012 | 62.76 | X |
| Nov 14, 2012 | 62.75 | X |
| Nov 15, 2012 | 62.81 | X |
| Nov 18, 2012 | 62.68 | X |
| Nov 19, 2012 | 62.65 | X |
| Nov 19, 2012 | 62.78 | X |
| Nov 20, 2012 | 62.30 | X |
| Nov 21, 2012 | 62.63 | X |
| Nov 23, 2012 | 62.47 | X |
| Dec 04, 2012 | 62.48 | X |
| Dec 08, 2012 | 62.49 | X |
| Dec 12, 2012 | 62.70 | X |
| Dec 14, 2012 | 62.81 | X |
| Dec 15, 2012 | 62.63 | X |
| Dec 21, 2012 | 62.66 | X |
| Dec 21, 2012 | 62.60 | X |
| Dec 31, 2012 | 62.63 | X |
| Jan 02, 2013 | 62.70 | X |
| Jan 09, 2013 | 62.72 | X |
| Jan 10, 2013 | 62.69 | X |
| Feb 01, 2013 | 62.50 | X |
| Feb 02, 2013 | 62.68 | X |
| Feb 06, 2013 | 62.34 | X |
| Feb 08, 2013 | 62.77 | X |
| Feb 08, 2013 | 62.57 | X |
| Feb 15, 2013 | 62.57 | X |
| Feb 17, 2013 | 62.87 | X |
| Feb 18, 2013 | 62.50 | X |
| Feb 20, 2013 | 62.68 | X |

| | | |
|---|---|---|
| Feb 22, 2013 | 62.61 | X |
| Feb 28, 2013 | 62.80 | X |
| Mar 01, 2013 | 62.45 | X |
| Mar 01, 2013 | 62.39 | X |
| Mar 01, 2013 | 62.56 | X |
| Mar 04, 2013 | 62.67 | X |
| Mar 04, 2013 | 62.57 | X |
| Mar 06, 2013 | 62.64 | X |
| Mar 08, 2013 | 62.50 | X |
| Mar 08, 2013 | 62.39 | X |
| Mar 14, 2013 | 62.36 | X |
| Mar 15, 2013 | 62.14 | X |
| Mar 18, 2013 | 62.45 | X |
| Mar 22, 2013 | 62.47 | X |
| Mar 22, 2013 | 62.43 | X |
| Mar 23, 2013 | 62.64 | X |
| Mar 28, 2013 | 62.47 | X |
| Mar 29, 2013 | 62.47 | X |
| Apr 04, 2013 | 62.44 | X |
| Apr 05, 2013 | 62.70 | X |
| Apr 07, 2013 | 62.62 | X |
| Apr 11, 2013 | 62.77 | X |
| Apr 12, 2013 | 62.38 | X |
| Apr 15, 2013 | 62.83 | X |
| Apr 16, 2013 | 62.42 | X |
| Apr 16, 2013 | 62.53 | X |
| Apr 16, 2013 | 62.55 | X |
| Apr 16, 2013 | 62.41 | X |
| Apr 16, 2013 | 62.78 | X |
| Apr 16, 2013 | 62.37 | X |
| Apr 18, 2013 | 62.59 | X |
| Apr 19, 2013 | 62.54 | X |
| Apr 22, 2013 | 62.44 | X |
| Apr 24, 2013 | 62.54 | X |
| Apr 24, 2013 | 62.62 | X |
| Apr 25, 2013 | 62.71 | X |
| Apr 25, 2013 | 62.40 | X |
| Apr 27, 2013 | 63.02 | X |
| Apr 29, 2013 | 62.92 | X |
| May 01, 2013 | 62.68 | X |
| May 03, 2013 | 62.51 | X |
| May 06, 2013 | 62.24 | X |
| May 07, 2013 | 62.57 | X |
| May 09, 2013 | 62.56 | X |
| May 09, 2013 | 62.84 | X |
| May 09, 2013 | 62.92 | X |
| May 09, 2013 | 62.83 | X |
| May 09, 2013 | 62.46 | X |
| May 10, 2013 | 62.57 | X |
| May 14, 2013 | 62.57 | X |
| May 15, 2013 | 62.40 | X |
| May 16, 2013 | 62.37 | X |

| | | |
|---|---|---|
| May 17, 2013 | 62.52 | X |
| May 17, 2013 | 62.60 | X |
| May 17, 2013 | 62.41 | X |
| May 21, 2013 | 62.65 | X |

3H Efficiency

| | |
|---|---|
| Total # pts | : 5629 |
| Valid # pts | : 152 |
| Mean | : 62.76 |
| SD | : 0.27 |



3H Background
Total # pts : 5555
Valid # pts : 152
Mean : 2.12
SD : 0.16

| Date | Value | Valid Pt |
|---|---|---|
| May 23, 2012 | 2.11 | X |
| May 30, 2012 | 2.31 | X |
| May 31, 2012 | 2.04 | X |
| Jun 06, 2012 | 2.07 | X |
| Jun 13, 2012 | 2.19 | X |
| Jun 21, 2012 | 2.08 | X |
| Jun 22, 2012 | 2.04 | X |
| Jun 25, 2012 | 2.43 | X |
| Jun 27, 2012 | 2.28 | X |
| Jun 27, 2012 | 1.90 | X |
| Jun 28, 2012 | 2.16 | X |
| Jun 29, 2012 | 2.13 | X |
| Jun 30, 2012 | 2.12 | X |
| Jul 05, 2012 | 2.05 | X |
| Jul 11, 2012 | 2.33 | X |
| Jul 12, 2012 | 2.15 | X |
| Jul 16, 2012 | 2.09 | X |
| Jul 20, 2012 | 1.91 | X |
| Jul 22, 2012 | 2.19 | X |
| Jul 26, 2012 | 2.33 | X |
| Jul 27, 2012 | 2.36 | X |
| Aug 09, 2012 | 1.88 | X |
| Aug 13, 2012 | 2.16 | X |
| Aug 14, 2012 | 1.78 | X |
| Aug 16, 2012 | 2.46 | X |
| Aug 17, 2012 | 2.06 | X |
| Aug 18, 2012 | 2.21 | X |
| Aug 21, 2012 | 2.16 | X |
| Aug 22, 2012 | 2.13 | X |
| Aug 26, 2012 | 2.12 | X |
| Aug 27, 2012 | 2.25 | X |
| Aug 27, 2012 | 1.99 | X |
| Sep 05, 2012 | 2.44 | X |
| Sep 09, 2012 | 2.34 | X |
| Sep 11, 2012 | 2.11 | X |
| Sep 17, 2012 | 2.14 | X |
| Sep 18, 2012 | 1.85 | X |
| Sep 20, 2012 | 1.83 | X |
| Sep 20, 2012 | 1.96 | X |
| Sep 24, 2012 | 2.60 | X |
| Sep 28, 2012 | 2.29 | X |
| Oct 01, 2012 | 2.20 | X |

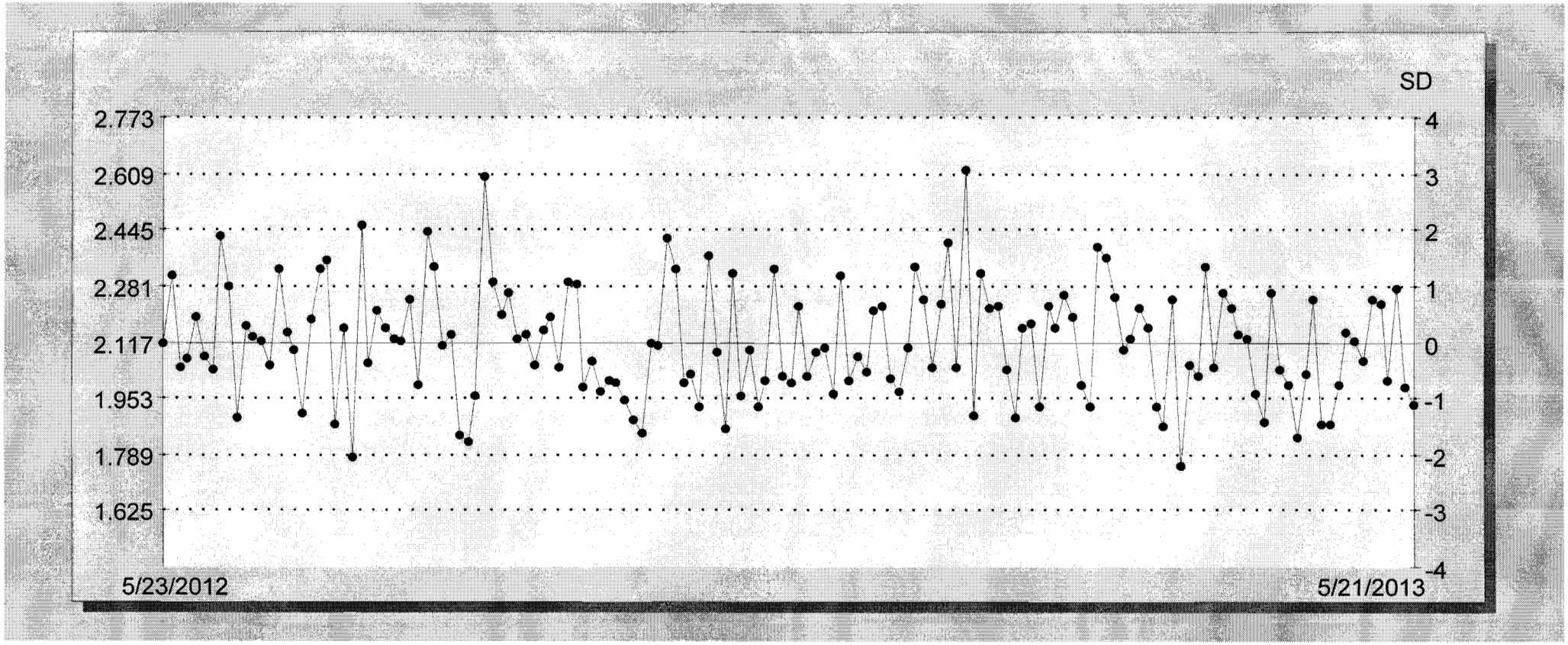
| | | |
|---|---|---|
| Oct 04, 2012 | 2.26 | X |
| Oct 05, 2012 | 2.13 | X |
| Oct 06, 2012 | 2.14 | X |
| Oct 11, 2012 | 2.05 | X |
| Oct 12, 2012 | 2.15 | X |
| Oct 13, 2012 | 2.19 | X |
| Oct 17, 2012 | 2.04 | X |
| Oct 19, 2012 | 2.29 | X |
| Oct 22, 2012 | 2.29 | X |
| Oct 23, 2012 | 1.99 | X |
| Oct 23, 2012 | 2.06 | X |
| Oct 23, 2012 | 1.98 | X |
| Oct 23, 2012 | 2.01 | X |
| Oct 25, 2012 | 2.00 | X |
| Oct 27, 2012 | 1.95 | X |
| Oct 31, 2012 | 1.89 | X |
| Nov 02, 2012 | 1.85 | X |
| Nov 02, 2012 | 2.11 | X |
| Nov 04, 2012 | 2.11 | X |
| Nov 05, 2012 | 2.42 | X |
| Nov 10, 2012 | 2.33 | X |
| Nov 12, 2012 | 2.00 | X |
| Nov 12, 2012 | 2.02 | X |
| Nov 13, 2012 | 1.93 | X |
| Nov 14, 2012 | 2.37 | X |
| Nov 15, 2012 | 2.09 | X |
| Nov 18, 2012 | 1.86 | X |
| Nov 19, 2012 | 2.32 | X |
| Nov 19, 2012 | 1.96 | X |
| Nov 20, 2012 | 2.09 | X |
| Nov 21, 2012 | 1.93 | X |
| Nov 23, 2012 | 2.01 | X |
| Dec 04, 2012 | 2.34 | X |
| Dec 08, 2012 | 2.02 | X |
| Dec 12, 2012 | 2.00 | X |
| Dec 14, 2012 | 2.22 | X |
| Dec 15, 2012 | 2.02 | X |
| Dec 21, 2012 | 2.09 | X |
| Dec 21, 2012 | 2.10 | X |
| Dec 31, 2012 | 1.97 | X |
| Jan 02, 2013 | 2.31 | X |
| Jan 09, 2013 | 2.01 | X |
| Jan 10, 2013 | 2.08 | X |
| Feb 01, 2013 | 2.03 | X |
| Feb 02, 2013 | 2.21 | X |
| Feb 06, 2013 | 2.22 | X |
| Feb 08, 2013 | 2.01 | X |
| Feb 08, 2013 | 1.98 | X |
| Feb 15, 2013 | 2.10 | X |
| Feb 17, 2013 | 2.34 | X |
| Feb 18, 2013 | 2.25 | X |
| Feb 20, 2013 | 2.04 | X |

Copyright 2013

| | | |
|---|---|---|
| Feb 22, 2013 | 2.41 | X |
| Feb 28, 2013 | 2.04 | X |
| Mar 01, 2013 | 2.62 | X |
| Mar 01, 2013 | 1.90 | X |
| Mar 01, 2013 | 2.32 | X |
| Mar 04, 2013 | 2.22 | X |
| Mar 04, 2013 | 2.22 | X |
| Mar 06, 2013 | 2.04 | X |
| Mar 08, 2013 | 1.90 | X |
| Mar 08, 2013 | 2.16 | X |
| Mar 14, 2013 | 2.17 | X |
| Mar 15, 2013 | 1.93 | X |
| Mar 18, 2013 | 2.22 | X |
| Mar 22, 2013 | 2.16 | X |
| Mar 22, 2013 | 2.25 | X |
| Mar 23, 2013 | 2.19 | X |
| Mar 28, 2013 | 1.99 | X |
| Mar 29, 2013 | 1.93 | X |
| Apr 04, 2013 | 2.40 | X |
| Apr 05, 2013 | 2.36 | X |
| Apr 07, 2013 | 2.25 | X |
| Apr 11, 2013 | 2.09 | X |
| Apr 12, 2013 | 2.13 | X |
| Apr 15, 2013 | 2.22 | X |
| Apr 16, 2013 | 2.16 | X |
| Apr 16, 2013 | 1.93 | X |
| Apr 16, 2013 | 1.87 | X |
| Apr 16, 2013 | 2.24 | X |
| Apr 16, 2013 | 1.75 | X |
| Apr 16, 2013 | 2.05 | X |
| Apr 18, 2013 | 2.02 | X |
| Apr 19, 2013 | 2.34 | X |
| Apr 22, 2013 | 2.04 | X |
| Apr 24, 2013 | 2.26 | X |
| Apr 24, 2013 | 2.22 | X |
| Apr 25, 2013 | 2.14 | X |
| Apr 25, 2013 | 2.13 | X |
| Apr 27, 2013 | 1.97 | X |
| Apr 29, 2013 | 1.89 | X |
| May 01, 2013 | 2.26 | X |
| May 03, 2013 | 2.04 | X |
| May 06, 2013 | 1.99 | X |
| May 07, 2013 | 1.84 | X |
| May 09, 2013 | 2.03 | X |
| May 09, 2013 | 2.24 | X |
| May 09, 2013 | 1.88 | X |
| May 09, 2013 | 1.88 | X |
| May 09, 2013 | 1.99 | X |
| May 10, 2013 | 2.15 | X |
| May 14, 2013 | 2.12 | X |
| May 15, 2013 | 2.06 | X |
| May 16, 2013 | 2.25 | X |

| | | |
|---|---|---|
| May 17, 2013 | 2.01 | X |
| May 17, 2013 | 2.27 | X |
| May 17, 2013 | 1.99 | X |
| May 21, 2013 | 1.94 | X |

3H Background
Total # pts : 5555
Valid # pts : 152
Mean : 2.12
SD : 0.16



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# American Radiation Services Analytical Reports

for

## Los Alamos National Laboratory

# Tritium- Screening by Low Level Liquid Scintillation Counting

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# American Radiation Services Analytical Reports

for

# Los Alamos National Laboratory

# Tritium-Screening by Low Level Liquid Scintillation Counting

# Samples

***Procedures:*** **ARS-060** **ARS-040** *Section 14.1 Tritium Screen in Clean Water without Distillation*

***ARS File ID Numbers:*** ARS1-13-00930; 931; 932
***ARS Batch ID:*** ARS1-B13-00955

| | Sample ID: | COUNT TIME | CPMA | Background CPMA | Eff Nucl In A | Aliquot (grams) | ACTIVITY | units | MDA | Sample Must be analyzed as LSC-A-001 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | B13-00955-04 | 120 | 1.738 | 1.272 | 24.71 | 10.05 | 84.527 | pCi/L | 110.6805 | NO |
| 2 | B13-00955-05 | 120 | 1.662 | 1.367 | 24.69 | 10.00 | 53.821 | pCi/L | 115.2552 | NO |
| 3 | B13-00955-06 | 120 | 1.853 | 1.272 | 24.69 | 10.00 | 105.999 | pCi/L | 111.324 | NO |
| 4 | B13-00955-07 | 120 | 1.842 | 1.272 | 24.52 | 10.03 | 104.400 | pCi/L | 111.7606 | NO |
| 5 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 6 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 7 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 8 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 9 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 10 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 11 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 12 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 13 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 14 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 15 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 16 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 17 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 18 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 19 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 20 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 21 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 22 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |
| 23 | | | | | | | #DIV/0! | pCi/L | #DIV/0! | #DIV/0! |

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# American Radiation Services Analytical Reports

for

# Los Alamos National Laboratory

# Tritium-Screening by Low Level Liquid Scintillation Counting

# Laboratory Records

# Analysis Batch Report



AMRAD
AMERICAN RADIATION SERVICES, LLC

**Analysis Batch ID** **ARS1-B13-00955**

| Method | ARS-054 | Analysis | LSC-A-021 | Matrix | AQ |
|---|---|---|---|---|---|
| Description | Low Level Tritium Screening | | | | |

| ABatch Sample ID | Type | Blind Iso1 | Blind Iso2 | Blind Iso3 | SDG | FR | Run | Client ID | Isotope Group | Lab Deadline |
|---|---|---|---|---|---|---|---|---|---|---|
| ARS1-B13-00955-01 | LCS | | | | | | | | | |
| ARS1-B13-00955-02 | LCSD | | | | | | | | | |
| ARS1-B13-00955-03 | MBL | | | | | | | | | |
| ARS1-B13-00955-04 | TRG | | | | **ARS1-13-00930** | 001 | 1 | CAMO-13-30558 | STD | 06/03/13 |
| ARS1-B13-00955-05 | TRG | | | | **ARS1-13-00931** | 001 | 1 | CAMO-13-30616 | STD | 06/03/13 |
| ARS1-B13-00955-06 | TRG | | | | **ARS1-13-00932** | 001 | 1 | CAMO-13-30586 | STD | 06/03/13 |
| ARS1-B13-00955-07 | TRG | | | | **ARS1-13-00932** | 002 | 1 | CAMO-13-30562 | STD | 06/03/13 |

**136135**
13-00930-001-1
**WRAD**

**136136**
13-00931-001-1
**WRAD**

**136137**
13-00932-001-1
**WRAD**

**136138**
13-00932-002-1
**WRAD**

# ARS-054



| ID_31001_054 | ABatch | ABatchSampleID | ClientID | Aliquot1 | AliquotUnits1 | IC_ID1 | Aliquot2 | AliquotUnits2 | IC_ID2 | UserID | ModDate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 12558 | ARS1-B13-00955 | ARS1-B13-00955-01 | | 1 | g | | | | | AMRAD\PSIMS | 05/09/2013 14:58:28 |
| 12559 | ARS1-B13-00955 | ARS1-B13-00955-02 | | 1 | g | | | | | AMRAD\PSIMS | 05/09/2013 14:58:28 |
| 12560 | ARS1-B13-00955 | ARS1-B13-00955-03 | | 1 | g | | | | | AMRAD\PSIMS | 05/09/2013 14:58:28 |
| 12561 | ARS1-B13-00955 | ARS1-B13-00955-04 | CAMO-13-30558 | 10.05 | g | 136135 | | | | AMRAD\PSIMS | 05/09/2013 14:58:28 |
| 12562 | ARS1-B13-00955 | ARS1-B13-00955-05 | CAMO-13-30616 | 10 | g | 136136 | | | | AMRAD\PSIMS | 05/09/2013 14:58:28 |
| 12563 | ARS1-B13-00955 | ARS1-B13-00955-06 | CAMO-13-30586 | 10 | g | 136137 | | | | AMRAD\PSIMS | 05/09/2013 14:58:28 |
| 12564 | ARS1-B13-00955 | ARS1-B13-00955-07 | CAMO-13-30562 | 10.03 | g | 136138 | | | | AMRAD\PSIMS | 05/09/2013 14:58:28 |

Assay Definition-

Assay Description:
Low Low Level Tritium

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\ARS\Low Low Level Tritium\20130510_0707
Raw Results Path: C:\Packard\Tricarb\Results\ARS\Low Low Level Tritium\20130510_0707\20130510_0707.results
RTF File Name: C:\Packard\Tricarb\Results\ARS\Low Low Level Tritium\20130510_0707\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\ARS\Low Low Level Tritium\20130510_0707\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Low Level Tritium.lsa

Count Conditions-

Nuclide: H-3 LL
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10
Count Time (min): 120.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

| Regions | LL | UL | 2Sigma % Terminator |
|---|---|---|---|
| A | 2.0 | 18.6 | 0.50 |
| B | 0.0 | 2000.0 | 0.00 |
| C | 0.0 | 2000.0 | 0.00 |

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

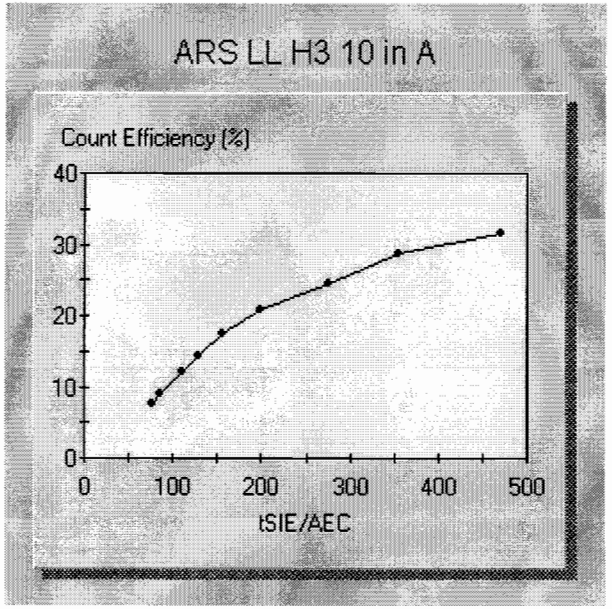
Half Life-

Half Life Correction: Off

| Regions | Half Life | Units | Reference Date | Reference Time |
|---|---|---|---|---|

A
B
C

Cycle 1 Results
Quench Curve Block Data




Date Acquired: 07/12/2012
Date Modified:
ARS LL H3 10 in A

| tSIE/AEC | Count Efficiency (%) |
|---|---|
| 469.86 | 31.67 |
| 355.16 | 28.64 |
| 276.20 | 24.37 |
| 198.58 | 20.90 |
| 156.80 | 17.54 |
| 129.38 | 14.41 |
| 110.19 | 12.01 |
| 86.31 | 8.98 |
| 76.97 | 7.55 |

| P# | S# | SMPL_ID | CPMA | DPM1 | tSIE | Eff Nucl In A | Count Time | DATE | TIME | MESSAGES |
|---|---|---|---|---|---|---|---|---|---|---|
| 41 | 1 | BACKGROUND | 1.367 | 5.733 | 264.46 | 23.84 | 120.00 | 5/10/2013 | 7:16:12 AM | |
| 41 | 2 | B13-00955-05 | 1.662 | 6.730 | 282.11 | 24.69 | 120.00 | 5/10/2013 | 9:28:14 AM | |

| P# | S# | SMPL_ID | CPMA | DPM1 | tSIE | Eff Nucl In A | Count Time | DATE | TIME | MESSAGES |
|---|---|---|---|---|---|---|---|---|---|---|
| 41 | 1 | BACKGROUND | 1.272 | 5.328 | 265.03 | 23.87 | 120.00 | 5/9/2013 | 5:36:35 PM | |
| 41 | 2 | B13-00955-04 | 1.738 | 7.034 | 282.57 | 24.71 | 120.00 | 5/9/2013 | 7:48:31 PM | |
| 41 | 3 | B13-00955-05 | 5.475 | 22.033 | 285.05 | 24.85 | 120.00 | 5/9/2013 | 10:00:31 PM | |
| 41 | 4 | B13-00955-06 | 1.853 | 7.505 | 282.07 | 24.69 | 120.00 | 5/10/2013 | 12:12:30 AM | |
| 41 | 5 | B13-00955-07 | 1.842 | 7.514 | 278.98 | 24.52 | 120.00 | 5/10/2013 | 2:24:32 AM | |

SNC Protocol

Calibration Information
Software Version IC: 2.12
Software Version EC: 2.03
Instrument Model: Tri-Carb 3170TR/SL
Instrument Serial Number: 061533
3H Chi Square: 25.18 Date Processed: 5/9/2013 5:27:30 PM
14C Chi Square: 14.01 Date Processed: 5/9/2013 5:27:30 PM
3H E^2/B (1-18.6 keV): 2029.43 Date Processed: 5/9/2013 5:27:30 PM
14C E^2/B (4-156 keV): 8033.96 Date Processed: 5/9/2013 5:27:30 PM
3H Efficiency (0-18.6 keV): 63.16 Date Processed: 5/9/2013 5:27:30 PM
14C Efficiency (0-156 keV): 95.86 Date Processed: 5/9/2013 5:27:30 PM
IPA Background Date Processed: 5/9/2013 5:27:30 PM
3H Background CPM (0-18.6 keV): 2.07 Date Processed: 5/9/2013 5:27:30 PM
14C Background CPM (0-156 keV): 2.38 Date Processed: 5/9/2013 5:27:30 PM
3H Calibration DPM: 268700
3H Reference Date: 9/2/2011
14C Calibration DPM: 127700

# Beta Liquid Scintillation Counter Log Book

| Date | Time | ARS Sample I.D. Number | Batch Number | Liquid Scintillation File Number | Technician Initials |
|---|---|---|---|---|---|
| 4-19-13 | 1418 | B13-00784-13 | B13 00784 | 1618 | [illegible] |
| ↓ | ↓ | B13-00784-14 | ↓ | ↓ | [illegible] |
| ↓ | ↓ | B13-00784-15 | ↓ | ↓ | [illegible] |
| 5-9-13 | 15:42 | SNC 18 | QA | QA | PDS |
| ↓ | ↓ | Background | B13-00955 | 1727 | PDS |
| ↓ | ↓ | B13-00955-04 | ↓ | ↓ | PDS |
| ↓ | ↓ | B13-00955-05 | ↓ | ↓ | PDS |
| ↓ | ↓ | B13-00955-06 | ↓ | ↓ | PDS |
| ↓ | ↓ | B13-00955-07 | ↓ | ↓ | PDS |
| 5-10-13 | 7:00 | Background | B13-00955 | 0707 | PDS |
| ↓ | ↓ | B13-00955-05 | ↓ | ↓ | PDS |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

No data
SDL 6-3-13



Reviewed By: SDL Date: 6-3-13
Initials

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# American Radiation Services Analytical Reports

for

# Los Alamos National Laboratory

# Tritium-Screening by Low Level Liquid Scintillation Counting

# Control Charts

3H Efficiency
Total # pts : 1915
Valid # pts : 141
Mean : 63.29
SD : 0.27

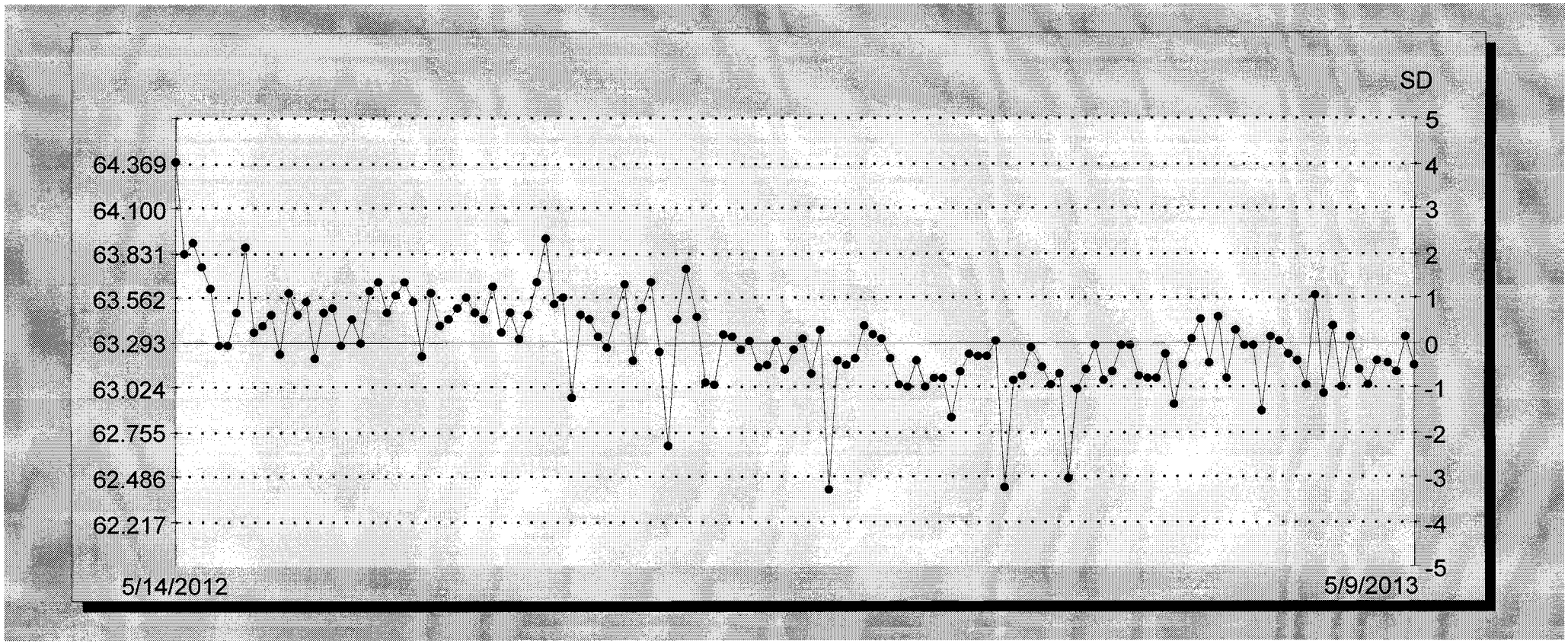
| Date | Value | Valid Pt |
|---|---|---|
| May 14, 2012 | 64.37 | X |
| May 16, 2012 | 63.83 | X |
| May 17, 2012 | 63.89 | X |
| Jun 01, 2012 | 63.75 | X |
| Jun 01, 2012 | 63.62 | X |
| Jun 01, 2012 | 63.27 | X |
| Jun 01, 2012 | 63.28 | X |
| Jun 01, 2012 | 63.47 | X |
| Jun 02, 2012 | 63.86 | X |
| Jun 02, 2012 | 63.35 | X |
| Jun 02, 2012 | 63.39 | X |
| Jun 02, 2012 | 63.46 | X |
| Jun 02, 2012 | 63.21 | X |
| Jun 02, 2012 | 63.59 | X |
| Jun 02, 2012 | 63.46 | X |
| Jun 02, 2012 | 63.54 | X |
| Jun 02, 2012 | 63.20 | X |
| Jun 02, 2012 | 63.46 | X |
| Jun 02, 2012 | 63.50 | X |
| Jun 02, 2012 | 63.27 | X |
| Jun 02, 2012 | 63.43 | X |
| Jun 02, 2012 | 63.29 | X |
| Jun 02, 2012 | 63.60 | X |
| Jun 03, 2012 | 63.65 | X |
| Jun 03, 2012 | 63.47 | X |
| Jun 03, 2012 | 63.57 | X |
| Jun 03, 2012 | 63.65 | X |
| Jun 03, 2012 | 63.53 | X |
| Jun 03, 2012 | 63.21 | X |
| Jun 03, 2012 | 63.58 | X |
| Jun 03, 2012 | 63.39 | X |
| Jun 03, 2012 | 63.43 | X |
| Jun 03, 2012 | 63.50 | X |
| Jun 03, 2012 | 63.56 | X |
| Jun 03, 2012 | 63.46 | X |
| Jun 03, 2012 | 63.43 | X |
| Jun 03, 2012 | 63.63 | X |
| Jun 03, 2012 | 63.36 | X |
| Jun 04, 2012 | 63.47 | X |
| Jun 04, 2012 | 63.31 | X |
| Jun 04, 2012 | 63.46 | X |
| Jun 04, 2012 | 63.66 | X |

| | | |
|---|---|---|
| Jun 04, 2012 | 63.91 | X |
| Jun 13, 2012 | 63.52 | X |
| Jun 14, 2012 | 63.56 | X |
| Jun 21, 2012 | 62.96 | X |
| Jun 22, 2012 | 63.46 | X |
| Jun 26, 2012 | 63.43 | X |
| Jun 27, 2012 | 63.32 | X |
| Jun 28, 2012 | 63.27 | X |
| Jul 03, 2012 | 63.45 | X |
| Jul 09, 2012 | 63.63 | X |
| Jul 12, 2012 | 63.19 | X |
| Jul 13, 2012 | 63.49 | X |
| Jul 13, 2012 | 63.66 | X |
| Jul 16, 2012 | 63.24 | X |
| Jul 18, 2012 | 62.67 | X |
| Jul 18, 2012 | 63.42 | X |
| Jul 19, 2012 | 63.73 | X |
| Jul 20, 2012 | 63.44 | X |
| Jul 23, 2012 | 63.05 | X |
| Jul 26, 2012 | 63.04 | X |
| Jul 28, 2012 | 63.34 | X |
| Jul 30, 2012 | 63.33 | X |
| Jul 30, 2012 | 63.25 | X |
| Jul 31, 2012 | 63.31 | X |
| Aug 03, 2012 | 63.15 | X |
| Aug 06, 2012 | 63.16 | X |
| Aug 08, 2012 | 63.30 | X |
| Aug 08, 2012 | 63.13 | X |
| Aug 24, 2012 | 63.24 | X |
| Sep 05, 2012 | 63.31 | X |
| Sep 07, 2012 | 63.10 | X |
| Sep 10, 2012 | 63.36 | X |
| Sep 12, 2012 | 62.40 | X |
| Sep 14, 2012 | 63.19 | X |
| Sep 14, 2012 | 63.16 | X |
| Sep 17, 2012 | 63.19 | X |
| Sep 19, 2012 | 63.39 | X |
| Sep 26, 2012 | 63.33 | X |
| Sep 27, 2012 | 63.31 | X |
| Sep 29, 2012 | 63.20 | X |
| Oct 10, 2012 | 63.04 | X |
| Oct 16, 2012 | 63.02 | X |
| Oct 19, 2012 | 63.19 | X |
| Oct 24, 2012 | 63.03 | X |
| Oct 26, 2012 | 63.07 | X |
| Oct 29, 2012 | 63.07 | X |
| Oct 30, 2012 | 62.84 | X |
| Oct 30, 2012 | 63.11 | X |
| Nov 01, 2012 | 63.22 | X |
| Nov 04, 2012 | 63.20 | X |
| Nov 06, 2012 | 63.21 | X |
| Nov 09, 2012 | 63.29 | X |

| | | |
|---|---|---|
| Nov 14, 2012 | 63.07 | X |
| Nov 15, 2012 | 63.09 | X |
| Nov 20, 2012 | 63.26 | X |
| Nov 27, 2012 | 63.14 | X |
| Nov 30, 2012 | 63.03 | X |
| Dec 03, 2012 | 63.10 | X |
| Dec 04, 2012 | 62.48 | X |
| Dec 05, 2012 | 63.01 | X |
| Dec 06, 2012 | 63.13 | X |
| Dec 10, 2012 | 63.27 | X |
| Dec 12, 2012 | 63.07 | X |
| Dec 31, 2012 | 63.11 | X |
| Jan 01, 2013 | 63.28 | X |
| Jan 02, 2013 | 63.27 | X |
| Jan 25, 2013 | 63.09 | X |
| Feb 05, 2013 | 63.08 | X |
| Feb 15, 2013 | 63.07 | X |
| Feb 20, 2013 | 63.22 | X |
| Feb 21, 2013 | 62.91 | X |
| Feb 22, 2013 | 63.15 | X |
| Feb 24, 2013 | 63.31 | X |
| Feb 24, 2013 | 63.43 | X |
| Feb 24, 2013 | 63.17 | X |
| Feb 25, 2013 | 63.44 | X |
| Feb 25, 2013 | 63.07 | X |
| Feb 25, 2013 | 63.37 | X |
| Feb 25, 2013 | 63.27 | X |
| Feb 25, 2013 | 63.27 | X |
| Mar 15, 2013 | 62.88 | X |
| Mar 21, 2013 | 63.32 | X |
| Mar 25, 2013 | 63.30 | X |
| Mar 26, 2013 | 63.22 | X |
| Apr 01, 2013 | 63.18 | X |
| Apr 02, 2013 | 63.04 | X |
| Apr 02, 2013 | 63.58 | X |
| Apr 03, 2013 | 62.99 | X |
| Apr 05, 2013 | 63.39 | X |
| Apr 08, 2013 | 63.02 | X |
| Apr 09, 2013 | 63.32 | X |
| Apr 11, 2013 | 63.13 | X |
| Apr 12, 2013 | 63.03 | X |
| Apr 15, 2013 | 63.18 | X |
| Apr 18, 2013 | 63.17 | X |
| Apr 18, 2013 | 63.12 | X |
| Apr 22, 2013 | 63.32 | X |
| May 09, 2013 | 63.16 | X |

3H Efficiency

| | |
|---|---|
| Total # pts | : 1915 |
| Valid # pts | : 141 |
| Mean | : 63.29 |
| SD | : 0.27 |



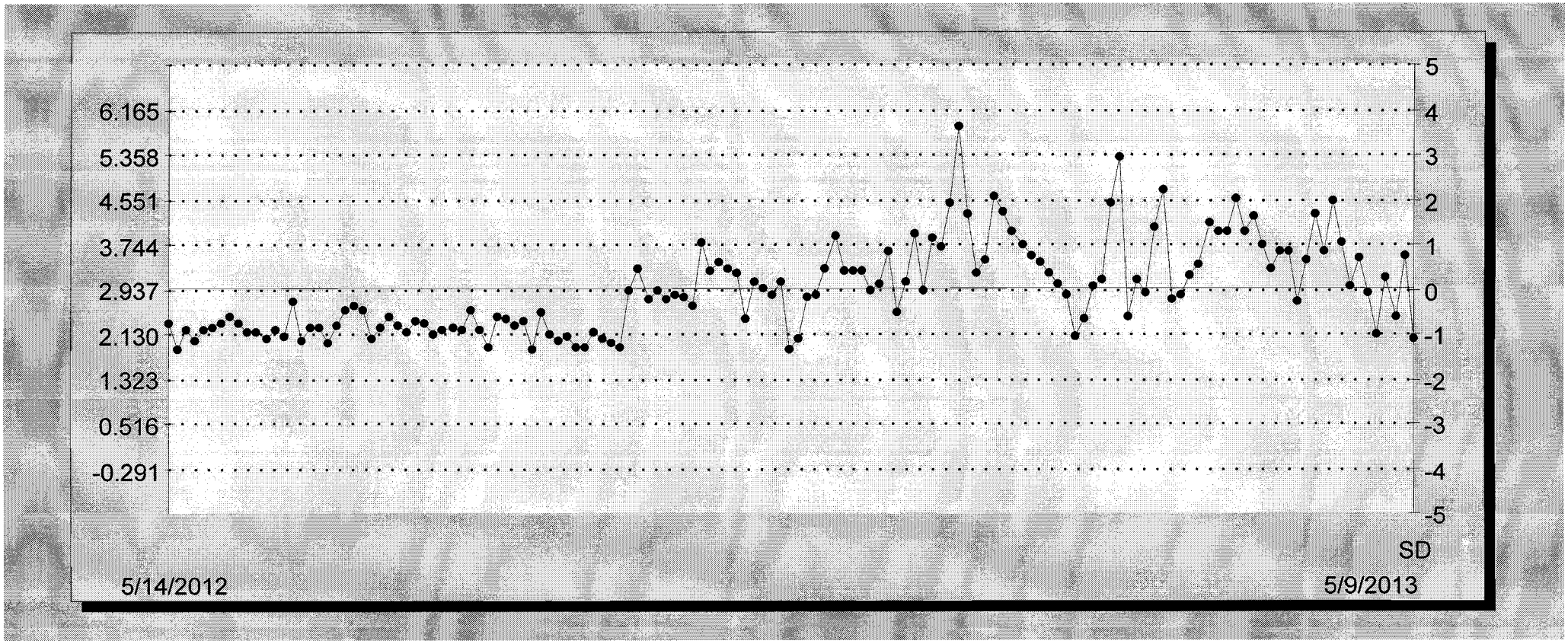
3H Background
Total # pts : 1871
Valid # pts : 141
Mean : 2.94
SD : 0.81

| Date | Value | Valid Pt |
|---|---|---|
| May 14, 2012 | 2.33 | X |
| May 16, 2012 | 1.87 | X |
| May 17, 2012 | 2.20 | X |
| Jun 01, 2012 | 2.03 | X |
| Jun 01, 2012 | 2.22 | X |
| Jun 01, 2012 | 2.27 | X |
| Jun 01, 2012 | 2.35 | X |
| Jun 01, 2012 | 2.45 | X |
| Jun 02, 2012 | 2.32 | X |
| Jun 02, 2012 | 2.15 | X |
| Jun 02, 2012 | 2.18 | X |
| Jun 02, 2012 | 2.05 | X |
| Jun 02, 2012 | 2.22 | X |
| Jun 02, 2012 | 2.08 | X |
| Jun 02, 2012 | 2.72 | X |
| Jun 02, 2012 | 2.03 | X |
| Jun 02, 2012 | 2.26 | X |
| Jun 02, 2012 | 2.25 | X |
| Jun 02, 2012 | 1.99 | X |
| Jun 02, 2012 | 2.29 | X |
| Jun 02, 2012 | 2.55 | X |
| Jun 02, 2012 | 2.66 | X |
| Jun 02, 2012 | 2.56 | X |
| Jun 03, 2012 | 2.06 | X |
| Jun 03, 2012 | 2.23 | X |
| Jun 03, 2012 | 2.45 | X |
| Jun 03, 2012 | 2.28 | X |
| Jun 03, 2012 | 2.19 | X |
| Jun 03, 2012 | 2.36 | X |
| Jun 03, 2012 | 2.33 | X |
| Jun 03, 2012 | 2.14 | X |
| Jun 03, 2012 | 2.21 | X |
| Jun 03, 2012 | 2.23 | X |
| Jun 03, 2012 | 2.20 | X |
| Jun 03, 2012 | 2.55 | X |
| Jun 03, 2012 | 2.19 | X |
| Jun 03, 2012 | 1.88 | X |
| Jun 03, 2012 | 2.43 | X |
| Jun 04, 2012 | 2.42 | X |
| Jun 04, 2012 | 2.29 | X |
| Jun 04, 2012 | 2.37 | X |
| Jun 04, 2012 | 1.84 | X |

| | | |
|---|---|---|
| Jun 04, 2012 | 2.52 | X |
| Jun 13, 2012 | 2.14 | X |
| Jun 14, 2012 | 2.01 | X |
| Jun 21, 2012 | 2.09 | X |
| Jun 22, 2012 | 1.91 | X |
| Jun 26, 2012 | 1.90 | X |
| Jun 27, 2012 | 2.18 | X |
| Jun 28, 2012 | 2.04 | X |
| Jul 03, 2012 | 1.96 | X |
| Jul 09, 2012 | 1.90 | X |
| Jul 12, 2012 | 2.91 | X |
| Jul 13, 2012 | 3.33 | X |
| Jul 13, 2012 | 2.78 | X |
| Jul 16, 2012 | 2.93 | X |
| Jul 18, 2012 | 2.76 | X |
| Jul 18, 2012 | 2.85 | X |
| Jul 19, 2012 | 2.79 | X |
| Jul 20, 2012 | 2.65 | X |
| Jul 23, 2012 | 3.78 | X |
| Jul 26, 2012 | 3.28 | X |
| Jul 28, 2012 | 3.41 | X |
| Jul 30, 2012 | 3.33 | X |
| Jul 30, 2012 | 3.24 | X |
| Jul 31, 2012 | 2.42 | X |
| Aug 03, 2012 | 3.09 | X |
| Aug 06, 2012 | 2.96 | X |
| Aug 08, 2012 | 2.82 | X |
| Aug 08, 2012 | 3.09 | X |
| Aug 24, 2012 | 1.84 | X |
| Sep 05, 2012 | 2.04 | X |
| Sep 07, 2012 | 2.81 | X |
| Sep 10, 2012 | 2.84 | X |
| Sep 12, 2012 | 3.31 | X |
| Sep 14, 2012 | 3.90 | X |
| Sep 14, 2012 | 3.28 | X |
| Sep 17, 2012 | 3.26 | X |
| Sep 19, 2012 | 3.27 | X |
| Sep 26, 2012 | 2.90 | X |
| Sep 27, 2012 | 3.03 | X |
| Sep 29, 2012 | 3.61 | X |
| Oct 10, 2012 | 2.51 | X |
| Oct 16, 2012 | 3.08 | X |
| Oct 19, 2012 | 3.94 | X |
| Oct 24, 2012 | 2.93 | X |
| Oct 26, 2012 | 3.87 | X |
| Oct 29, 2012 | 3.71 | X |
| Oct 30, 2012 | 4.48 | X |
| Oct 30, 2012 | 5.86 | X |
| Nov 01, 2012 | 4.30 | X |
| Nov 04, 2012 | 3.23 | X |
| Nov 06, 2012 | 3.47 | X |
| Nov 09, 2012 | 4.61 | X |

| | | |
|---|---|---|
| Nov 14, 2012 | 3.99 | X |
| Nov 15, 2012 | 3.72 | X |
| Nov 20, 2012 | 3.56 | X |
| Nov 27, 2012 | 3.44 | X |
| Nov 30, 2012 | 3.24 | X |
| Dec 03, 2012 | 3.04 | X |
| Dec 04, 2012 | 2.85 | X |
| Dec 05, 2012 | 2.11 | X |
| Dec 06, 2012 | 2.40 | X |
| Dec 10, 2012 | 2.99 | X |
| Dec 12, 2012 | 3.12 | X |
| Dec 31, 2012 | 4.50 | X |
| Jan 01, 2013 | 5.32 | X |
| Jan 02, 2013 | 2.46 | X |
| Jan 25, 2013 | 3.10 | X |
| Feb 05, 2013 | 2.89 | X |
| Feb 15, 2013 | 4.04 | X |
| Feb 20, 2013 | 4.71 | X |
| Feb 21, 2013 | 2.75 | X |
| Feb 22, 2013 | 2.83 | X |
| Feb 24, 2013 | 3.17 | X |
| Feb 24, 2013 | 3.37 | X |
| Feb 24, 2013 | 4.13 | X |
| Feb 25, 2013 | 4.00 | X |
| Feb 25, 2013 | 3.96 | X |
| Feb 25, 2013 | 4.59 | X |
| Feb 25, 2013 | 3.97 | X |
| Feb 25, 2013 | 4.26 | X |
| Mar 15, 2013 | 3.76 | X |
| Mar 21, 2013 | 3.30 | X |
| Mar 25, 2013 | 3.64 | X |
| Mar 26, 2013 | 3.64 | X |
| Apr 01, 2013 | 2.74 | X |
| Apr 02, 2013 | 3.45 | X |
| Apr 02, 2013 | 4.29 | X |
| Apr 03, 2013 | 3.61 | X |
| Apr 05, 2013 | 4.51 | X |
| Apr 08, 2013 | 3.78 | X |
| Apr 09, 2013 | 3.01 | X |
| Apr 11, 2013 | 3.50 | X |
| Apr 12, 2013 | 2.88 | X |
| Apr 15, 2013 | 2.14 | X |
| Apr 18, 2013 | 3.16 | X |
| Apr 18, 2013 | 2.45 | X |
| Apr 22, 2013 | 3.53 | X |
| May 09, 2013 | 2.07 | X |

3H Background
Total # pts : 1871
Valid # pts : 141
Mean : 2.94
SD : 0.81



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# American Radiation Services Analytical Reports

for

# Los Alamos National Laboratory

# Low Level Liquid Scintillation Counting

# Calibration Information

ARS INTERNATIONAL

## QUALITY CONTROL PROGRAM

AMERICAN RADIATION SERVICES
RADIOACTIVE REFERENCE SOLUTIONS

# ANNUAL ACTIVITY VERIFICATION

VERIFICATION DATE: 9/10/2012 20:16 *date counted*
STANDARD REFERENCE #: S-0279

| Principal Radionuclide | | Half Life, Years | | Half Life, Days |
|---|---|---|---|---|
| H-3 | ENTER --> | | OR --> | 4.4998E+03 |
| | | 1.232E+01 | | 4.4998E+03 |

Radionuclide: H-3 Dilution Reference Date: 9/7/2012 10:40

| | | | |
|---|---|---|---|
| Dilution Activity | 2.58 | pCi per gram ===> dpm/g | 5.73 |
| Verif. Date Decay Corrected | 2.58 | pCi per gram ===> dpm/g | 5.72 |

*Minimum of 3 Required*

| Trial ID | Sample Counts | Count Time (min) | Detector | Efficiency | Bkg. (cpm) | Net Weight | Decay Corrected Activity Result (dpm/g) | Decay Corrected Activity Result (pCi/g) |
|---|---|---|---|---|---|---|---|---|
| S-0279-V1 | 15.91 | 1 | LSC | 0.3302 | 6.49 | 5.019 | 5.68 | 2.56 |
| S-0279-V2 | 16.21 | 1 | LSC | 0.3291 | 6.49 | 5.018 | 5.89 | 2.65 |
| S-0279-V3 | 15.76 | 1 | LSC | 0.3290 | 6.49 | 5.018 | 5.62 | 2.53 |
| S-0279-V4 | 15.62 | 1 | LSC | 0.3293 | 6.49 | 5.008 | 5.54 | 2.49 |
| S-0279-V5 | 15.76 | 1 | LSC | 0.3280 | 6.49 | 5.018 | 5.63 | 2.54 |

| | | | |
|---|---|---|---|
| | Average | 5.67 | 2.55 |
| | Two Sigma Uncertainty | 0.26 | 0.12 |
| *10% Max* *PASS* | Standard Deviation percent of known concentration | 2.30% | 2.30% |
| | Target Activity | 5.72 | 2.58 |
| *5% Max* *PASS* | % Diff | -0.91% | -0.91% |

Verification Expiration Date: ##############

Prepared & Counted By: [signature] Date: 9/10/2012 20:16

Verified & Approved By: [signature] Date: 9-11-12 0817

QC Approval: [signature] Date: 9-11-12 0817

| S-0279 | |
|---|---|
| H-3 | Verified 9/10/12 |
| SL | Expires 9/10/13 |
| Manufactuer | NIST SRM 4927F |
| Sol Matrix | H2O |
| Ref No | NIST SRM 4927F |
| Tech | Unknown |
| Parent ID | S-0237 |

ARS INTERNATIONAL

RADIOACTIVE STANDARDS -- BATON ROUGE LABORATORY

**H-3 Standard Verification**

**Verifier's Name:** Brian Steffens **Date:** 9/7/2012

**Pipettor ID:** FJ40469

**Pipettor ID:** Auto-pipettor

**Pipettor ID:** na

**Standard ID:** S-0279

**Standard ID:** N/A

Standards brought up to ~5g with distilled dead water.
Standards made in glass vials.

15mL of Ultima Gold added to standard

| | Weight of Standard |
|---|---|
| **S-0279-V1** | 5.019 **g** |
| **S-0279-V2** | 5.018 **g** |
| **S-0279-V3** | 5.018 **g** |
| **S-0279-V4** | 5.008 **g** |
| **S-0279-V5** | 5.018 **g** |
| | |
| | |
| | |
| | |
| | |

**Balance ID:** H1331122173560P

Assay Definition-

Assay Description:
H3 Normal Lvl

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931
Raw Results Path: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\20120910_0931.results
RTF File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\H3 Results.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\H3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\H-3 Normal 3.lsa

Count Conditions-

Nuclide: H-3 Normal
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: UG STD H-3
Count Time (min): 120.00
Count Mode: Normal
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

| Regions | LL | UL | 2Sigma % Terminator |
|---|---|---|---|
| A | 2.0 | 18.6 | 0.50 |
| B | 0.0 | 2000.0 | 0.00 |
| C | 0.0 | 2000.0 | 0.00 |

Count Corrections-

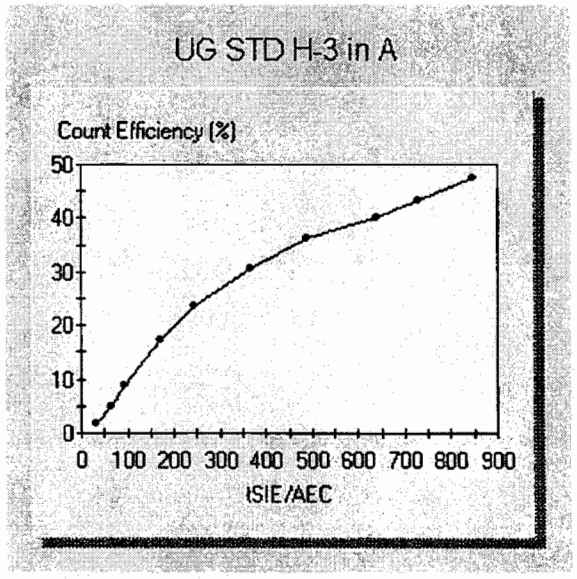
Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

Half Life-

Half Life Correction: Off
Regions Half Life Units Reference Date Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data




Date Acquired: 06/27/2012
Date Modified:
UG STD H-3 in A

| tSIE/AEC | Count Efficiency (%) |
|---|---|
| 846.90 | 47.58 |
| 730.85 | 43.21 |
| 639.47 | 40.08 |
| 487.78 | 36.36 |
| 365.41 | 30.73 |
| 244.81 | 23.69 |
| 169.28 | 17.31 |
| 95.01 | 8.79 |
| 64.60 | 4.97 |
| 34.32 | 1.64 |

| P# | S# | SMPL_ID | CPMA | DPM1 | tSIE | Eff Nucl In A | Count Time | DATE | TIME | MESSAGES |
|---|---|---|---|---|---|---|---|---|---|---|
| 54 | 1 | BACKGROUND | 6.49 | 19.81 | 409.74 | 32.77 | 120.00 | 9/10/2012 | 9:36:46 AM | |
| 54 | 2 | S-0279-V1 | 15.91 | 48.18 | 415.20 | 33.02 | 120.00 | 9/10/2012 | 11:44:40 AM | |
| 54 | 3 | S-0279-V2 | 16.21 | 49.25 | 412.72 | 32.91 | 120.00 | 9/10/2012 | 1:52:36 PM | |
| 54 | 4 | S-0279-V3 | 15.76 | 47.89 | 412.56 | 32.90 | 120.00 | 9/10/2012 | 4:00:32 PM | |
| 54 | 5 | S-0279-V4 | 15.62 | 47.44 | 413.22 | 32.93 | 120.00 | 9/10/2012 | 6:08:27 PM | |
| 54 | 6 | S-0279-V5 | 15.76 | 48.04 | 410.40 | 32.80 | 120.00 | 9/10/2012 | 8:16:20 PM | |

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# American Radiation Services Analytical Reports

for

# Los Alamos National Laboratory

# Folder Duplicate

# Report Compilation Checklist

**ARS SDG:** 13-00930 **Client Name:** LANL **Sample Matrix:** AQ

| LEVEL 1 COMPONENTS | 1st Reviewer | |
|---|---|---|
| 1) Cover Page Complete and Accurate (see ARS-059)? | ~~Yes~~ No N/A | |
| 2) Technical Review Checklist(s) Complete and Accurate? | ~~Yes~~ No N/A | |
| 3) Case Narrative Complete and Accurate (see ARS-059)? | ~~Yes~~ No N/A | |
| 4) Form 1s Present for all Samples and Tests? | ~~Yes~~ No N/A | |
| 5) Client Specific Components are Present and Complete? | Yes No ~~N/A~~ | |

| LEVEL 2 COMPONENTS | 1st Reviewer | |
|---|---|---|
| 6) Batch Quality Control Report is Present and Accurate? | ~~Yes~~ No N/A | |
| 7) DQO Report is Present and Accurate? | ~~Yes~~ No N/A | |
| 8) Client Specific Batch QC Components are Present and Complete? | Yes No ~~N/A~~ | |

| LEVEL 3 COMPONENTS | 1st Reviewer | |
|---|---|---|
| 9) Efficiencies are Present? | ~~Yes~~ No N/A | |
| 10) Calibrations are Present? | ~~Yes~~ No N/A | |
| 11) Backgrounds are Present? | ~~Yes~~ No N/A | |
| 12) Spectrum Analysis is Present? | ~~Yes~~ No N/A | |
| 13) Spectral Plots are Present? | ~~Yes~~ No N/A | |
| 14) Plateaus are Present? | ~~Yes~~ No N/A | |
| 15) Control Charts are Present? | ~~Yes~~ No N/A | |
| 16) Other: | Yes No ~~N/A~~ | |

| LEVEL 4 COMPONENTS | 1st Reviewer | |
|---|---|---|
| 17) Preparation Raw Data Present, Signed and Complete? | ~~Yes~~ No N/A | |
| 18) Instrument Raw Data Present and Complete? | ~~Yes~~ No N/A | |
| 19) Calibration Certificates Present? | ~~Yes~~ No N/A | |
| 20) Copies of Log Book Pages Present? | ~~Yes~~ No N/A | |
| 21) Sample Receiving Documentation Present? | ~~Yes~~ No N/A | |
| 22) LIMS Reports Present? | ~~Yes~~ No N/A | |
| 23) Applicable Correspondence Present? | ~~Yes~~ No N/A | |
| 24) Other: | Yes No ~~N/A~~ | |

SDL 6-3-13
**Report Generator Signature** **Date**

YJM 6-4-13
**Management Review Signature** **Date**

ARS-059
07/03/2009

# LSC
# Technical Review Checklist

**ARS SDG** ARS1-13-00932

**Sample Matrix:** AQ **Aliquot** (Circle One) : Dry As Received Filtered Other: _____

**Required QC Samples** (Mark all that apply): Blank LCS LCSD Sample Dup MS MSD

**ARS A. Batch ID(s):** **Batch A:** B13-00960 **Batch B:** N/A **Batch C:** N/A

**Test Method(s):** LSC-A-022 N/A N/A

## A. RADIOCHEMICAL PREPARATION REVIEW

| | Chemist Review | Verifier Review |
|---|---|---|
| 1) 100% of Manual Transcriptions Verified? | Yes No N/A | Yes No N/A |
| 2) 100% of Manual Calculations Verified? | Yes No N/A | Yes No N/A |
| 3) Blank Composition/Configuration Matches Calibration? | Yes No N/A | Yes No N/A |
| 4) Deviations from procedure are documented and verified? | Yes No N/A | Yes No N/A |
| 5) Appropriate Cocktail Selected? | Yes No N/A | Yes No N/A |

6) Sample Prep Anomaly? ☐ No ☑ Yes (See Tech Notes) NCR # (If initiated): _____

Chemist Signature: [signature] Date: 5-28-13 Verifier Review Signature: [signature] Date: 5-28-13

## B. ANALYSIS REVIEW

| | Analyst Review | QA Officer Review |
|---|---|---|
| 1) Calibrations Valid and Current? | Yes No N/A | Yes No N/A |
| 2) Backgrounds Valid and Current? | Yes No N/A | Yes No N/A |
| 3) Source Checks Completed and Acceptable? | Yes No N/A | Yes No N/A |

QA Officer Signature: [signature] Date: 6-4-13

| | Analyst Review | Technicial Review |
|---|---|---|
| 4) Background Checks Complete and Acceptable? | Yes No N/A | Yes No N/A |
| 5) 100% of Manually Entered Parameters Verified Accurate? | Yes No N/A | Yes No N/A |
| 6) Appropriate QC samples initiated at required frequency? | Yes No N/A | Yes No N/A |
| 6) Test/Sample Specific Parameters (See ARS-059 for details) | | |
| a) Analysis Parameters Checked and Correct and Peak Shapes are Acceptable? | Yes No N/A | Yes No N/A |
| b) Spectra show no Evidence of Interferences? | Yes No N/A | Yes No N/A |
| c) Sample Quench for All Samples within Range of Quench Curve? | Yes No N/A | Yes No N/A |

7) Analysis Anomaly? ☐ No ☑ Yes (See Comments) NCR # (If initiated): _____

Analyst Signature: [signature] Date: 5-28-13 Technicial Reviewer Signature: [signature] Date: 5-28-13

Batch A: B13-00960

# LSC
# Technical Review Checklist

## C. BATCH QC VALIDATION

| | Proj. Mgr. Review | QA Officer Review |
|---|---|---|
| 1) Activity + 3xCSU a Negative Number? | Yes ~~No~~ N/A | Yes ~~No~~ N/A |
| 2) RDL Criteria are Met? | ~~Yes~~ No N/A | ~~Yes~~ No N/A |
| 3) Method Blank Criterion Met? | ~~Yes~~ No N/A | ~~Yes~~ No N/A |
| 4) LCS/LCD Criteria Met? | ~~Yes~~ No N/A | ~~Yes~~ No N/A |
| 5) Duplicate (Sample Duplicate, LCSD, MSD) Criteria Met? | Yes ~~No~~ N/A | Yes ~~No~~ N/A |
| 6) MS/MSD Criteria Met? | Yes No ~~N/A~~ | Yes No ~~N/A~~ |

7) Batch QC Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

| Project Manager Signature | Date | QA Officer Signature | Date |
|---|---|---|---|
| SDL | 6-3-13 | VHM | 6-4-13 |

## GENERAL COMMENTS

# LSC
# Technical Review Checklist

**ARS SDG** ARS1-13-00932

**Sample Matrix:** AQ **Aliquot** (Circle One) : Dry As Received Filtered Other: _____

**Required QC Samples** (Mark all that apply): Blank LCS LCSD Sample Dup MS MSD

| | | | |
|---|---|---|---|
| **ARS A. Batch ID(s):** | **Batch A:** B13-00955 | **Batch B:** N/A | **Batch C:** N/A |
| **Test Method(s):** | LSC-A-021 | N/A | N/A |

## A. RADIOCHEMICAL PREPARATION REVIEW

| | Chemist Review | Verifier Review |
|---|---|---|
| **1) 100% of Manual Transcriptions Verified?** | Yes No N/A | Yes No N/A |
| **2) 100% of Manual Calculations Verified?** | Yes No N/A | Yes No N/A |
| **3) Blank Composition/Configuration Matches Calibration?** | Yes No N/A | Yes No N/A |
| **4) Deviations from procedure are documented and verified?** | Yes No N/A | Yes No N/A |
| **5) Appropriate Cocktail Selected?** | Yes No N/A | Yes No N/A |

**6) Sample Prep Anomaly?** ☑ **No** ☐ **Yes** (See Tech Notes) **NCR #** (If initiated): _____

| | | | |
|---|---|---|---|
| [signature] | 5-10-13 | [signature] | 5-10-13 |
| **Chemist Signature** | **Date** | **Verifier Review Signature** | **Date** |

## B. ANALYSIS REVIEW

| | Analyst Review | QA Officer Review |
|---|---|---|
| **1) Calibrations Valid and Current?** | Yes No N/A | Yes No N/A |
| **2) Backgrounds Valid and Current?** | Yes No N/A | Yes No N/A |
| **3) Source Checks Completed and Acceptable?** | Yes No N/A | Yes No N/A |

| | |
|---|---|
| VHM | 6-4-13 |
| **QA Officer Signature** | **Date** |

| | Analyst Review | Technicial Review |
|---|---|---|
| **4) Background Checks Complete and Acceptable?** | Yes No N/A | Yes No N/A |
| **5) 100% of Manually Entered Parameters Verified Accurate?** | Yes No N/A | Yes No N/A |
| **6) Appropriate QC samples initiated at required frequency?** | Yes No N/A | Yes No N/A |
| **6) Test/Sample Specific Parameters** (See ARS-059 for details) | | NA |
| a) Analysis Parameters Checked and Correct and Peak Shapes are Acceptable? | Yes No N/A | Yes No N/A |
| b) Spectra show no Evidence of Interferences? | Yes No N/A | Yes No N/A |
| c) Sample Quench for All Samples within Range of Quench Curve? | Yes No N/A | Yes No N/A |

**7) Analysis Anomaly?** ☑ **No** ☐ **Yes** (See Comments) **NCR #** (If initiated): _____

| | | | |
|---|---|---|---|
| [signature] | 5-10-13 | NA | |
| **Analyst Signature** | **Date** | **Technicial Reviewer Signature** | **Date** |

Batch A: B13-00955

# LSC
# Technical Review Checklist

## C. BATCH QC VALIDATION

| | Proj. Mgr. Review | | | QA Officer Review | | |
|---|---|---|---|---|---|---|
| 1) Activity + 3xCSU a Negative Number? | Yes | No | ~~N/A~~ | Yes | No | ~~N/A~~ |
| 2) RDL Criteria are Met? | Yes | No | ~~N/A~~ | Yes | No | ~~N/A~~ |
| 3) Method Blank Criterion Met? | Yes | No | ~~N/A~~ | Yes | No | ~~N/A~~ |
| 4) LCS/LCD Criteria Met? | Yes | No | ~~N/A~~ | Yes | No | ~~N/A~~ |
| 5) Duplicate (Sample Duplicate, LCSD, MSD) Criteria Met? | Yes | No | ~~N/A~~ | Yes | No | ~~N/A~~ |
| 6) MS/MSD Criteria Met? | Yes | No | ~~N/A~~ | Yes | No | ~~N/A~~ |

7) Batch QC Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

| Project Manager Signature | Date | QA Officer Signature | Date |
|---|---|---|---|
| SDh | 6-3-13 | VJM | 6-4-13 |

## GENERAL COMMENTS

# DQO Report for SDG

ARS1-13-00932



| Analysis Code | Group | Isotope | Activity Units | Aliquot Units | ProcedureNo | RDL | LCS_LL | LCS_UL | MS_LL | MS_UL | RadY_LL | RadY_UL | GravY_LL | GravY_UL | RER | RPD | DiltionReq | RoughPrepReq | BlankCorrectionMDA | BlankCorrectionAll | CountTimeReq | AliquotRequired |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LSC-A-021 | STD | H-3 | pCi | L | ARS-054 | 0.00E+00 | 75 | 125 | 60 | 140 | 30 | 110 | 40 | 110 | 1.00 | 25 | FALSE | FALSE | FALSE | FALSE | | |
| LSC-A-022 | STD | Enriched H-3 | pCi | L | ARS-040 | 0.00E+00 | 75 | 125 | 60 | 140 | 30 | 110 | 40 | 110 | 1.00 | 25 | FALSE | FALSE | FALSE | FALSE | | |

# SDG Report - Samples and Containers

## SDG Specific Data

| | | | | | |
|---|---|---|---|---|---|
| SDG | ARS1-13-00932 | TAT Days | 28 | Project Type | Environmental |
| Sample Count | Rpt Level 4 | Date Received | 5/9/2013 | COC Number | |
| Client | Los Alamos National Laboratory | Client Deadline | 6/6/2013 | PO Number | 2013-818 |
| Client Code | 114 | Internal Deadline | 6/5/2013 | Job Number | 63641-001-10 |
| Profile Number | PN-00094 | Lab Deadline | 6/3/2013 | Job Location | |
| Comments | | | | | |

## Samples and Containers (➔) Checked In Thus Far

| FR | ClientID | Matrix | SampleStartDate | SampleEndDate | Disp | Hold | Arch | Storage | X | Units | Y | Units | Z | Units | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 001 | CAMO-13-30586 | AQ | 05/08/13 12:40 PM | 05/08/13 12:40 PM | H | 90 | 5 | K5 | | | | | | | |
| ➔ | IC_ID | Cnt | Volume_mL | Wt_g | pH_Orig | pH_Final | CPM | uR_Hr | Storage | VOA | Head Sp | AF Units | AF Rate | AF Mins | AF Total Vol |
| | 136126 | 1 | 1000.00 | | | | 80 | 30 | | N | N/A | | | | |
| 002 | CAMO-13-30562 | AQ | 05/08/13 12:40 PM | 05/08/13 12:40 PM | H | 90 | 5 | K5 | | | | | | | |
| ➔ | IC_ID | Cnt | Volume_mL | Wt_g | pH_Orig | pH_Final | CPM | uR_Hr | Storage | VOA | Head Sp | AF Units | AF Rate | AF Mins | AF Total Vol |
| | 136127 | 1 | 1000.00 | | | | 80 | 30 | | N | N/A | | | | |

# SDG Report - Analysis Assignments

| | | | |
|---|---|---|---|
| Temp SDG | ARS1-13-00932 | Sample Count | 2 |
| Client | Los Alamos National Laboratory | Analysis Count | 2-4 |

**Samples Count Totals per Analysis**

| Analysis Code | Analysis Description | Samples Count |
|---|---|---|
| LSC-A-021 | Low Level Tritium Screen in (Aqueous) | 2 |
| LSC-A-022 | Low Level Tritium by Enrichment Process in (Aqueous [AQ]) | 2 |

**Analyses Assigned Per Fraction**

| Fraction | Analysis Code | X = Assigned |
|---|---|---|
| 001 | LSC-A-021 | X |
| 001 | LSC-A-022 | X |
| 002 | LSC-A-021 | X |
| 002 | LSC-A-022 | X |

# ARS FILE TRACKING SHEET

**SDG:** ARS1-13-00932

| Task | Date / Time | Initials |
|---|---|---|
| Date & Time Samples Received | 05-09-13/10:30 | cad |
| ICOC Initiated/Storage Location: K5 | 05-09-13/14:00 | cad |
| Technical Checks Performed | See Batch | |
| Report Written / EDD Generated _____/_____\|_____ Date/Time Initials | 6-3-13\|1606 | SDL |
| Quality Assurance Checks Performed on Report | 6-4-13 0930 | VHV |
| Management Checks Performed on Report | | |
| *Preliminary Report Scan* | | |
| Report E-mailed | | |
| Report Faxed | | |
| Report Reviewed | | |
| Report Mailed | | |
| Invoice Completed Invoice #:_____ | | |
| Report Imaged | | |

**SPECIAL REQUIREMENTS**

| Requirement | Yes | No |
|---|---|---|
| 3 Hour Rush | | ✓ |
| 24 Hour Rush | | ✓ |
| 48 Hour Rush | | ✓ |
| 3 Day Rush | | ✓ |
| 5 Day Rush | | ✓ |
| Standard Oil/Gas Client (5 Day) | | ✓ |
| Standard Turnaround | ✓ | |

**NOTES**

ARS-062-005 r5

**COMPANY NAME:** LANL

**SDG:** ARS1-13-00932

**SHIPPING CONTAINER**

- Good Condition ☑ Yes ☐ No
- Radioactive ☐ Yes ☑ No
- UN2910 ☐ Yes ☑ No
- Sec. Seals ☑ Yes ☐ No
  - Seals Intact ☑ Yes ☐ No ☐ N/A
- Air Bill ☐ Yes ☑ No

**COC PRESENT WITH SAMPLES**

- COC ☑ Yes ☐ No

**SAMPLE CONTAINER(S)**

- Good Condition ☑ Yes ☐ No
- Sec. Seals ☑ Yes ☐ No
  - Seal Intact ☑ Yes ☐ No ☐ N/A
- Marked Radioactive ☐ Yes ☑ No
- # Samples Rcv 4
- Matrix [ AF , AQ , BI , FE , LT , SI , SO , UR , VG ]

**External and Internal Surveys**

| | | | | | |
|---|---|---|---|---|---|
| Exposure Rate Meter: | 3 242861 | Serial No.: | PR 264266 | Calibration Due Date: | 4-16-14 |
| Count Rate Meter: | M2 154855 / 154859 | Serial No.: | PR 184559 | Calibration Due Date: | 4-16-14 |
| Background Exposure Rate (µR/hr) | 28 | Max. Exposure Rate on Shipping Containers Externals (Plus Bkgd) | 40 µR/hr | | |
| Background Count Rate (cpm) | 80 | Max. Removable Count Rate on Shipping Containers Externals (Plus Bkgd) | 80 cpm | | |
| | | Max. Removable Count Rate on Shipping Containers Internals (Plus Bkgd) | 80 cpm | | |

| Sample Label/Comments/Notes | pH Orig | pH Final (pH ≤ 2 is Acceptable) | Mark if Preserve | Acid Lot # | Weight(g) / Volume(mL) | µR/hr (Acceptance Limits <500 µR/hr) | cpm (Acceptance Limits <100 cpm/cm²) |
|---|---|---|---|---|---|---|---|
| CAMO-13-30558 | | | ☐ | | 1000mL | 30 | 80 |
| | | | ☐ | | | | |
| CAMO-13-30616 | | 5-9-13 | ☐ | | 1000 mL | 30 | 80 |
| | | | ☐ | | | | |
| CAMO-13-30586 | | | ☐ | | 1000mL | 30 | 80 |
| * 30562 | | | ☐ | | 1000mL | 30 | 80 |
| | | | ☐ | | | | |
| | | | ☐ | | | | |
| | | | ☐ | | | | |
| | | | ☐ | | | | |
| | | | ☐ | | | | |
| | | | ☐ | | | | |
| | | | ☐ | | | | |
| | | | ☐ | | | | |
| | | | ☐ | | | | |
| | | | ☐ | | | | |
| | | | ☐ | | | | |
| | | | ☐ | | | | |

Surveyors' Name: [signature]

Date/Time Surveyed: 5-9-13 / 1338



*these samples only in this SDG

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

# Chain of Custody/Analysis Request

COC/Lab Request #: 2013-813



**Client Contact:**

**Lab Agreement # :** 126310011

**Project Number :**

**Analysis Turnaround Time:**

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

**Site Name:** Los Alamos National Laboratory

**Rad Screening Info:** Yes, Below Background

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | WSP-8260B-VOA | WSP-8270C-SVOA | WSP-CL04 | WSP-GENINORG | WSP-Met+B+SN+SR+U | WSP-NH3+NO3/NO2+PO4 | WSP-TKN+TOC | Special Instructions: |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAMO-13-30572 | May 7 2013 | 12:20 | W | 2 | 3 | | | | | 1 | |
| CAMO-13-30588 | May 7 2013 | 12:20 | W | | | 1 | 1 | 1 | 1 | | |
| CAMO-13-30559 | May 7 2013 | 12:20 | W | 2 | 3 | | | | | | |
| CAMO-13-30561 | May 7 2013 | 12:20 | W | 2 | 3 | | | | | 1 | |
| CAMO-13-30563 | May 7 2013 | 12:20 | W | | | 1 | 1 | 1 | 1 | | |
| CAMO-13-30566 | May 7 2013 | 12:20 | W | 2 | | | | | | | |

Special Instructions:

| | | | |
|---|---|---|---|
| Relinquished by: Melissa Montoya | | Date/Time: 5/8/13 3:00 | Received by: |
| Relinquished by: | | Date/Time: | Received by: |
| Relinquished by: | | Date/Time: | Received by: |

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30559

**WORK ORDER:**

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| **DATE COLLECTED (MM/DD/YYYY):** | | 05/07/2013 | **FIELD MATRIX:** | WG | OK |
| **TIME COLLECTED (HH:MM):** | | 1220 | **MEDIA:** | UA | ↓ |
| **PRS ID:** | | OK | **SAMPLE TECH CODE:** | UA | DC |
| **LOCATION ID:** | MCOI-5 | ↓ | **FIELD PREP:** | UF | OK |
| **LOCATION TYPE:** | | ↓ | **FIELD QC TYPE:** | FB | ↓ |
| **PORT:** | SINGLE COMPLETION | ↓ | **SAMPLE USAGE:** | QC | ↓ |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-8260B-VOA | 40 ML SEPTUM AMBER GLASS | 2 | HCL | Y | NA |
| ↓ | WSP-8270C-SVOA | 1 LITER AMBER GLASS | ~~3~~ 1 | ICE | ↓ | ↓ |

**SAMPLE COMMENTS:** NA

**LOCATION COMMENTS:** NA

**FIELD PARAMETERS:**

Dissolved Oxygen NA mg/L  Oxidation-Reduction Potential NA MV  pH NA SU

Specific Conductance NA uS/cm  Temperature NA deg C  Turbidity NA NTU

**COLLECTED BY (PRINT)** M. Shendo

| | | | |
|---|---|---|---|
| **RELINQUISHED BY** (Printed Name) David Fellenz (Signature) | Date/Time 5/7/13 1335 | **RECEIVED BY** (Printed Name) M. Martin (Signature) | Date/Time 5/7/13 1335 |
| **RELINQUISHED BY** (Printed Name) (Signature) | Date/Time | **RECEIVED BY** (Printed Name) (Signature) | Date/Time |

Report Date 04/30/2013

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30561

**WORK ORDER:**

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | 05/07/2013 | FIELD MATRIX: | WG | OK |
| TIME COLLECTED (HH:MM): | | 1220 | MEDIA: | UA | ↓ |
| PRS ID: | | OK | SAMPLE TECH CODE: | UA | RSP |
| LOCATION ID: | MCOI-5 | ↓ | FIELD PREP: | UF | OK |
| LOCATION TYPE: | | ↓ | FIELD QC TYPE: | FD | ↓ |
| PORT: | SINGLE COMPLETION | ↓ | SAMPLE USAGE: | QC | ↓ |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-8260B-VOA | 40 ML SEPTUM AMBER GLASS | 2 | HCL | Y | NA |
| ↓ | WSP-8270C-SVOA | 1 LITER AMBER GLASS | ~~3~~ 2 | ICE | ↓ | ↓ |
| ↓ | WSP-TKN+TOC | 500 ML AMBER GLASS | 1 | H2SO4 | ↓ | ↓ |

**SAMPLE COMMENTS:** NA

**LOCATION COMMENTS:** NA

**FIELD PARAMETERS:**

Dissolved Oxygen NA mg/L  Oxidation-Reduction Potential NA MV  pH NA SU

Specific Conductance NA uS/cm  Temperature NA deg C  Turbidity NA NTU

**COLLECTED BY (PRINT)** M. Green

| | | | |
|---|---|---|---|
| **RELINQUISHED BY** (Printed Name) David Fellenz (Signature) | Date/Time 5/7/13 1335 | **RECEIVED BY** (Printed Name) M. Martyn (Signature) | Date/Time 5/7/13 1335 |
| **RELINQUISHED BY** (Printed Name) (Signature) | Date/Time | **RECEIVED BY** (Printed Name) (Signature) | Date/Time |

Report Date 04/30/2013

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30563

**WORK ORDER:**

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | 05/07/2013 | FIELD MATRIX: | WG | OK |
| TIME COLLECTED (HH:MM): | | 1220 | MEDIA: | UA | ↓ |
| PRS ID: | | OK | SAMPLE TECH CODE: | UA | RSP |
| LOCATION ID: | MCOI-5 | ↓ | FIELD PREP: | F | OK |
| LOCATION TYPE: | | ↓ | FIELD QC TYPE: | FD | ↓ |
| PORT: | SINGLE COMPLETION | | SAMPLE USAGE: | QC | |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-CL04 | 250 ML POLY | 1 | ICE | Y | NA |
| ↓ | WSP-GENINORG | 1 LITER POLY | 1 | ICE | ↓ | ↓ |
| ↓ | WSP-Met+B+SN+SR+U | 1 LITER POLY | 1 | HNO3 | ↓ | ↓ |
| ↓ | WSP-NH3+NO3/NO2+PO4 | 500 ML AMBER GLASS | 1 | H2SO4 | ↓ | ↓ |

**SAMPLE COMMENTS:** NA

**LOCATION COMMENTS:** NA

**FIELD PARAMETERS:**

Dissolved Oxygen NA mg/L  Oxidation-Reduction Potential NA MV  pH NA SU

Specific Conductance NA uS/cm  Temperature NA deg C  Turbidity NA NTU

**COLLECTED BY (PRINT)** M. Green

| | | | |
|---|---|---|---|
| **RELINQUISHED BY** (Printed Name) David Fellenz (Signature) | Date/Time 5/7/13 1335 | **RECEIVED BY** (Printed Name) M. Martin (Signature) | Date/Time 5/7/13 1335 |
| **RELINQUISHED BY** (Printed Name) (Signature) | Date/Time | **RECEIVED BY** (Printed Name) (Signature) | Date/Time |

Report Date 04/30/2013

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30566

**WORK ORDER:**

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | 05/07/2013 | FIELD MATRIX: | WG | OK |
| TIME COLLECTED (HH:MM): | | 1220 | MEDIA: | UA | ↓ |
| PRS ID: | | OK | SAMPLE TECH CODE: | UA | DC |
| LOCATION ID: | MCOI-5 | ↓ | FIELD PREP: | UF | OK |
| LOCATION TYPE: | | ↓ | FIELD QC TYPE: | FTB | ↓ |
| PORT: | SINGLE COMPLETION | ↓ | SAMPLE USAGE: | QC | ↓ |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-8260B-VOA | 40 ML SEPTUM AMBER GLASS | 2 | HCL | Y | NA |

**SAMPLE COMMENTS:** NA

**LOCATION COMMENTS:** NA

**FIELD PARAMETERS:**

Dissolved Oxygen NA mg/L  Oxidation-Reduction Potential NA MV  pH NA SU

Specific Conductance NA uS/cm  Temperature NA deg C  Turbidity NA NTU

**COLLECTED BY (PRINT)** M. Shendo

| RELINQUISHED BY (Printed Name) (Signature) | Date/Time | RECEIVED BY (Printed Name) (Signature) | Date/Time |
|---|---|---|---|
| David Fellenz | 5/7/13 1335 | M. Montoya | 5/7/13 1335 |
| RELINQUISHED BY (Printed Name) (Signature) | Date/Time | RECEIVED BY (Printed Name) (Signature) | Date/Time |

Report Date 04/30/2013

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30572

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | 05/07/2013 | FIELD MATRIX: | WG | OK |
| TIME COLLECTED (HH:MM): | | 1220 | MEDIA: | UA | ↓ |
| PRS ID: | | OK | SAMPLE TECH CODE: | UA | RSP |
| LOCATION ID: | MCOI-5 | ↓ | FIELD PREP: | UF | OK |
| LOCATION TYPE: | MON | ↓ | FIELD QC TYPE: | REG | ↓ |
| PORT: | SINGLE COMPLETION | ↓ | SAMPLE USAGE: | INV | ↓ |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-8260B-VOA | 40 ML SEPTUM AMBER GLASS | 2 | HCL | Y | NA |
| ↓ | WSP-8270C-SVOA | 1 LITER AMBER GLASS | 3 | ICE | ↓ | ↓ |
| ↓ | WSP-TKN+TOC | 500 ML AMBER GLASS | 1 | H2SO4 | ↓ | ↓ |

**SAMPLE COMMENTS:** NA

**LOCATION COMMENTS:** NA

**FIELD PARAMETERS:**

Dissolved Oxygen 5.33 mg/L  Oxidation-Reduction Potential 234.1 MV  pH 8.49 SU

Specific Conductance 208 uS/cm  Temperature 13.72 deg C  Turbidity 0.99 NTU

**COLLECTED BY (PRINT)** M. Green

| RELINQUISHED BY | Date/Time | RECEIVED BY | Date/Time |
|---|---|---|---|
| (Printed Name) David Fellenz<br>(Signature) | 5/7/13 1335 | (Printed Name) M. Martin<br>(Signature) | 5/7/13 1331 |
| RELINQUISHED BY<br>(Printed Name)<br>(Signature) | Date/Time | RECEIVED BY<br>(Printed Name)<br>(Signature) | Date/Time |

Report Date 04/30/2013

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30588

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| **DATE COLLECTED (MM/DD/YYYY):** | | 05/07/2013 | **FIELD MATRIX:** | WG | OK |
| **TIME COLLECTED (HH:MM):** | | 1220 | **MEDIA:** | UA | ↓ |
| **PRS ID:** | | OK | **SAMPLE TECH CODE:** | UA | RSP |
| **LOCATION ID:** | MCOI-5 | ↓ | **FIELD PREP:** | F | OK |
| **LOCATION TYPE:** | MON | ↓ | **FIELD QC TYPE:** | REG | ↓ |
| **PORT:** | SINGLE COMPLETION | ↓ | **SAMPLE USAGE:** | INV | ↓ |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-CL04 | 250 ML POLY | 1 | ICE | Y | NA |
| ↓ | WSP-GENINORG | 1 LITER POLY | 1 | ICE | ↓ | ↓ |
| ↓ | WSP-Met+B+SN+SR+U | 1 LITER POLY | 1 | HNO3 | ↓ | ↓ |
| ↓ | WSP-NH3+NO3/NO2+PO4 | 500 ML AMBER GLASS | 1 | H2SO4 | ↓ | |

**SAMPLE COMMENTS:** NA

**LOCATION COMMENTS:** NA

**FIELD PARAMETERS:**

Dissolved Oxygen NA mg/L  Oxidation-Reduction Potential NA MV  pH NA SU

Specific Conductance NA uS/cm  Temperature NA deg C  Turbidity NA NTU

**COLLECTED BY (PRINT)** M. Green

| | | | |
|---|---|---|---|
| **RELINQUISHED BY (Printed Name)** David Fellenz **(Signature)** | **Date/Time** 5/7/13 1335 | **RECEIVED BY (Printed Name)** M. Martin **(Signature)** | **Date/Time** 5/7/13 1335 |
| **RELINQUISHED BY (Printed Name) (Signature)** | **Date/Time** | **RECEIVED BY (Printed Name) (Signature)** | **Date/Time** |

Report Date 04/30/2013

Data Validation Report

Chain Of Custody No. 2013-813

**1. Distribution Of Samples In EDD.**

| SDG | Analytical Method | Regular Samples | Field Duplicates | Trip Blanks | Field Blanks | Equipment Blanks |
|---|---|---|---|---|---|---|
| 325394 | EPA:120.1 | 1 | 1 | | | |
| 325394 | EPA:150.1 | 1 | 1 | | | |
| 325394 | EPA:160.1 | 1 | 1 | | | |
| 325394 | EPA:245.2 | 1 | 1 | | | |
| 325394 | EPA:300.0 | 1 | 1 | | | |
| 325394 | EPA:310.1 | 1 | 1 | | | |
| 325394 | EPA:350.1 | 1 | 1 | | | |
| 325394 | EPA:351.2 | 1 | 1 | | | |
| 325394 | EPA:353.2 | 1 | 1 | | | |
| 325394 | EPA:365.4 | 1 | 1 | | | |
| 325394 | SM:A2340B | 1 | 1 | | | |
| 325394 | SW-846:6010B | 1 | 1 | | | |
| 325394 | SW-846:6020 | 1 | 1 | | | |
| 325394 | SW-846:6850 | 1 | 1 | | | |
| 325394 | SW-846:8260B | 1 | 1 | 1 | 1 | |
| 325394 | SW-846:8270C | 1 | 1 | | 1 | |
| 325394 | SW-846:9060 | 1 | 1 | | | |

| SDG | Analytical Method | Analysis Lot ID | Prep Lot ID | Regular Samples | Field Duplicates | Trip Blanks | Field Blanks | Equipment Blanks | Method Blanks | Matrix Spikes | Matrix Spike Dups |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 325394 | EPA:120.1 | 1300876 | 1300876 | 1 | 1 | | | | | | |
| 325394 | EPA:150.1 | 1300897 | 1300897 | 1 | 1 | | | | | | |
| 325394 | EPA:160.1 | 1300893 | 1300893 | 1 | 1 | | | | 1 | | |
| 325394 | EPA:245.2 | 1301863 | 1301862 | 1 | 1 | | | | 1 | 2 | |
| 325394 | EPA:300.0 | 1300722 | 1300722 | 1 | 1 | | | | 1 | | |
| 325394 | EPA:310.1 | 1302074 | 1302074 | 1 | 1 | | | | 2 | 1 | |
| 325394 | EPA:350.1 | 1300621 | 1300620 | 1 | 1 | | | | 1 | 2 | |
| 325394 | EPA:351.2 | 1300635 | 1300634 | 1 | 1 | | | | 1 | 2 | |
| 325394 | EPA:353.2 | 1301246 | 1301246 | 1 | 1 | | | | 1 | | |
| 325394 | EPA:365.4 | 1300626 | 1300625 | 1 | 1 | | | | 1 | 2 | |
| 325394 | SM:A2340B | 1305711 | 1305711 | 1 | 1 | | | | | | |
| 325394 | SW-846:6010B | 1301065 | 1301064 | 1 | 1 | | | | 1 | 1 | |
| 325394 | SW-846:6020 | 1301067 | 1301066 | 1 | 1 | | | | 1 | 1 | |
| 325394 | SW-846:6850 | 1301785 | 1301783 | 1 | 1 | | | | 1 | 1 | 1 |
| 325394 | SW-846:8260B | 1302540 | 1302540 | 1 | 1 | 1 | 1 | | 1 | | |
| 325394 | SW-846:8270C | 1300969 | 1300968 | 1 | 1 | | 1 | | 1 | 1 | 1 |
| 325394 | SW-846:9060 | 1300890 | 1300890 | 1 | 1 | | | | 1 | | |

**2. Distribution Of Analytes In EDD.**

| Analytical Method | Method Category | Field Sample ID | Lab Sample ID | Sample Purpose | Target Analytes | Surrogates | Spikes | TICS |
|---|---|---|---|---|---|---|---|---|
| EPA:120.1 | GENERAL CHEMISTRY | CAMO-13-30563 | 325394005 | FD | 1 | 0 | 0 | 0 |
| EPA:120.1 | GENERAL CHEMISTRY | CAMO-13-30588 | 325394002 | REG | 1 | 0 | 0 | 0 |
| EPA:120.1 | GENERAL CHEMISTRY | CAMO-13-30620 | 1202873730 | DUP | 1 | 0 | 0 | 0 |
| EPA:120.1 | GENERAL CHEMISTRY | LCS | 1202873728 | LCS | 0 | 0 | 1 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | CAMO-13-30563 | 325394005 | FD | 1 | 0 | 0 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | CAMO-13-30588 | 1202873791 | DUP | 1 | 0 | 0 | 0 |

Data Validation Report for:

Chain Of Custody No. 2013-813

| Analytical Spikes | Post-Digestion Spikes | Lab Control Samples | Lab Control Sample Dups | Blank Spikes | Blank Spike Dups | Lab Duplicates | Storage Blanks | Preparation Blanks | Reagent Blanks |
|---|---|---|---|---|---|---|---|---|---|
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 2 | | | |
| | | 1 | | | | 1 | | | |
| | | 2 | | | | 1 | | | |
| | | 1 | | | | 2 | | | |
| | | 1 | | | | 2 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 2 | | | |
| | | | | | | | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | | | | |
| | | 2 | | | | | | | |
| | | 1 | | | | | | | |
| | | 1 | | | | 1 | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| EPA:150.1 | GENERAL CHEMISTRY | CAMO-13-30588 | 325394002 | REG | 1 | 0 | 0 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | LCS | 1202873792 | LCS | 0 | 0 | 1 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | CAMO-13-30563 | 325394005 | FD | 1 | 0 | 0 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | CAMO-13-30588 | 325394002 | REG | 1 | 0 | 0 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | CAMO-13-30620 | 1202873780 | DUP | 1 | 0 | 0 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | LCS | 1202873781 | LCS | 0 | 0 | 1 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | MB | 1202873779 | MB | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30563 | 325394005 | FD | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30588 | 1202876204 | DUP | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30588 | 1202876205 | MS | 0 | 0 | 1 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30588 | 325394002 | REG | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30590 | 1202876207 | DUP | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30590 | 1202876209 | MS | 0 | 0 | 1 | 0 |
| EPA:245.2 | INORGANIC | LCS | 1202876203 | LCS | 0 | 0 | 1 | 0 |
| EPA:245.2 | INORGANIC | MB | 1202876202 | MB | 1 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | CAMO-13-30563 | 325394005 | FD | 4 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | CAMO-13-30588 | 1202873340 | DUP | 4 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | CAMO-13-30588 | 325394002 | REG | 4 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | LCS | 1202873342 | LCS | 0 | 0 | 4 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | MB | 1202873339 | MB | 4 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CAMO-13-30563 | 325394005 | FD | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CAMO-13-30588 | 325394002 | REG | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CAMO-13-30620 | 1202876731 | DUP | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CAMO-13-30620 | 1202876732 | MS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | LCS | 1202876728 | LCS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | LCS | 1202877592 | LCS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | MB | 1202876727 | MB | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | MB | 1202877591 | MB | 2 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30563 | 325394005 | FD | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30588 | 325394002 | REG | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30590 | 1202873026 | DUP | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30590 | 1202873028 | MS | 0 | 0 | 1 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30593 | 1202873027 | DUP | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30593 | 1202873029 | MS | 0 | 0 | 1 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | LCS | 1202873030 | LCS | 0 | 0 | 1 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | MB | 1202873025 | MB | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30561 | 325394004 | FD | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30572 | 325394001 | REG | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30574 | 1202873059 | DUP | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30574 | 1202873061 | MS | 0 | 0 | 1 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30577 | 1202873060 | DUP | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30577 | 1202873062 | MS | 0 | 0 | 1 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | LCS | 1202873063 | LCS | 0 | 0 | 1 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | MB | 1202873058 | MB | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CAMO-13-30563 | 325394005 | FD | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CAMO-13-30588 | 325394002 | REG | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CAMO-13-30591 | 1202874599 | DUP | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | LCS | 1202874605 | LCS | 0 | 0 | 1 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | MB | 1202874598 | MB | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CAMO-13-30563 | 325394005 | FD | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CAMO-13-30588 | 325394002 | REG | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CAMO-13-30590 | 1202873040 | DUP | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CAMO-13-30590 | 1202873042 | MS | 0 | 0 | 1 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | LCS | 1202873044 | LCS | 0 | 0 | 1 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | MB | 1202873039 | MB | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | NP027-13-30514 | 1202873041 | DUP | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | NP027-13-30514 | 1202873043 | MS | 0 | 0 | 1 | 0 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| SM:A2340B | INORGANIC | CAMO-13-30563 | 325394005 | FD | 1 | 0 | 0 | 0 |
| SM:A2340B | INORGANIC | CAMO-13-30588 | 325394002 | REG | 1 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30563 | 325394005 | FD | 17 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30588 | 325394002 | REG | 17 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30589 | 1202874204 | DUP | 17 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30589 | 1202874205 | MS | 0 | 0 | 17 | 0 |
| SW-846:6010B | INORGANIC | LCS | 1202874203 | LCS | 0 | 0 | 17 | 0 |
| SW-846:6010B | INORGANIC | MB | 1202874202 | MB | 17 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30563 | 325394005 | FD | 11 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30588 | 325394002 | REG | 11 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30589 | 1202874212 | DUP | 11 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30589 | 1202874213 | MS | 0 | 0 | 11 | 0 |
| SW-846:6020 | INORGANIC | LCS | 1202874211 | LCS | 0 | 0 | 11 | 0 |
| SW-846:6020 | INORGANIC | MB | 1202874210 | MB | 11 | 0 | 0 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | CAMO-13-30563 | 325394005 | FD | 1 | 0 | 0 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | CAMO-13-30588 | 325394002 | REG | 1 | 0 | 0 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | CAMO-13-30592 | 1202876022 | MS | 0 | 0 | 1 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | CAMO-13-30592 | 1202876023 | MSD | 0 | 0 | 1 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | LCS | 1202876021 | LCS | 0 | 0 | 1 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | MB | 1202876020 | MB | 1 | 0 | 0 | 0 |
| SW-846:8260B | VOC | CAMO-13-30559 | 325394003 | FB | 80 | 3 | 0 | 0 |
| SW-846:8260B | VOC | CAMO-13-30561 | 325394004 | FD | 80 | 3 | 0 | 0 |
| SW-846:8260B | VOC | CAMO-13-30566 | 325394006 | FTB | 80 | 3 | 0 | 0 |
| SW-846:8260B | VOC | CAMO-13-30572 | 325394001 | REG | 80 | 3 | 0 | 0 |
| SW-846:8260B | VOC | LCS | 1202877852 | LCS | 0 | 3 | 70 | 0 |
| SW-846:8260B | VOC | LCS | 1202877853 | LCS | 0 | 3 | 10 | 0 |
| SW-846:8260B | VOC | MB | 1202877849 | MB | 80 | 3 | 0 | 0 |
| SW-846:8270C | SVOC | CAMO-13-30559 | 325394003 | FB | 80 | 6 | 0 | 0 |
| SW-846:8270C | SVOC | CAMO-13-30561 | 325394004 | FD | 80 | 6 | 0 | 0 |
| SW-846:8270C | SVOC | CAMO-13-30572 | 325394001 | REG | 80 | 6 | 0 | 0 |
| SW-846:8270C | SVOC | LCS | 1202873989 | LCS | 0 | 6 | 76 | 0 |
| SW-846:8270C | SVOC | MB | 1202873988 | MB | 80 | 6 | 0 | 0 |
| SW-846:8270C | SVOC | WST55-13-32015 | 1202873990 | MS | 0 | 6 | 76 | 0 |
| SW-846:8270C | SVOC | WST55-13-32015 | 1202873991 | MSD | 0 | 6 | 76 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | CAMO-13-30561 | 325394004 | FD | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | CAMO-13-30572 | 325394001 | REG | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | CAMO-13-30616 | 1202873772 | DUP | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | LCS | 1202873775 | LCS | 0 | 0 | 1 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | MB | 1202873770 | MB | 1 | 0 | 0 | 0 |

**3. Are any analytes missing?**

No.

**4. Were any holding times exceeded?**

No.

**5. Any contaminants in blanks?**

| Field | Lab | Type Of | Analytical | Sample | Parameter | Lab | Lab | | Lab |
|---|---|---|---|---|---|---|---|---|---|

Data Validation Report for:

Chain Of Custody No. 2013-813

| Sample ID | Sample ID | Blank | Method | Matrix | Name | Result | Qualifier | Units | Detection Limit |
|---|---|---|---|---|---|---|---|---|---|
| MB | 1202874202 | METHOD BLANK | SW-846:6010B | W | Potassium | 64.3 | J | ug/L | 150 |
| MB | 1202874202 | METHOD BLANK | SW-846:6010B | W | Strontium | 2.05 | J | ug/L | 5 |

**Any samples affected by the presence of contaminants in blanks?**

No.

**6. Any surrogate recoveries outside the control limits?**

No.

**7. Any MS/MSD recoveries or RPDs outside the control limits?**

| Field Sample ID | Matrix Spike ID | Matrix Spike Dup ID | Analytical Method | Parameter Name | Analysis Lot ID | Analysis Date | Sample Matrix | MS % Recvry | MSD % Recvry | Upper Limit | Lower Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAMO-13-30589 | 1202874213 | | SW-846:6020 | Nickel | 1301066 | 6/1/2013 | W | 126 | | 125 | 75 |

**8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?**

| LCS Sample ID | LCSD Sample ID | Analytical Method | Parameter Name | Lab Lot ID | Analysis Date | Sample Matrix | LCS Recovery | LCSD Recovery | Upper Limit | Lower Limit | Lower Reject Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1202873989 | | SW-846:8270C | Atrazine | 1300968 | 5/13/2013 | W | 31 | | 115 | 47 | 10 |
| 1202873989 | | SW-846:8270C | Nitrophenol[4-] | 1300968 | 5/13/2013 | W | 9 | | 77 | 16 | 10 |

**9. Any Field Duplicate RPDs outside the desired limits?**

No.

**10. Any Lab Duplicate RPDs outside the desired limits?**

No.

**11. Any required reporting limits exceeded?**

No.

**12. Additional Validator's Coments.**

None.

**13. Display Flagged Data.**

| Location ID | Chain Of Custody No | Field Sample ID | Sample Purpose | Analysis Type Code | Analytical Suite | Analytical Method | Parameter Name | Lab Qualifier | Validation Qualifier | Validation Reason Codes | Detected |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MCOI-5 | 2013-813 | CAMO-13-30559 | FB | INIT | SVOC | SW-846:8270C | Atrazine | U | UJ | SV12a | N |
| MCOI-5 | 2013-813 | CAMO-13-30559 | FB | INIT | SVOC | SW-846:8270C | Nitrophenol[4-] | U | R | SV12 | N |
| MCOI-5 | 2013-813 | CAMO-13-30561 | FD | INIT | SVOC | SW-846:8270C | Atrazine | U | UJ | SV12a | N |
| MCOI-5 | 2013-813 | CAMO-13-30561 | FD | INIT | SVOC | SW-846:8270C | Nitrophenol[4-] | U | R | SV12 | N |
| MCOI-5 | 2013-813 | CAMO-13-30572 | REG | INIT | SVOC | SW-846:8270C | Atrazine | U | UJ | SV12a | N |
| MCOI-5 | 2013-813 | CAMO-13-30572 | REG | INIT | SVOC | SW-846:8270C | Nitrophenol[4-] | U | R | SV12 | N |

| Reason Code | Description |
|---|---|
| J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL |

| Rejection Limit | RPD | RPD Limit |
|---|---|---|
| 10 | | |

| Upper Reject Limit | RPD | RPD Limit |
|---|---|---|
| | | |
| | | |

| Lab Result | Lab Units | Report Result | Report Units | Report MDA | Report Uncertainty | Lab Matrix | Sample Date | Percent Moisture | Analysis Lot ID | Validation Status Code | Use Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10.5 | ug/L | 10.5 | ug/L | | | W | 5/7/2013 | | 1300969 | VAL | Y |
| 10.5 | ug/L | 10.5 | ug/L | | | W | 5/7/2013 | | 1300969 | VAL | Y |
| 10.8 | ug/L | 10.8 | ug/L | | | W | 5/7/2013 | | 1300969 | VAL | Y |
| 10.8 | ug/L | 10.8 | ug/L | | | W | 5/7/2013 | | 1300969 | VAL | Y |
| 10.5 | ug/L | 10.5 | ug/L | | | W | 5/7/2013 | | 1300969 | VAL | Y |
| 10.5 | ug/L | 10.5 | ug/L | | | W | 5/7/2013 | | 1300969 | VAL | Y |

| | |
|---|---|
| NQ | The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample. |
| SV12 | The LCS percent recovery was <10%. Follow the external laboratory limits located within the associated data package. |
| SV12a | The LCS percent recovery was < the LAL but >10%. Follow the external laboratory limits located within the associated data package. |
| U_LAB | The analytical laboratory qualified the analyte as not detected. |

**14. Useable Result Count.**

| Field Sample ID | Location ID | Sample Purpose | Analytical Method | No. Unuseable Records | Total No. Of Records |
|---|---|---|---|---|---|
| CAMO-13-30559 | MCOI-5 | FB | SW-846:8260B | 0 | 80 |
| CAMO-13-30559 | MCOI-5 | FB | SW-846:8270C | 0 | 80 |
| CAMO-13-30561 | MCOI-5 | FD | EPA:351.2 | 0 | 1 |
| CAMO-13-30561 | MCOI-5 | FD | SW-846:8260B | 0 | 80 |
| CAMO-13-30561 | MCOI-5 | FD | SW-846:8270C | 0 | 80 |
| CAMO-13-30561 | MCOI-5 | FD | SW-846:9060 | 0 | 1 |
| CAMO-13-30563 | MCOI-5 | FD | EPA:120.1 | 0 | 1 |
| CAMO-13-30563 | MCOI-5 | FD | EPA:150.1 | 0 | 1 |
| CAMO-13-30563 | MCOI-5 | FD | EPA:160.1 | 0 | 1 |
| CAMO-13-30563 | MCOI-5 | FD | EPA:245.2 | 0 | 1 |
| CAMO-13-30563 | MCOI-5 | FD | EPA:300.0 | 0 | 4 |
| CAMO-13-30563 | MCOI-5 | FD | EPA:310.1 | 0 | 2 |
| CAMO-13-30563 | MCOI-5 | FD | EPA:350.1 | 0 | 1 |
| CAMO-13-30563 | MCOI-5 | FD | EPA:353.2 | 0 | 1 |
| CAMO-13-30563 | MCOI-5 | FD | EPA:365.4 | 0 | 1 |
| CAMO-13-30563 | MCOI-5 | FD | SM:A2340B | 0 | 1 |
| CAMO-13-30563 | MCOI-5 | FD | SW-846:6010B | 0 | 17 |
| CAMO-13-30563 | MCOI-5 | FD | SW-846:6020 | 0 | 11 |
| CAMO-13-30563 | MCOI-5 | FD | SW-846:6850 | 0 | 1 |
| CAMO-13-30566 | MCOI-5 | FTB | SW-846:8260B | 0 | 80 |
| CAMO-13-30572 | MCOI-5 | REG | EPA:351.2 | 0 | 1 |
| CAMO-13-30572 | MCOI-5 | REG | SW-846:8260B | 0 | 80 |
| CAMO-13-30572 | MCOI-5 | REG | SW-846:8270C | 0 | 80 |
| CAMO-13-30572 | MCOI-5 | REG | SW-846:9060 | 0 | 1 |
| CAMO-13-30588 | MCOI-5 | REG | EPA:120.1 | 0 | 1 |
| CAMO-13-30588 | MCOI-5 | REG | EPA:150.1 | 0 | 1 |
| CAMO-13-30588 | MCOI-5 | REG | EPA:160.1 | 0 | 1 |
| CAMO-13-30588 | MCOI-5 | REG | EPA:245.2 | 0 | 1 |
| CAMO-13-30588 | MCOI-5 | REG | EPA:300.0 | 0 | 4 |
| CAMO-13-30588 | MCOI-5 | REG | EPA:310.1 | 0 | 2 |
| CAMO-13-30588 | MCOI-5 | REG | EPA:350.1 | 0 | 1 |
| CAMO-13-30588 | MCOI-5 | REG | EPA:353.2 | 0 | 1 |
| CAMO-13-30588 | MCOI-5 | REG | EPA:365.4 | 0 | 1 |
| CAMO-13-30588 | MCOI-5 | REG | SM:A2340B | 0 | 1 |
| CAMO-13-30588 | MCOI-5 | REG | SW-846:6010B | 0 | 17 |
| CAMO-13-30588 | MCOI-5 | REG | SW-846:6020 | 0 | 11 |
| CAMO-13-30588 | MCOI-5 | REG | SW-846:6850 | 0 | 1 |

GEL Laboratories LLC
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June 04, 2013

Keith Greene
Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Re: LANL-WQH Water Samples
Work Order: 325394
SDG: 2013-813

Dear Keith Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on May 09, 2013, and analyzed for GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals and Perchlorates by LCMSMS. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,

Hope Taylor for
Valerie Davis
Project Manager

Purchase Order: 63641-10
Chain of Custody: 2013-813
Enclosures

**ARS International (63641-10)**
**LANL-WQH Water Samples**
**Work Order #: 325394**
**SDG: 2013-813**

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# Case Narrative

**Case Narrative for**
**ARS International (63641-10)**
**LANL-WQH Water Samples**
**Workorder #: 325394**
**SDG # : 2013-813**

**June 04, 2013**

**Laboratory Identification:**

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

**Summary**

**Sample receipt** The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on May 09, 2013 for analysis. Please see attached email for discrepancies. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. Containers were checked for pH, where appropriate, and matched the preservative as documented on the accompanying chain of custody. Shipping container temperature was within specification (0 - 6C). Shipping container temperatures were checked, documented, and within specifications. There are no additional comments concerning sample receipt.

**Sample Identification** The laboratory received the following samples:

| Laboratory ID | Client ID |
|---|---|
| 325394001 | CAMO-13-30572 |
| 325394002 | CAMO-13-30588 |
| 325394003 | CAMO-13-30559 |
| 325394004 | CAMO-13-30561 |
| 325394005 | CAMO-13-30563 |
| 325394006 | CAMO-13-30566 |

**Case Narrative**

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

**Data Package**

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals and Perchlorates by LCMSMS.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.

Hope Taylor for
Valerie Davis
Project Manager

**List of current GEL Certifications as of 04 June 2013**

| State | Certification |
|---|---|
| Alaska | UST−110 |
| Arkansas | 88−0651 |
| CLIA | 42D0904046 |
| California NELAP | 01151CA |
| Colorado | SC00012 |
| Connecticut | PH−0169 |
| Delaware | SC00012 |
| DoD ELAP A2LA ISO 17025 | 2567.01 |
| Florida NELAP | E87156 |
| Foreign Soils Permit | P330−12−00283, P330−12−00284 |
| Georgia | SC00012 |
| Georgia SDWA | 967 |
| Hawaii | SC00012 |
| Idaho | SC00012 |
| Illinois NELAP | 200029 |
| Indiana | C−SC−01 |
| Kansas NELAP | E−10332 |
| Kentucky | 90129 |
| Louisiana NELAP | 03046 (AI33904) |
| Louisiana SDWA | LA130005 |
| Maryland | 270 |
| Massachusetts | M−SC012 |
| Nevada | SC000122011−1 |
| New Hampshire NELAP | 2054 |
| New Jersey NELAP | SC002 |
| New Mexico | SC00012 |
| New York NELAP | 11501 |
| North Carolina | 233 |
| North Carolina SDWA | 45709 |
| Oklahoma | 9904 |
| Pennsylvania NELAP | 68−00485 |
| Plant Material Permit | PDEP−12−00260 |
| South Carolina Chemistry | 10120001 |
| South Carolina Radiochemi | 10120002 |
| Tennessee | TN 02934 |
| Texas NELAP | T104704235−13−8 |
| Utah NELAP | SC000122013−8 |
| Vermont | VT87156 |
| Virginia NELAP | 460202 |
| Washington | C780−12 |
| Wisconsin | 999887790 |

# Chain of Custody and Supporting Documentation

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

# Chain of Custody/Analysis Request

325394

**COC/Lab Request #:** 2013-813

Page 1 of 1

**Client Contact:**

**Lab Agreement # :** 126310011

**Project Number :**

**Analysis Turnaround Time:**

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

**Site Name:** Los Alamos National Laboratory

**Rad Screening Info:** Yes, Below Background

**Special Instructions:**

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | WSP-8260B-VOA | WSP-8270C-SVOA | WSP-CL04 | WSP-GENINORG | WSP-Met+B+SN+SR+U | WSP-NH3+NO3/NO2+PO4 | WSP-TKN+TOC |
|---|---|---|---|---|---|---|---|---|---|---|
| CAMO-13-30572 | May 7 2013 | 12:20 | W | 2 | 3 | | | | | 1 |
| CAMO-13-30588 | May 7 2013 | 12:20 | W | | | 1 | 1 | 1 | 1 | |
| CAMO-13-30559 | May 7 2013 | 12:20 | W | 2 | 3 | | | | | |
| CAMO-13-30561 | May 7 2013 | 12:20 | W | 2 | 3 | | | | | 1 |
| CAMO-13-30563 | May 7 2013 | 12:20 | W | | | 1 | 1 | 1 | 1 | |
| CAMO-13-30566 | May 7 2013 | 12:20 | W | 2 | | | | | | |

Special Instructions:

| | | | | |
|---|---|---|---|---|
| Relinquished by: Melissa Montoya | | Date/Time: 5/8/13 3:00 | Received by: | 050913 @ 0850 |
| Relinquished by: | | Date/Time: | Received by: | |
| Relinquished by: | | Date/Time: | Received by: | |

GEL Laboratories LLC

# SAMPLE RECEIPT & REVIEW FORM

| | |
|---|---|
| **Client:** LANL | **SDG/AR/COC/Work Order:** 2013-813 |
| **Received By:** H. Taylor | **Date Received:** 050913 |

| **Suspected Hazard Information** | **Yes** | **No** | *If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation. |
|---|---|---|---|
| COC/Samples marked as radioactive? | | ✓ | Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0cpm |
| Classified Radioactive II or III by RSO? | | ✓ | If yes, Were swipes taken of sample contatiners < action levels? |
| COC/Samples marked containing PCBs? | | ✓ | |
| Package, COC, and/or Samples marked as beryllium or asbestos containing? | | ✓ | If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group. |
| Shipped as a DOT Hazardous? | | ✓ | Hazard Class Shipped: UN#: |
| Samples identified as Foreign Soil? | | ✓ | |

| | **Sample Receipt Criteria** | **Yes** | **NA** | **No** | **Comments/Qualifiers (Required for Non-Conforming Items)** |
|---|---|---|---|---|---|
| 1 | Shipping containers received intact and sealed? | ✓ | ✓ | | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 2 | Samples requiring cold preservation within (0 ≤ 6 deg. C)?* | ✓ | ✓ | | Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius |
| 2a | Daily check performed and passed on IR temperature gun? | ✓ | ✓ | | Temperature Device Serial #: 615246446 Secondary Temperature Device Serial # (If Applicable): |
| 3 | Chain of custody documents included with shipment? | ✓ | | | |
| 4 | Sample containers intact and sealed? | ✓ | | | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 5 | Samples requiring chemical preservation at proper pH? | ✓ | ✓ | | Sample ID's, containers affected and observed pH: If Preservation added, Lot#: |
| 6 | VOA vials free of headspace (defined as < 6mm bubble)? | ✓ | ✓ | | Sample ID's and containers affected: |
| 7 | Are Encore containers present? | | | ✓ | (If yes, immediately deliver to Volatiles laboratory) |
| 8 | Samples received within holding time? | ✓ | | | ID's and tests affected: |
| 9 | Sample ID's on COC match ID's on bottles? | ✓ | | | Sample ID's and containers affected: |
| 10 | Date & time on COC match date & time on bottles? | ✓ | ✓ | | Sample ID's affected: |
| 11 | Number of containers received match number indicated on COC? | | | ✓ | Sample ID's affected: *see below |
| 12 | Are sample containers identifiable as GEL provided? | | | ✓ | |
| 13 | COC form is properly signed in relinquished/received sections? | ✓ | | | |
| 14 | Carrier and tracking number. | | | | Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other<br>5462 9832 9957 - 3<br>5462 9832 9946 - 3<br>5462 983 9935 - 3 |

Comments (Use Continuation Form if needed): *CAMO-13-30572 received 2 container for SVOA, chain indicates 3.
*CAMO-13-30559 received 1 container for SVOA, chain indicates 3.
*CAMO-13-30561 received 2 containers for SVOA, chain indicates 3.
*CAMO-13-30566 received 1 container for VOA, chain indicates 2.

PM (or PMA) review: Initials JW Date 5-10-13 Page 1 of 1

**Subject:** Sample Receipt for 050913
**From:** Hope Taylor <Hope.Taylor@gel.com>
**Date:** 5/9/2013 2:39 PM
**To:** "Keith R. Greene" <kgreene@lanl.gov>
**CC:** LANL@amrad.com, "team.davis" <team.davis@gel.com>

RN 2013-814
CAMO-13-30612 lab received one container for 8260, chain indicates two

RN 2013-813
CAMO-13-30572 received 2 containers for 8270, chain indicates 3.
CAMO-13-30559 received 1 conatiner for 8270, chain indicates 3.
CAMO-13-30561 received 2 containers for 8270, chain indicates 3.
CAMO-13-30566 received 1 container for 8260, chain indicates 2.

Thanks

--
Hope Taylor
Project Manager Assistant
GEL Laboratories, LLC
2040 Savage Road
Charleston, SC 29407
Direct: 843.769.7376 ext. 4778
Main: 843.556.8171
Fax: 843.766.1178
E-mail: hop01200@gel.com
Web: www.gel.com

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 08MAY13
ACTWGT: 37.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: WE6L11551000

58DC1/9983/10BC

FedEx Express

J111311060601 25

TRK# 0201 5462 9832 9957

THU - 09 MAY 10:30A
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

Part # 156148-434 RITZ 08/10

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 08MAY13
ACTWGT: 51.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWKO

58DC1/9983/10BC

FedEx Express

J111311060601 25

2 of 2

MPS# 0263 5462 9832 9946
Mstr# 5462 9832 9935

THU - 09 MAY 10:30A
PRIORITY OVERNIGHT

0201

XX CHSA

29407
SC-US CHS

Part # 156148-434 RITZ 08/10

ORIGIN ID: SAFA (505) 665-5966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 08MAY13
ACTWGT: 52.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWKO

58DC1/99B3/108C

FedEx Express

1 of 2

THU - 09 MAY 10:30A
PRIORITY OVERNIGHT

TRK# 0201 5462 9832 9935

## MASTER ##

XX CHSA

29407
SC-US CHS

Part # 165948-434 RITP 08/10 ©

# Data Review Qualifier Flag Definition Sheet

## Data Review Qualifier Definitions

| Qualifier | Explanation |
|---|---|
| * | A quality control analyte recovery is outside of specified acceptance criteria |
| ** | Analyte is a surrogate compound |
| < | Result is less than value reported |
| > | Result is greater than value reported |
| ^ | RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL |
| A | The TIC is a suspected aldol-condensation product |
| B | Target analyte was detected in the associated blank |
| B | Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL |
| BD | Results are either below the MDC or tracer recovery is low |
| C | Analyte has been confirmed by GC/MS analysis |
| D | Results are reported from a diluted aliquot of the sample |
| d | 5-day BOD-The 2:1 depletion requirement was not met for this sample |
| E | Organics-Concentration of the target analyte exceeds the instrument calibration range |
| E | Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria |
| H | Analytical holding time was exceeded |
| h | Preparation or preservation holding time was exceeded |
| J | Value is estimated |
| N | Metals-The Matrix spike sample recovery is not within specified control limits |
| N | Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N/A | Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more |
| ND | Analyte concentration is not detected above the reporting limit |
| UI | Gamma Spectroscopy-Uncertain identification |
| X | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| Y | QC Samples were not spiked with this compound |
| Z | Paint Filter Test-Particulates passed through the filter, however no free liquids were observed. |

# Volatile Analysis

# Case Narrative

**ChemStation Case Narrative**
**ARS International (ARSL)**
**SDG 2013-813**

## Method/Analysis Information

| | |
|---|---|
| **Procedure:** | **Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer** |
| Analytical Method: | SW846 8260B DOE-AL |
| Analytical Batch Number: | 1302540 |

## Sample Analysis

The following client and quality control samples were analyzed to complete this SDG using the methods referenced in the Analysis Information section:

| Sample ID | Client ID |
|---|---|
| 325394001 | CAMO-13-30572 |
| 325394003 | CAMO-13-30559 |
| 325394004 | CAMO-13-30561 |
| 325394006 | CAMO-13-30566 |
| 1202877849 | Method Blank (MB) |
| 1202877850 | 325410001(CAMO-13-30616) Post Spike (PS) |
| 1202877851 | 325410001(CAMO-13-30616) Post Spike Duplicate (PSD) |
| 1202877852 | Laboratory Control Sample (LCS) |
| 1202877853 | Laboratory Control Sample (LCS) |

NOTE: For volatile organic analyses the matrix spike designations may be indicated as "PS" or "PSD". The "PS" designation (post spike) indicates that the matrix was fortified prior to analysis but after applying any prep factors, such as a dilution. The laboratory considers the MS/MSD and PS/PSD designations interchangeable.

The samples in this SDG were analyzed on an "as received" basis.

## Preparation/Analytical Method Verification

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-038 REV# 19.

Raw data reports are processed and reviewed by the analyst using the Chemstation software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP) section 19.1.2. False positive analytes are designated on the quantitation report with a ’d’ qualifier.

## Calibration Information

A complete list of the initial calibration data files with the correct dates and times of analysis are shown in the Calibration History report located in the Standard Data section of the data package.

The surrogate compounds were calibrated using a minimum five-point calibration curve. The surrogates were added by the auto sampler at a concentration of 50 ug/L or 20 ug/L for low level analyses. GEL Laboratories LLC will not have surrogate recoveries reported for Dibromofluoromethane. This is due to increased regulations for this analyte and an industry shortage.

**Initial Calibration**
At the request of the client, linear curve fits, for target analytes that did not meet the x-intercept criteria of less than or equal to 3 times the MDL and had %RSDs less than 60%, were set to use the average response factor to quantitate data in this SDG.

**Continuing Calibration Verification Requirements**
All associated calibration verification standard(s) (CCV) met the acceptance criteria.

**Quality Control (QC) Information**

**Blank (MB) Statement**
The blank analyzed with this SDG met the acceptance criteria.

**Surrogate Recoveries**
Surrogate recoveries in all client and quality control samples were within the acceptance limits.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recoveries met the acceptance limits.

**QC Sample Designation**
Sample 325410001 (CAMO-13-30616) was designated for spike analysis.

**Matrix Spike (PS) Recovery Statement**
The spike recoveries were within the required acceptance limits.

**Matrix Spike Duplicate (PSD) Recovery Statement**
The spike duplicate recoveries were within the required acceptance limits.

**Relative Percent Difference (RPD) Statement**
The RPD between the matrix spike pair 1202877850 (CAMO-13-30616) and 1202877851 (CAMO-13-30616) were not all within the acceptance limits. See the Data Exception Report in the miscellaneous section of the deliverable.

**Internal Standard (ISTD) Acceptance**
The internal standard responses in all client and quality control samples met the required acceptance criteria.

**Technical Information**

**Holding Time Specifications**
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection or sample receipt. Those holding times expressed in hours are calculated in the ALPHALIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

**Sample Preservation and Integrity**
All samples met the sample preservation and integrity requirements.

**Sample Dilutions/Methanol Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-extraction/Re-analysis**
Samples 325394003(CAMO-13-30559), 1202877850 and 1202877851 were re-analyzed to confirm the original data. The original data results were reported.

**Miscellaneous Information**

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1187759.

**Manual Integrations**
Data files associated with the initial calibration, continuing calibration check, and samples did not require manual integrations.

**TIC Comment**
Tentatively identified compounds (TIC) may be requested for this sample delivery group/work order. Please note that non-requested target analytes that are reported on the quantitation reports will be present on the Form I. These detected analytes are included in the calibrated method and as a result will be reported on the Sample Data Summary (Form I) or Certificate of Analysis (C of A). TIC data, if requested, are included on the Sample Data Summary (Form I) and are also included with the sample raw data.

**Additional Comments**
Additional comments were not required for this SDG.

**Residual Chlorine**
Residual Chlorine was not detected in any of the samples in this SDG.

**System Configuration**

The Volatile-GC/MS analysis was performed on the following instrument configuration:

| Instrument ID | Instrument | System Configuration | Column ID | Column Description | P & T Trap |
|---|---|---|---|---|---|
| VOA9.I | Agilent 6890/5973 GC/MS w/ OI Eclipse/Archon Autosampler | HP6890/HP5973 | DB-624 | J&W, 60m x 0.25mm x 1.4um | Trap 10 |

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all the

requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 − (843) 556−8171 − www.gel.com

## Qualifier Definition Report
## for

ARSL001 ARS International (63641−10)

Client SDG: 2013−813  GEL Work Order: 325394

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

**  Analyte is a surrogate compound

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL  Indicates that sample is diluted.
RA  Indicates that sample is re−analyzed without re−extraction.
RE  Indicates that sample is re−extracted.

**Review/Validation**

GEL requires all analytical data to be verified by a qualified data reviewer.  In addition, all CLP−like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

**Signature:** Erin Haubert  **Name:** **Erin Haubert**

**Date:** **30 MAY 2013**  **Title:** **Data Validator**

# Sample Data Summary

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | **Date Collected:** | **05/07/2013 12:20** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325394001** | **Date Received:** | **05/09/2013 08:50** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30572** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302540** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/17/2013 11:45** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/17/2013 11:45** | | | | |
| **Data File:** | **051713V9\9M513.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 75-71-8 | Dichlorodifluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-01-4 | Vinyl chloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-83-9 | Bromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-64-1 | Acetone | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | U | 25.0 | ug/L | 8.00 | 25.0 |
| 75-35-4 | 1,1-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-15-0 | Carbon disulfide | U | 5.00 | ug/L | 1.50 | 5.00 |
| 1634-04-4 | tert-Butyl methyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-05-4 | Vinyl acetate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-34-3 | 1,1-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | U | 5.00 | ug/L | 2.00 | 5.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-36-3 | n-Butyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 56-23-5 | Carbon tetrachloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-43-2 | Benzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | U | 5.00 | ug/L | 2.20 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | **Date Collected:** | **05/07/2013 12:20** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325394001** | **Date Received:** | **05/09/2013 08:50** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30572** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302540** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/17/2013 11:45** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/17/2013 11:45** | | | | |
| **Data File:** | **051713V9\9M513.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 142-28-9 | 1,3-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-41-4 | Ethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | U | 2.00 | ug/L | 0.300 | 2.00 |
| 95-47-6 | o-Xylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-42-5 | Styrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-82-8 | Isopropylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-43-4 | 4-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 104-51-8 | n-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.400 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | **Date Collected:** | **05/07/2013 12:20** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325394001** | **Date Received:** | **05/09/2013 08:50** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30572** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302540** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/17/2013 11:45** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/17/2013 11:45** | | | | |
| **Data File:** | **051713V9\9M513.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 47.1 | 50.0 | ug/L | 94.3 | (78%-124%) |
| Bromofluorobenzene | 58.3 | 50.0 | ug/L | 117 | (80%-120%) |
| Toluene-d8 | 52.2 | 50.0 | ug/L | 104 | (80%-120%) |

**Tentatively Identified Compound Summary**

| CAS No. | Tentatively Identified Compound (TIC) | RT | Estimated | Units | Fit | Qual |
|---|---|---|---|---|---|---|
| | unknown hydrocarbon | 4.286 | 11.9 | ug/L | 0 | J |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | **Date Collected:** | **05/07/2013 12:20** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325394003** | **Date Received:** | **05/09/2013 08:50** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30559** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302540** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/17/2013 12:12** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/17/2013 12:12** | | | | |
| **Data File:** | **051713V9\9M514.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 75-71-8 | Dichlorodifluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-01-4 | Vinyl chloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-83-9 | Bromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-64-1 | Acetone | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | U | 25.0 | ug/L | 8.00 | 25.0 |
| 75-35-4 | 1,1-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-15-0 | Carbon disulfide | U | 5.00 | ug/L | 1.50 | 5.00 |
| 1634-04-4 | tert-Butyl methyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-05-4 | Vinyl acetate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-34-3 | 1,1-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | U | 5.00 | ug/L | 2.00 | 5.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-36-3 | n-Butyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 56-23-5 | Carbon tetrachloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-43-2 | Benzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | U | 5.00 | ug/L | 2.20 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | **Date Collected:** | **05/07/2013 12:20** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325394003** | **Date Received:** | **05/09/2013 08:50** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30559** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302540** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/17/2013 12:12** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/17/2013 12:12** | | | | |
| **Data File:** | **051713V9\9M514.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 142-28-9 | 1,3-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-41-4 | Ethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | U | 2.00 | ug/L | 0.300 | 2.00 |
| 95-47-6 | o-Xylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-42-5 | Styrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-82-8 | Isopropylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-43-4 | 4-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 104-51-8 | n-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.400 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | **Date Collected:** | **05/07/2013 12:20** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325394003** | **Date Received:** | **05/09/2013 08:50** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30559** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302540** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/17/2013 12:12** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/17/2013 12:12** | | | | |
| **Data File:** | **051713V9\9M514.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 51.6 | 50.0 | ug/L | 103 | (78%-124%) |
| Bromofluorobenzene | 52.6 | 50.0 | ug/L | 105 | (80%-120%) |
| Toluene-d8 | 50.1 | 50.0 | ug/L | 100 | (80%-120%) |

**Tentatively Identified Compound Summary**

| CAS No. | Tentatively Identified Compound (TIC) | RT | Estimated | Units | Fit | Qual |
|---|---|---|---|---|---|---|
| | No Tentatively Identified Compounds Found | | | ug/L | | |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | **Date Collected:** | **05/07/2013 12:20** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325394004** | **Date Received:** | **05/09/2013 08:50** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30561** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302540** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/17/2013 12:40** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/17/2013 12:40** | | | | |
| **Data File:** | **051713V9\9M515.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 75-71-8 | Dichlorodifluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-01-4 | Vinyl chloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-83-9 | Bromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-64-1 | Acetone | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | U | 25.0 | ug/L | 8.00 | 25.0 |
| 75-35-4 | 1,1-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-15-0 | Carbon disulfide | U | 5.00 | ug/L | 1.50 | 5.00 |
| 1634-04-4 | tert-Butyl methyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-05-4 | Vinyl acetate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-34-3 | 1,1-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | U | 5.00 | ug/L | 2.00 | 5.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-36-3 | n-Butyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 56-23-5 | Carbon tetrachloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-43-2 | Benzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | U | 5.00 | ug/L | 2.20 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | **Date Collected:** | **05/07/2013 12:20** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325394004** | **Date Received:** | **05/09/2013 08:50** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30561** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302540** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/17/2013 12:40** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/17/2013 12:40** | | | | |
| **Data File:** | **051713V9\9M515.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 142-28-9 | 1,3-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-41-4 | Ethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | U | 2.00 | ug/L | 0.300 | 2.00 |
| 95-47-6 | o-Xylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-42-5 | Styrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-82-8 | Isopropylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-43-4 | 4-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 104-51-8 | n-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.400 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | **Date Collected:** | **05/07/2013 12:20** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325394004** | **Date Received:** | **05/09/2013 08:50** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30561** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302540** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/17/2013 12:40** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/17/2013 12:40** | | | | |
| **Data File:** | **051713V9\9M515.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 52.8 | 50.0 | ug/L | 106 | (78%-124%) |
| Bromofluorobenzene | 54.9 | 50.0 | ug/L | 110 | (80%-120%) |
| Toluene-d8 | 51.8 | 50.0 | ug/L | 104 | (80%-120%) |

**Tentatively Identified Compound Summary**

| CAS No. | Tentatively Identified Compound (TIC) | RT | Estimated | Units | Fit | Qual |
|---|---|---|---|---|---|---|
| | unknown hydrocarbon | 4.271 | 13.8 | ug/L | 0 | J |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | **Date Collected:** | **05/07/2013 12:20** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325394006** | **Date Received:** | **05/09/2013 08:50** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30566** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302540** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/17/2013 10:23** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/17/2013 10:23** | | | | |
| **Data File:** | **051713V9\9M510.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 75-71-8 | Dichlorodifluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-01-4 | Vinyl chloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-83-9 | Bromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-64-1 | Acetone | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | U | 25.0 | ug/L | 8.00 | 25.0 |
| 75-35-4 | 1,1-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-15-0 | Carbon disulfide | U | 5.00 | ug/L | 1.50 | 5.00 |
| 1634-04-4 | tert-Butyl methyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-05-4 | Vinyl acetate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-34-3 | 1,1-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | U | 5.00 | ug/L | 2.00 | 5.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-36-3 | n-Butyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 56-23-5 | Carbon tetrachloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-43-2 | Benzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | U | 5.00 | ug/L | 2.20 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | **Date Collected:** | **05/07/2013 12:20** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325394006** | **Date Received:** | **05/09/2013 08:50** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30566** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302540** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/17/2013 10:23** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/17/2013 10:23** | | | | |
| **Data File:** | **051713V9\9M510.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 142-28-9 | 1,3-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-41-4 | Ethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | U | 2.00 | ug/L | 0.300 | 2.00 |
| 95-47-6 | o-Xylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-42-5 | Styrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-82-8 | Isopropylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-43-4 | 4-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 104-51-8 | n-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.400 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | **Date Collected:** | **05/07/2013 12:20** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325394006** | **Date Received:** | **05/09/2013 08:50** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30566** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302540** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/17/2013 10:23** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/17/2013 10:23** | | | | |
| **Data File:** | **051713V9\9M510.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 41.2 | 50.0 | ug/L | 82.5 | (78%-124%) |
| Bromofluorobenzene | 56.3 | 50.0 | ug/L | 113 | (80%-120%) |
| Toluene-d8 | 51.9 | 50.0 | ug/L | 104 | (80%-120%) |

**Tentatively Identified Compound Summary**

| CAS No. | Tentatively Identified Compound (TIC) | RT | Estimated | Units | Fit | Qual |
|---|---|---|---|---|---|---|
| | unknown hydrocarbon | 4.197 | 11 | ug/L | 0 | J |
| | unknown hydrocarbon | 4.271 | 13 | ug/L | 0 | J |

# Quality Control Summary

**Volatile**

## Surrogate Recovery Report

**SDG Number: 2013-813**

**Matrix Type: LIQUID**

| Sample ID | Client ID | DCED4 %REC | TOL %REC | BFB %REC |
|---|---|---|---|---|
| 1202877852 | LCS for batch 1302540 | 92 | 97 | 105 |
| 1202877853 | LCS for batch 1302540 | 83 | 91 | 104 |
| 1202877849 | MB for batch 1302540 | 95 | 99 | 109 |
| 325394006 | CAMO-13-30566 | 82 | 104 | 113 |
| 325394001 | CAMO-13-30572 | 94 | 104 | 117 |
| 325394003 | CAMO-13-30559 | 103 | 100 | 105 |
| 325394004 | CAMO-13-30561 | 106 | 104 | 110 |
| 1202877850 | CAMO-13-30616PS | 95 | 101 | 114 |
| 1202877851 | CAMO-13-30616PSD | 94 | 104 | 96 |

| Surrogate | | | Acceptance Limits |
|---|---|---|---|
| DCED4 | = | 1,2-Dichloroethane-d4 | (78%-124%) |
| TOL | = | Toluene-d8 | (80%-120%) |
| BFB | = | Bromofluorobenzene | (80%-120%) |

* Recovery outside Acceptance Limits
# Column to be used to flag recovery values
D Sample Diluted

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-813**
**Client ID:** **CAMO-13-30616PS**
**Lab Sample ID:** **1202877850**
**Instrument:** **VOA9.I**
**Analyst:** **RXY1**
**Purge Vol:** **5 mL**

**Sample Type:** **Post Spike**
**Matrix:** **W**
**Analysis Date:** **05/17/2013 16:45**
**Prep Batch ID:** **1302540**
**Batch ID:** **1302540**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 75-71-8 | PS | Dichlorodifluoromethane | 50.0 | 0.00 | U | 41.4 | 83 | 36-123 |
| 74-87-3 | PS | Chloromethane | 50.0 | 0.00 | U | 50.4 | 101 | 47-134 |
| 75-01-4 | PS | Vinyl chloride | 50.0 | 0.00 | U | 51.1 | 102 | 49-129 |
| 74-83-9 | PS | Bromomethane | 50.0 | 0.00 | U | 48.2 | 96 | 56-127 |
| 75-00-3 | PS | Chloroethane | 50.0 | 0.00 | U | 44.1 | 88 | 67-122 |
| 75-69-4 | PS | Trichlorofluoromethane | 50.0 | 0.00 | U | 45.0 | 90 | 60-123 |
| 60-29-7 | PS | Ethyl ether | 50.0 | 0.00 | U | 38.5 | 77 | 69-121 |
| 67-64-1 | PS | Acetone | 250 | 0.00 | U | 174 | 70 | 30-143 |
| 75-05-8 | PS | Acetonitrile | 1250 | 0.00 | U | 1030 | 83 | 60-133 |
| 75-35-4 | PS | 1,1-Dichloroethylene | 50.0 | 0.00 | U | 52.2 | 104 | 67-132 |
| 74-88-4 | PS | Iodomethane | 250 | 0.00 | U | 213 | 85 | 69-147 |
| 75-09-2 | PS | Methylene chloride | 50.0 | 0.00 | U | 39.9 | 80 | 56-135 |
| 75-15-0 | PS | Carbon disulfide | 250 | 0.00 | U | 235 | 94 | 65-153 |
| 1634-04-4 | PS | tert-Butyl methyl ether | 50.0 | 0.00 | U | 42.9 | 86 | 73-126 |
| 156-60-5 | PS | trans-1,2-Dichloroethylene | 50.0 | 0.00 | U | 44.1 | 88 | 69-128 |
| 108-05-4 | PS | Vinyl acetate | 250 | 0.00 | U | 236 | 94 | 50-143 |
| 75-34-3 | PS | 1,1-Dichloroethane | 50.0 | 0.00 | U | 49.8 | 100 | 75-124 |
| 78-93-3 | PS | 2-Butanone | 250 | 0.00 | U | 208 | 83 | 30-140 |
| 156-59-2 | PS | cis-1,2-Dichloroethylene | 50.0 | 0.00 | U | 46.6 | 93 | 52-147 |
| 594-20-7 | PS | 2,2-Dichloropropane | 50.0 | 0.00 | U | 47.5 | 95 | 67-143 |
| 67-66-3 | PS | Chloroform | 50.0 | 0.00 | U | 41.9 | 84 | 75-125 |
| 74-97-5 | PS | Bromochloromethane | 50.0 | 0.00 | U | 44.4 | 89 | 80-120 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-813**
**Client ID:** **CAMO-13-30616PS**
**Lab Sample ID:** **1202877850**
**Instrument:** **VOA9.I**
**Analyst:** **RXY1**
**Purge Vol:** **5 mL**

**Sample Type:** **Post Spike**
**Matrix:** **W**
**Analysis Date:** **05/17/2013 16:45**
**Prep Batch ID:** **1302540**
**Batch ID:** **1302540**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 71-55-6 | PS | 1,1,1-Trichloroethane | 50.0 | 0.00 | U | 47.4 | 95 | 69-140 |
| 563-58-6 | PS | 1,1-Dichloropropene | 50.0 | 0.00 | U | 45.6 | 91 | 71-130 |
| 71-36-3 | PS | n-Butyl alcohol | 5000 | 0.00 | U | 5610 | 112 | 53-150 |
| 56-23-5 | PS | Carbon tetrachloride | 50.0 | 0.00 | U | 47.2 | 94 | 69-142 |
| 107-06-2 | PS | 1,2-Dichloroethane | 50.0 | 0.00 | U | 44.5 | 89 | 72-126 |
| 71-43-2 | PS | Benzene | 50.0 | 0.00 | U | 50.8 | 102 | 73-119 |
| 79-01-6 | PS | Trichloroethylene | 50.0 | 0.00 | U | 50.6 | 101 | 54-147 |
| 78-87-5 | PS | 1,2-Dichloropropane | 50.0 | 0.00 | U | 42.5 | 85 | 78-123 |
| 75-27-4 | PS | Bromodichloromethane | 50.0 | 0.00 | U | 47.1 | 94 | 76-131 |
| 74-95-3 | PS | Dibromomethane | 50.0 | 0.00 | U | 46.5 | 93 | 79-120 |
| 108-10-1 | PS | 4-Methyl-2-pentanone | 250 | 0.00 | U | 212 | 85 | 68-136 |
| 10061-01-5 | PS | cis-1,3-Dichloropropylene | 50.0 | 0.00 | U | 41.4 | 83 | 72-134 |
| 108-88-3 | PS | Toluene | 50.0 | 0.00 | U | 41.9 | 84 | 62-126 |
| 10061-02-6 | PS | trans-1,3-Dichloropropylene | 50.0 | 0.00 | U | 44.4 | 89 | 72-133 |
| 79-00-5 | PS | 1,1,2-Trichloroethane | 50.0 | 0.00 | U | 38.1 | 76 | 74-120 |
| 591-78-6 | PS | 2-Hexanone | 250 | 0.00 | U | 237 | 95 | 31-132 |
| 142-28-9 | PS | 1,3-Dichloropropane | 50.0 | 0.00 | U | 47.0 | 94 | 73-121 |
| 127-18-4 | PS | Tetrachloroethylene | 50.0 | 0.00 | U | 47.1 | 94 | 54-139 |
| 124-48-1 | PS | Dibromochloromethane | 50.0 | 0.00 | U | 50.6 | 101 | 74-128 |
| 106-93-4 | PS | 1,2-Dibromoethane | 50.0 | 0.00 | U | 49.4 | 99 | 80-120 |
| 108-90-7 | PS | Chlorobenzene | 50.0 | 0.00 | U | 46.0 | 92 | 73-119 |
| 100-41-4 | PS | Ethylbenzene | 50.0 | 0.00 | U | 46.6 | 93 | 66-125 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-813**
**Client ID:** **CAMO-13-30616PS**
**Lab Sample ID:** **1202877850**
**Instrument:** **VOA9.I**
**Analyst:** **RXY1**
**Purge Vol:** **5 mL**

**Sample Type:** **Post Spike**
**Matrix:** **W**
**Analysis Date:** **05/17/2013 16:45**
**Prep Batch ID:** **1302540**
**Batch ID:** **1302540**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 179601-23-1 | PS | m,p-Xylenes | 100 | 0.00 | U | 95.9 | 96 | 56-134 |
| 95-47-6 | PS | o-Xylene | 50.0 | 0.00 | U | 41.1 | 82 | 68-126 |
| 100-42-5 | PS | Styrene | 50.0 | 0.00 | U | 43.8 | 88 | 57-138 |
| 75-25-2 | PS | Bromoform | 50.0 | 0.00 | U | 53.0 | 106 | 66-129 |
| 79-34-5 | PS | 1,1,2,2-Tetrachloroethane | 50.0 | 0.00 | U | 44.7 | 89 | 44-146 |
| 96-18-4 | PS | 1,2,3-Trichloropropane | 50.0 | 0.00 | U | 48.3 | 97 | 68-129 |
| 108-86-1 | PS | Bromobenzene | 50.0 | 0.00 | U | 46.0 | 92 | 70-122 |
| 103-65-1 | PS | n-Propylbenzene | 50.0 | 0.00 | U | 45.2 | 90 | 61-131 |
| 95-49-8 | PS | 2-Chlorotoluene | 50.0 | 0.00 | U | 46.5 | 93 | 66-126 |
| 98-82-8 | PS | Isopropylbenzene | 50.0 | 0.00 | U | 46.3 | 93 | 65-130 |
| 108-67-8 | PS | 1,3,5-Trimethylbenzene | 50.0 | 0.00 | U | 45.7 | 91 | 58-134 |
| 106-43-4 | PS | 4-Chlorotoluene | 50.0 | 0.00 | U | 43.2 | 86 | 63-125 |
| 98-06-6 | PS | tert-Butylbenzene | 50.0 | 0.00 | U | 51.3 | 103 | 66-129 |
| 95-63-6 | PS | 1,2,4-Trimethylbenzene | 50.0 | 0.00 | U | 51.0 | 102 | 60-131 |
| 135-98-8 | PS | sec-Butylbenzene | 50.0 | 0.00 | U | 46.7 | 93 | 62-130 |
| 99-87-6 | PS | 4-Isopropyltoluene | 50.0 | 0.00 | U | 48.1 | 96 | 62-132 |
| 541-73-1 | PS | 1,3-Dichlorobenzene | 50.0 | 0.00 | U | 49.2 | 98 | 66-121 |
| 106-46-7 | PS | 1,4-Dichlorobenzene | 50.0 | 0.00 | U | 46.2 | 92 | 65-119 |
| 104-51-8 | PS | n-Butylbenzene | 50.0 | 0.00 | U | 54.9 | 110 | 55-134 |
| 96-12-8 | PS | 1,2-Dibromo-3-chloropropane | 50.0 | 0.00 | U | 53.2 | 106 | 58-137 |
| 87-68-3 | PS | Hexachlorobutadiene | 50.0 | 0.00 | U | 44.5 | 89 | 49-139 |
| 91-20-3 | PS | Naphthalene | 50.0 | 0.00 | U | 47.9 | 96 | 46-145 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-813**
**Sample Type:** **Post Spike**
**Client ID:** **CAMO-13-30616PS**
**Matrix:** **W**
**Lab Sample ID:** **1202877850**
**Instrument:** **VOA9.I**
**Analysis Date:** **05/17/2013 16:45**
**Dilution: 1**
**Analyst:** **RXY1**
**Prep Batch ID:** **1302540**
**Purge Vol:** **5 mL**
**Batch ID:** **1302540**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 87-61-6 | PS | 1,2,3-Trichlorobenzene | 50.0 | 0.00 | U | 43.1 | 86 | 54-134 |
| 630-20-6 | PS | 1,1,1,2-Tetrachloroethane | 50.0 | 0.00 | U | 45.2 | 90 | 79-128 |
| 120-82-1 | PS | 1,2,4-Trichlorobenzene | 50.0 | 0.00 | U | 42.5 | 85 | 55-128 |
| 95-50-1 | PS | 1,2-Dichlorobenzene | 50.0 | 0.00 | U | 48.5 | 97 | 68-121 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-813**
**Client ID:** **CAMO-13-30616PSD**
**Lab Sample ID:** **1202877851**
**Instrument:** **VOA9.I**
**Analyst:** **RXY1**
**Purge Vol:** **5 mL**

**Sample Type:** **Post Spike Duplicate**
**Matrix:** **W**
**Analysis Date:** **05/17/2013 17:13**
**Prep Batch ID:** **1302540**
**Batch ID:** **1302540**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 75-71-8 | PSD | Dichlorodifluoromethane | 50.0 | 0.00 | U | 38.1 | 76 | 36-123 | 8 | 0-20 |
| 74-87-3 | PSD | Chloromethane | 50.0 | 0.00 | U | 45.8 | 92 | 47-134 | 10 | 0-20 |
| 75-01-4 | PSD | Vinyl chloride | 50.0 | 0.00 | U | 46.6 | 93 | 49-129 | 9 | 0-20 |
| 74-83-9 | PSD | Bromomethane | 50.0 | 0.00 | U | 42.5 | 85 | 56-127 | 13 | 0-20 |
| 75-00-3 | PSD | Chloroethane | 50.0 | 0.00 | U | 48.2 | 96 | 67-122 | 9 | 0-20 |
| 75-69-4 | PSD | Trichlorofluoromethane | 50.0 | 0.00 | U | 39.9 | 80 | 60-123 | 12 | 0-20 |
| 60-29-7 | PSD | Ethyl ether | 50.0 | 0.00 | U | 41.8 | 84 | 69-121 | 8 | 0-20 |
| 67-64-1 | PSD | Acetone | 250 | 0.00 | U | 129 | 52 | 30-143 | 30 * | 0-20 |
| 75-05-8 | PSD | Acetonitrile | 1250 | 0.00 | U | 937 | 75 | 60-133 | 10 | 0-20 |
| 75-35-4 | PSD | 1,1-Dichloroethylene | 50.0 | 0.00 | U | 40.1 | 80 | 67-132 | 26 * | 0-20 |
| 74-88-4 | PSD | Iodomethane | 250 | 0.00 | U | 187 | 75 | 69-147 | 13 | 0-20 |
| 75-09-2 | PSD | Methylene chloride | 50.0 | 0.00 | U | 37.3 | 75 | 56-135 | 7 | 0-20 |
| 75-15-0 | PSD | Carbon disulfide | 250 | 0.00 | U | 211 | 85 | 65-153 | 11 | 0-20 |
| 1634-04-4 | PSD | tert-Butyl methyl ether | 50.0 | 0.00 | U | 37.6 | 75 | 73-126 | 13 | 0-20 |
| 156-60-5 | PSD | trans-1,2-Dichloroethylene | 50.0 | 0.00 | U | 37.3 | 75 | 69-128 | 17 | 0-20 |
| 108-05-4 | PSD | Vinyl acetate | 250 | 0.00 | U | 186 | 75 | 50-143 | 23 * | 0-20 |
| 75-34-3 | PSD | 1,1-Dichloroethane | 50.0 | 0.00 | U | 45.6 | 91 | 75-124 | 9 | 0-20 |
| 78-93-3 | PSD | 2-Butanone | 250 | 0.00 | U | 197 | 79 | 30-140 | 6 | 0-20 |
| 156-59-2 | PSD | cis-1,2-Dichloroethylene | 50.0 | 0.00 | U | 44.5 | 89 | 52-147 | 5 | 0-20 |
| 594-20-7 | PSD | 2,2-Dichloropropane | 50.0 | 0.00 | U | 43.7 | 87 | 67-143 | 8 | 0-20 |
| 67-66-3 | PSD | Chloroform | 50.0 | 0.00 | U | 43.4 | 87 | 75-125 | 4 | 0-20 |
| 74-97-5 | PSD | Bromochloromethane | 50.0 | 0.00 | U | 44.2 | 88 | 80-120 | 0 | 0-20 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-813**
**Client ID:** **CAMO-13-30616PSD**
**Lab Sample ID:** **1202877851**
**Instrument:** **VOA9.I**
**Analyst:** **RXY1**
**Purge Vol:** **5 mL**

**Sample Type:** **Post Spike Duplicate**
**Matrix:** **W**
**Analysis Date:** **05/17/2013 17:13**
**Prep Batch ID:** **1302540**
**Batch ID:** **1302540**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 71-55-6 | PSD | 1,1,1-Trichloroethane | 50.0 | 0.00 | U | 44.7 | 89 | 69-140 | 6 | 0-20 |
| 563-58-6 | PSD | 1,1-Dichloropropene | 50.0 | 0.00 | U | 47.1 | 94 | 71-130 | 3 | 0-20 |
| 71-36-3 | PSD | n-Butyl alcohol | 5000 | 0.00 | U | 5950 | 119 | 53-150 | 6 | 0-20 |
| 56-23-5 | PSD | Carbon tetrachloride | 50.0 | 0.00 | U | 46.0 | 92 | 69-142 | 3 | 0-20 |
| 107-06-2 | PSD | 1,2-Dichloroethane | 50.0 | 0.00 | U | 40.0 | 80 | 72-126 | 11 | 0-20 |
| 71-43-2 | PSD | Benzene | 50.0 | 0.00 | U | 46.4 | 93 | 73-119 | 9 | 0-20 |
| 79-01-6 | PSD | Trichloroethylene | 50.0 | 0.00 | U | 46.0 | 92 | 54-147 | 10 | 0-20 |
| 78-87-5 | PSD | 1,2-Dichloropropane | 50.0 | 0.00 | U | 45.7 | 91 | 78-123 | 7 | 0-20 |
| 75-27-4 | PSD | Bromodichloromethane | 50.0 | 0.00 | U | 45.0 | 90 | 76-131 | 5 | 0-20 |
| 74-95-3 | PSD | Dibromomethane | 50.0 | 0.00 | U | 43.9 | 88 | 79-120 | 6 | 0-20 |
| 108-10-1 | PSD | 4-Methyl-2-pentanone | 250 | 0.00 | U | 237 | 95 | 68-136 | 11 | 0-20 |
| 10061-01-5 | PSD | cis-1,3-Dichloropropylene | 50.0 | 0.00 | U | 47.3 | 95 | 72-134 | 14 | 0-20 |
| 108-88-3 | PSD | Toluene | 50.0 | 0.00 | U | 45.0 | 90 | 62-126 | 7 | 0-20 |
| 10061-02-6 | PSD | trans-1,3-Dichloropropylene | 50.0 | 0.00 | U | 44.3 | 89 | 72-133 | 0 | 0-20 |
| 79-00-5 | PSD | 1,1,2-Trichloroethane | 50.0 | 0.00 | U | 45.9 | 92 | 74-120 | 19 | 0-20 |
| 591-78-6 | PSD | 2-Hexanone | 250 | 0.00 | U | 213 | 85 | 31-132 | 11 | 0-20 |
| 142-28-9 | PSD | 1,3-Dichloropropane | 50.0 | 0.00 | U | 43.3 | 87 | 73-121 | 8 | 0-20 |
| 127-18-4 | PSD | Tetrachloroethylene | 50.0 | 0.00 | U | 44.0 | 88 | 54-139 | 7 | 0-20 |
| 124-48-1 | PSD | Dibromochloromethane | 50.0 | 0.00 | U | 48.3 | 97 | 74-128 | 5 | 0-20 |
| 106-93-4 | PSD | 1,2-Dibromoethane | 50.0 | 0.00 | U | 46.8 | 94 | 80-120 | 5 | 0-20 |
| 108-90-7 | PSD | Chlorobenzene | 50.0 | 0.00 | U | 43.8 | 88 | 73-119 | 5 | 0-20 |
| 100-41-4 | PSD | Ethylbenzene | 50.0 | 0.00 | U | 43.4 | 87 | 66-125 | 7 | 0-20 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-813**
**Client ID:** **CAMO-13-30616PSD**
**Lab Sample ID:** **1202877851**
**Instrument:** **VOA9.I**
**Analyst:** **RXY1**
**Purge Vol:** **5 mL**

**Sample Type:** **Post Spike Duplicate**
**Matrix:** **W**
**Analysis Date:** **05/17/2013 17:13**
**Prep Batch ID:** **1302540**
**Batch ID:** **1302540**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 179601-23-1 | PSD | m,p-Xylenes | 100 | 0.00 | U | 88.1 | 88 | 56-134 | 9 | 0-20 |
| 95-47-6 | PSD | o-Xylene | 50.0 | 0.00 | U | 39.3 | 79 | 68-126 | 4 | 0-20 |
| 100-42-5 | PSD | Styrene | 50.0 | 0.00 | U | 40.8 | 82 | 57-138 | 7 | 0-20 |
| 75-25-2 | PSD | Bromoform | 50.0 | 0.00 | U | 48.6 | 97 | 66-129 | 9 | 0-20 |
| 79-34-5 | PSD | 1,1,2,2-Tetrachloroethane | 50.0 | 0.00 | U | 43.6 | 87 | 44-146 | 3 | 0-20 |
| 96-18-4 | PSD | 1,2,3-Trichloropropane | 50.0 | 0.00 | U | 45.5 | 91 | 68-129 | 6 | 0-20 |
| 108-86-1 | PSD | Bromobenzene | 50.0 | 0.00 | U | 46.5 | 93 | 70-122 | 1 | 0-20 |
| 103-65-1 | PSD | n-Propylbenzene | 50.0 | 0.00 | U | 46.7 | 93 | 61-131 | 3 | 0-20 |
| 95-49-8 | PSD | 2-Chlorotoluene | 50.0 | 0.00 | U | 46.5 | 93 | 66-126 | 0 | 0-20 |
| 98-82-8 | PSD | Isopropylbenzene | 50.0 | 0.00 | U | 42.4 | 85 | 65-130 | 9 | 0-20 |
| 108-67-8 | PSD | 1,3,5-Trimethylbenzene | 50.0 | 0.00 | U | 45.6 | 91 | 58-134 | 0 | 0-20 |
| 106-43-4 | PSD | 4-Chlorotoluene | 50.0 | 0.00 | U | 45.0 | 90 | 63-125 | 4 | 0-20 |
| 98-06-6 | PSD | tert-Butylbenzene | 50.0 | 0.00 | U | 45.8 | 92 | 66-129 | 11 | 0-20 |
| 95-63-6 | PSD | 1,2,4-Trimethylbenzene | 50.0 | 0.00 | U | 44.7 | 89 | 60-131 | 13 | 0-20 |
| 135-98-8 | PSD | sec-Butylbenzene | 50.0 | 0.00 | U | 47.9 | 96 | 62-130 | 3 | 0-20 |
| 99-87-6 | PSD | 4-Isopropyltoluene | 50.0 | 0.00 | U | 45.4 | 91 | 62-132 | 6 | 0-20 |
| 541-73-1 | PSD | 1,3-Dichlorobenzene | 50.0 | 0.00 | U | 42.8 | 86 | 66-121 | 14 | 0-20 |
| 106-46-7 | PSD | 1,4-Dichlorobenzene | 50.0 | 0.00 | U | 44.2 | 88 | 65-119 | 5 | 0-20 |
| 104-51-8 | PSD | n-Butylbenzene | 50.0 | 0.00 | U | 48.3 | 97 | 55-134 | 13 | 0-20 |
| 96-12-8 | PSD | 1,2-Dibromo-3-chloropropane | 50.0 | 0.00 | U | 48.8 | 98 | 58-137 | 9 | 0-20 |
| 87-68-3 | PSD | Hexachlorobutadiene | 50.0 | 0.00 | U | 41.8 | 84 | 49-139 | 6 | 0-20 |
| 91-20-3 | PSD | Naphthalene | 50.0 | 0.00 | U | 43.9 | 88 | 46-145 | 9 | 0-20 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-813**
**Sample Type:** **Post Spike Duplicate**
**Client ID:** **CAMO-13-30616PSD**
**Matrix:** **W**
**Lab Sample ID:** **1202877851**
**Instrument:** **VOA9.I**
**Analysis Date:** **05/17/2013 17:13**
**Dilution: 1**
**Analyst:** **RXY1**
**Prep Batch ID:** **1302540**
**Purge Vol:** **5 mL**
**Batch ID:** **1302540**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 87-61-6 | PSD | 1,2,3-Trichlorobenzene | 50.0 | 0.00 | U | 39.0 | 78 | 54-134 | 10 | 0-20 |
| 630-20-6 | PSD | 1,1,1,2-Tetrachloroethane | 50.0 | 0.00 | U | 42.8 | 86 | 79-128 | 6 | 0-20 |
| 120-82-1 | PSD | 1,2,4-Trichlorobenzene | 50.0 | 0.00 | U | 41.3 | 83 | 55-128 | 3 | 0-20 |
| 95-50-1 | PSD | 1,2-Dichlorobenzene | 50.0 | 0.00 | U | 43.2 | 86 | 68-121 | 12 | 0-20 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-813**
**Client ID:** **LCS for batch 1302540**
**Lab Sample ID:** **1202877852**
**Instrument:** **VOA9.I**
**Analyst:** **RXY1**
**Purge Vol:** **5 mL**

**Sample Type:** **Laboratory Control Sample**
**Matrix:** **WATER**
**Analysis Date:** **05/17/2013 07:40**
**Prep Batch ID:** **1302540**
**Batch ID:** **1302540**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 75-71-8 | LCS | Dichlorodifluoromethane | 50.0 | 0.0 | 49.4 | 99 | 39-124 |
| 74-87-3 | LCS | Chloromethane | 50.0 | 0.0 | 56.9 | 114 | 57-126 |
| 75-01-4 | LCS | Vinyl chloride | 50.0 | 0.0 | 56.3 | 113 | 62-121 |
| 74-83-9 | LCS | Bromomethane | 50.0 | 0.0 | 51.3 | 103 | 68-120 |
| 75-00-3 | LCS | Chloroethane | 50.0 | 0.0 | 51.6 | 103 | 73-120 |
| 75-69-4 | LCS | Trichlorofluoromethane | 50.0 | 0.0 | 50.5 | 101 | 65-123 |
| 60-29-7 | LCS | Ethyl ether | 50.0 | 0.0 | 43.0 | 86 | 74-120 |
| 67-64-1 | LCS | Acetone | 250 | 0.0 | 185 | 74 | 36-163 |
| 75-05-8 | LCS | Acetonitrile | 1250 | 0.0 | 1130 | 91 | 64-127 |
| 75-35-4 | LCS | 1,1-Dichloroethylene | 50.0 | 0.0 | 51.9 | 104 | 76-127 |
| 74-88-4 | LCS | Iodomethane | 250 | 0.0 | 217 | 87 | 80-134 |
| 75-09-2 | LCS | Methylene chloride | 50.0 | 0.0 | 45.8 | 92 | 72-121 |
| 75-15-0 | LCS | Carbon disulfide | 250 | 0.0 | 265 | 106 | 80-143 |
| 1634-04-4 | LCS | tert-Butyl methyl ether | 50.0 | 0.0 | 44.3 | 89 | 76-123 |
| 156-60-5 | LCS | trans-1,2-Dichloroethylene | 50.0 | 0.0 | 50.5 | 101 | 77-123 |
| 108-05-4 | LCS | Vinyl acetate | 250 | 0.0 | 236 | 94 | 75-144 |
| 75-34-3 | LCS | 1,1-Dichloroethane | 50.0 | 0.0 | 50.4 | 101 | 79-120 |
| 78-93-3 | LCS | 2-Butanone | 250 | 0.0 | 251 | 101 | 46-158 |
| 156-59-2 | LCS | cis-1,2-Dichloroethylene | 50.0 | 0.0 | 51.8 | 104 | 80-122 |
| 594-20-7 | LCS | 2,2-Dichloropropane | 50.0 | 0.0 | 52.4 | 105 | 76-145 |
| 67-66-3 | LCS | Chloroform | 50.0 | 0.0 | 49.1 | 98 | 80-120 |
| 74-97-5 | LCS | Bromochloromethane | 50.0 | 0.0 | 46.8 | 94 | 83-120 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-813**
**Client ID:** **LCS for batch 1302540**
**Lab Sample ID:** **1202877852**
**Instrument:** **VOA9.I**
**Analyst:** **RXY1**
**Purge Vol:** **5 mL**

**Sample Type:** **Laboratory Control Sample**
**Matrix:** **WATER**
**Analysis Date:** **05/17/2013 07:40**
**Prep Batch ID:** **1302540**
**Batch ID:** **1302540**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 71-55-6 | LCS | 1,1,1-Trichloroethane | 50.0 | 0.0 | 49.3 | 99 | 80-133 |
| 563-58-6 | LCS | 1,1-Dichloropropene | 50.0 | 0.0 | 51.9 | 104 | 80-127 |
| 71-36-3 | LCS | n-Butyl alcohol | 5000 | 0.0 | 5380 | 108 | 66-138 |
| 56-23-5 | LCS | Carbon tetrachloride | 50.0 | 0.0 | 51.1 | 102 | 77-139 |
| 107-06-2 | LCS | 1,2-Dichloroethane | 50.0 | 0.0 | 45.1 | 90 | 75-121 |
| 71-43-2 | LCS | Benzene | 50.0 | 0.0 | 52.8 | 106 | 79-120 |
| 79-01-6 | LCS | Trichloroethylene | 50.0 | 0.0 | 51.5 | 103 | 80-121 |
| 78-87-5 | LCS | 1,2-Dichloropropane | 50.0 | 0.0 | 48.8 | 98 | 80-120 |
| 75-27-4 | LCS | Bromodichloromethane | 50.0 | 0.0 | 49.9 | 100 | 80-127 |
| 74-95-3 | LCS | Dibromomethane | 50.0 | 0.0 | 46.7 | 93 | 80-120 |
| 108-10-1 | LCS | 4-Methyl-2-pentanone | 250 | 0.0 | 224 | 90 | 76-131 |
| 10061-01-5 | LCS | cis-1,3-Dichloropropylene | 50.0 | 0.0 | 50.9 | 102 | 80-127 |
| 108-88-3 | LCS | Toluene | 50.0 | 0.0 | 49.2 | 98 | 77-120 |
| 10061-02-6 | LCS | trans-1,3-Dichloropropylene | 50.0 | 0.0 | 47.6 | 95 | 80-128 |
| 79-00-5 | LCS | 1,1,2-Trichloroethane | 50.0 | 0.0 | 49.7 | 99 | 79-120 |
| 591-78-6 | LCS | 2-Hexanone | 250 | 0.0 | 270 | 108 | 53-158 |
| 142-28-9 | LCS | 1,3-Dichloropropane | 50.0 | 0.0 | 46.9 | 94 | 77-120 |
| 127-18-4 | LCS | Tetrachloroethylene | 50.0 | 0.0 | 49.5 | 99 | 77-125 |
| 124-48-1 | LCS | Dibromochloromethane | 50.0 | 0.0 | 50.5 | 101 | 77-126 |
| 106-93-4 | LCS | 1,2-Dibromoethane | 50.0 | 0.0 | 46.7 | 93 | 80-120 |
| 108-90-7 | LCS | Chlorobenzene | 50.0 | 0.0 | 47.1 | 94 | 80-120 |
| 100-41-4 | LCS | Ethylbenzene | 50.0 | 0.0 | 48.0 | 96 | 78-120 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-813**
**Client ID:** **LCS for batch 1302540**
**Lab Sample ID:** **1202877852**
**Instrument:** **VOA9.I**
**Analyst:** **RXY1**
**Purge Vol:** **5 mL**

**Sample Type:** **Laboratory Control Sample**
**Matrix:** **WATER**
**Analysis Date:** **05/17/2013 07:40**
**Prep Batch ID:** **1302540**
**Batch ID:** **1302540**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 179601-23-1 | LCS | m,p-Xylenes | 100 | 0.0 | 97.4 | 97 | 79-120 |
| 95-47-6 | LCS | o-Xylene | 50.0 | 0.0 | 49.8 | 100 | 80-120 |
| 100-42-5 | LCS | Styrene | 50.0 | 0.0 | 52.8 | 106 | 80-121 |
| 75-25-2 | LCS | Bromoform | 50.0 | 0.0 | 56.2 | 112 | 72-125 |
| 79-34-5 | LCS | 1,1,2,2-Tetrachloroethane | 50.0 | 0.0 | 48.4 | 97 | 73-120 |
| 96-18-4 | LCS | 1,2,3-Trichloropropane | 50.0 | 0.0 | 44.4 | 89 | 74-121 |
| 108-86-1 | LCS | Bromobenzene | 50.0 | 0.0 | 46.9 | 94 | 79-120 |
| 103-65-1 | LCS | n-Propylbenzene | 50.0 | 0.0 | 49.7 | 99 | 75-125 |
| 95-49-8 | LCS | 2-Chlorotoluene | 50.0 | 0.0 | 47.8 | 96 | 77-121 |
| 98-82-8 | LCS | Isopropylbenzene | 50.0 | 0.0 | 53.4 | 107 | 76-125 |
| 108-67-8 | LCS | 1,3,5-Trimethylbenzene | 50.0 | 0.0 | 49.1 | 98 | 77-123 |
| 106-43-4 | LCS | 4-Chlorotoluene | 50.0 | 0.0 | 53.5 | 107 | 75-120 |
| 98-06-6 | LCS | tert-Butylbenzene | 50.0 | 0.0 | 48.8 | 98 | 79-123 |
| 95-63-6 | LCS | 1,2,4-Trimethylbenzene | 50.0 | 0.0 | 50.8 | 102 | 77-121 |
| 135-98-8 | LCS | sec-Butylbenzene | 50.0 | 0.0 | 53.5 | 107 | 76-124 |
| 99-87-6 | LCS | 4-Isopropyltoluene | 50.0 | 0.0 | 51.0 | 102 | 79-125 |
| 541-73-1 | LCS | 1,3-Dichlorobenzene | 50.0 | 0.0 | 48.7 | 97 | 78-120 |
| 106-46-7 | LCS | 1,4-Dichlorobenzene | 50.0 | 0.0 | 47.6 | 95 | 77-120 |
| 104-51-8 | LCS | n-Butylbenzene | 50.0 | 0.0 | 55.0 | 110 | 75-127 |
| 96-12-8 | LCS | 1,2-Dibromo-3-chloropropane | 50.0 | 0.0 | 48.2 | 96 | 69-128 |
| 87-68-3 | LCS | Hexachlorobutadiene | 50.0 | 0.0 | 42.0 | 84 | 75-128 |
| 91-20-3 | LCS | Naphthalene | 50.0 | 0.0 | 41.0 | 82 | 71-125 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-813**
**Client ID:** **LCS for batch 1302540**
**Lab Sample ID:** **1202877852**
**Instrument:** **VOA9.I**
**Analyst:** **RXY1**
**Purge Vol:** **5 mL**

**Sample Type:** **Laboratory Control Sample**
**Matrix:** **WATER**
**Analysis Date:** **05/17/2013 07:40**
**Prep Batch ID:** **1302540**
**Batch ID:** **1302540**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 87-61-6 | LCS | 1,2,3-Trichlorobenzene | 50.0 | 0.0 | 39.8 | 80 | 73-125 |
| 630-20-6 | LCS | 1,1,1,2-Tetrachloroethane | 50.0 | 0.0 | 45.9 | 92 | 80-124 |
| 120-82-1 | LCS | 1,2,4-Trichlorobenzene | 50.0 | 0.0 | 41.9 | 84 | 75-123 |
| 95-50-1 | LCS | 1,2-Dichlorobenzene | 50.0 | 0.0 | 46.0 | 92 | 79-120 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-813**
**Client ID:** **LCS for batch 1302540**
**Lab Sample ID:** **1202877853**
**Instrument:** **VOA9.I**
**Analyst:** **RXY1**
**Purge Vol:** **5 mL**

**Sample Type:** **Laboratory Control Sample**
**Matrix:** **WATER**
**Analysis Date:** **05/17/2013 09:01**
**Prep Batch ID:** **1302540**
**Batch ID:** **1302540**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 107-02-8 | LCS | Acrolein | 250 | 0.0 | 208 | 83 | 28-152 |
| 76-13-1 | LCS | Trichlorotrifluoroethane | 250 | 0.0 | 238 | 95 | 65-157 |
| 107-05-1 | LCS | Allyl chloride | 250 | 0.0 | 229 | 92 | 60-135 |
| 107-13-1 | LCS | Acrylonitrile | 250 | 0.0 | 218 | 87 | 64-131 |
| 126-99-8 | LCS | 2-Chloro-1,3-butadiene | 50.0 | 0.0 | 39.9 | 80 | 45-159 |
| 107-12-0 | LCS | Propionitrile | 250 | 0.0 | 218 | 87 | 67-135 |
| 126-98-7 | LCS | Methacrylonitrile | 250 | 0.0 | 221 | 88 | 64-132 |
| 78-83-1 | LCS | Isobutyl alcohol | 2500 | 0.0 | 2480 | 99 | 60-136 |
| 80-62-6 | LCS | Methyl methacrylate | 250 | 0.0 | 214 | 86 | 66-129 |
| 97-63-2 | LCS | Ethyl methacrylate | 250 | 0.0 | 226 | 90 | 66-132 |

## Method Blank Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | **Client:** | **ARSL001** | **Matrix:** | **WATER** |
| **Client ID:** | **MB for batch 1302540** | **Instrument ID:** | **VOA9.I** | **Data File:** | **051713V9\9M509B3.D** |
| **Lab Sample ID:** | **1202877849** | **Prep Date:** | **05/17/2013 09:56** | **Analyzed:** | **05/17/13 09:56** |
| **Column:** | **DB-624** | | | | |

**This method blank applies to the following samples and quality control samples:**

| | Client Sample ID | Lab Sample ID | File ID | Date Analyzed | Time Analyzed |
|---|---|---|---|---|---|
| 01 | LCS for batch 1302540 | 1202877852 | 051713V9\9M504L3.D | 05/17/13 | 0740 |
| 02 | LCS for batch 1302540 | 1202877853 | 051713V9\9M507L3.D | 05/17/13 | 0901 |
| 03 | CAMO-13-30566 | 325394006 | 051713V9\9M510.D | 05/17/13 | 1023 |
| 04 | CAMO-13-30572 | 325394001 | 051713V9\9M513.D | 05/17/13 | 1145 |
| 05 | CAMO-13-30559 | 325394003 | 051713V9\9M514.D | 05/17/13 | 1212 |
| 06 | CAMO-13-30561 | 325394004 | 051713V9\9M515.D | 05/17/13 | 1240 |
| 07 | CAMO-13-30616PS | 1202877850 | 051713V9\9M524.D | 05/17/13 | 1645 |
| 08 | CAMO-13-30616PSD | 1202877851 | 051713V9\9M525.D | 05/17/13 | 1713 |

# Quality Control Data

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202877849** | | | | |
| **Client Sample:** | **QC for batch 1302540** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **MB for batch 1302540** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302540** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/17/2013 09:56** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/17/2013 09:56** | | | | |
| **Data File:** | **051713V9\9M509B3.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 75-71-8 | Dichlorodifluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-01-4 | Vinyl chloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-83-9 | Bromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-64-1 | Acetone | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | U | 25.0 | ug/L | 8.00 | 25.0 |
| 75-35-4 | 1,1-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-15-0 | Carbon disulfide | U | 5.00 | ug/L | 1.50 | 5.00 |
| 1634-04-4 | tert-Butyl methyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-05-4 | Vinyl acetate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-34-3 | 1,1-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | U | 5.00 | ug/L | 2.00 | 5.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-36-3 | n-Butyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 56-23-5 | Carbon tetrachloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-43-2 | Benzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | U | 5.00 | ug/L | 2.20 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202877849** | | | | |
| **Client Sample:** | **QC for batch 1302540** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **MB for batch 1302540** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302540** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/17/2013 09:56** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/17/2013 09:56** | | | | |
| **Data File:** | **051713V9\9M509B3.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 142-28-9 | 1,3-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-41-4 | Ethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | U | 2.00 | ug/L | 0.300 | 2.00 |
| 95-47-6 | o-Xylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-42-5 | Styrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-82-8 | Isopropylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-43-4 | 4-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 104-51-8 | n-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.400 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202877849** | | | | |
| **Client Sample:** | **QC for batch 1302540** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **MB for batch 1302540** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302540** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/17/2013 09:56** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/17/2013 09:56** | | | | |
| **Data File:** | **051713V9\9M509B3.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 47.7 | 50.0 | ug/L | 95.3 | (78%-124%) |
| Bromofluorobenzene | 54.6 | 50.0 | ug/L | 109 | (80%-120%) |
| Toluene-d8 | 49.6 | 50.0 | ug/L | 99.3 | (80%-120%) |

**Tentatively Identified Compound Summary**

| CAS No. | Tentatively Identified Compound (TIC) | RT | Estimated | Units | Fit | Qual |
|---|---|---|---|---|---|---|
| | unknown hydrocarbon | 4.197 | 6.69 | ug/L | 0 | J |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | **Date Collected:** | **05/07/2013 12:58** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202877850** | **Date Received:** | **05/09/2013 08:50** | | |
| **Client Sample:** | **QC for batch 1302540** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **CAMO-13-30616PS** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302540** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/17/2013 16:45** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/17/2013 16:45** | | | | |
| **Data File:** | **051713V9\9M524.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 75-71-8 | Dichlorodifluoromethane | | 41.4 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | | 50.4 | ug/L | 0.300 | 1.00 |
| 75-01-4 | Vinyl chloride | | 51.1 | ug/L | 0.300 | 1.00 |
| 74-83-9 | Bromomethane | | 48.2 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | | 44.1 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | | 45.0 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | | 38.5 | ug/L | 0.300 | 1.00 |
| 67-64-1 | Acetone | | 174 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | | 1030 | ug/L | 8.00 | 25.0 |
| 75-35-4 | 1,1-Dichloroethylene | | 52.2 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | | 213 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | | 39.9 | ug/L | 3.00 | 10.0 |
| 75-15-0 | Carbon disulfide | | 235 | ug/L | 1.50 | 5.00 |
| 1634-04-4 | tert-Butyl methyl ether | | 42.9 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | | 44.1 | ug/L | 0.300 | 1.00 |
| 108-05-4 | Vinyl acetate | | 236 | ug/L | 1.50 | 5.00 |
| 75-34-3 | 1,1-Dichloroethane | | 49.8 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | | 208 | ug/L | 2.00 | 5.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | | 46.6 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | | 47.5 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | | 41.9 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | | 44.4 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | | 47.4 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | | 45.6 | ug/L | 0.300 | 1.00 |
| 71-36-3 | n-Butyl alcohol | | 5610 | ug/L | 15.0 | 50.0 |
| 56-23-5 | Carbon tetrachloride | | 47.2 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | | 44.5 | ug/L | 0.300 | 1.00 |
| 71-43-2 | Benzene | | 50.8 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | | 50.6 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | | 42.5 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | | 47.1 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | | 46.5 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | | 212 | ug/L | 1.50 | 5.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | | 41.4 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | | 41.9 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | | 44.4 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | | 38.1 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | | 237 | ug/L | 2.20 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | **Date Collected:** | **05/07/2013 12:58** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202877850** | **Date Received:** | **05/09/2013 08:50** | | |
| **Client Sample:** | **QC for batch 1302540** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **CAMO-13-30616PS** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302540** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/17/2013 16:45** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/17/2013 16:45** | | | | |
| **Data File:** | **051713V9\9M524.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 142-28-9 | 1,3-Dichloropropane | | 47.0 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | | 47.1 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | | 50.6 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | | 49.4 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | | 46.0 | ug/L | 0.300 | 1.00 |
| 100-41-4 | Ethylbenzene | | 46.6 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | | 95.9 | ug/L | 0.300 | 2.00 |
| 95-47-6 | o-Xylene | | 41.1 | ug/L | 0.300 | 1.00 |
| 100-42-5 | Styrene | | 43.8 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | | 53.0 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | | 44.7 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | | 48.3 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | | 46.0 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | | 45.2 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | | 46.5 | ug/L | 0.300 | 1.00 |
| 98-82-8 | Isopropylbenzene | | 46.3 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | | 45.7 | ug/L | 0.300 | 1.00 |
| 106-43-4 | 4-Chlorotoluene | | 43.2 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | | 51.3 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | | 51.0 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | | 46.7 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | | 48.1 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | | 49.2 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | | 46.2 | ug/L | 0.300 | 1.00 |
| 104-51-8 | n-Butylbenzene | | 54.9 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | | 53.2 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | | 44.5 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | | 47.9 | ug/L | 0.400 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | | 43.1 | ug/L | 0.300 | 1.00 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | **Date Collected:** | **05/07/2013 12:58** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202877850** | **Date Received:** | **05/09/2013 08:50** | | |
| **Client Sample:** | **QC for batch 1302540** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **CAMO-13-30616PS** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302540** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/17/2013 16:45** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/17/2013 16:45** | | | | |
| **Data File:** | **051713V9\9M524.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | | 45.2 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | | 42.5 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | | 48.5 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 47.5 | 50.0 | ug/L | 95.0 | (78%-124%) |
| Bromofluorobenzene | 57.1 | 50.0 | ug/L | 114 | (80%-120%) |
| Toluene-d8 | 50.3 | 50.0 | ug/L | 101 | (80%-120%) |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | **Date Collected:** | **05/07/2013 12:58** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202877851** | **Date Received:** | **05/09/2013 08:50** | | |
| **Client Sample:** | **QC for batch 1302540** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **CAMO-13-30616PSD** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302540** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/17/2013 17:13** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/17/2013 17:13** | | | | |
| **Data File:** | **051713V9\9M525.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 75-71-8 | Dichlorodifluoromethane | | 38.1 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | | 45.8 | ug/L | 0.300 | 1.00 |
| 75-01-4 | Vinyl chloride | | 46.6 | ug/L | 0.300 | 1.00 |
| 74-83-9 | Bromomethane | | 42.5 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | | 48.2 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | | 39.9 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | | 41.8 | ug/L | 0.300 | 1.00 |
| 67-64-1 | Acetone | | 129 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | | 937 | ug/L | 8.00 | 25.0 |
| 75-35-4 | 1,1-Dichloroethylene | | 40.1 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | | 187 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | | 37.3 | ug/L | 3.00 | 10.0 |
| 75-15-0 | Carbon disulfide | | 211 | ug/L | 1.50 | 5.00 |
| 1634-04-4 | tert-Butyl methyl ether | | 37.6 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | | 37.3 | ug/L | 0.300 | 1.00 |
| 108-05-4 | Vinyl acetate | | 186 | ug/L | 1.50 | 5.00 |
| 75-34-3 | 1,1-Dichloroethane | | 45.6 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | | 197 | ug/L | 2.00 | 5.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | | 44.5 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | | 43.7 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | | 43.4 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | | 44.2 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | | 44.7 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | | 47.1 | ug/L | 0.300 | 1.00 |
| 71-36-3 | n-Butyl alcohol | | 5950 | ug/L | 15.0 | 50.0 |
| 56-23-5 | Carbon tetrachloride | | 46.0 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | | 40.0 | ug/L | 0.300 | 1.00 |
| 71-43-2 | Benzene | | 46.4 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | | 46.0 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | | 45.7 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | | 45.0 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | | 43.9 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | | 237 | ug/L | 1.50 | 5.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | | 47.3 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | | 45.0 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | | 44.3 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | | 45.9 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | | 213 | ug/L | 2.20 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | **Date Collected:** | **05/07/2013 12:58** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202877851** | **Date Received:** | **05/09/2013 08:50** | | |
| **Client Sample:** | **QC for batch 1302540** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **CAMO-13-30616PSD** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302540** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/17/2013 17:13** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/17/2013 17:13** | | | | |
| **Data File:** | **051713V9\9M525.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 142-28-9 | 1,3-Dichloropropane | | 43.3 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | | 44.0 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | | 48.3 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | | 46.8 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | | 43.8 | ug/L | 0.300 | 1.00 |
| 100-41-4 | Ethylbenzene | | 43.4 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | | 88.1 | ug/L | 0.300 | 2.00 |
| 95-47-6 | o-Xylene | | 39.3 | ug/L | 0.300 | 1.00 |
| 100-42-5 | Styrene | | 40.8 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | | 48.6 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | | 43.6 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | | 45.5 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | | 46.5 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | | 46.7 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | | 46.5 | ug/L | 0.300 | 1.00 |
| 98-82-8 | Isopropylbenzene | | 42.4 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | | 45.6 | ug/L | 0.300 | 1.00 |
| 106-43-4 | 4-Chlorotoluene | | 45.0 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | | 45.8 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | | 44.7 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | | 47.9 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | | 45.4 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | | 42.8 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | | 44.2 | ug/L | 0.300 | 1.00 |
| 104-51-8 | n-Butylbenzene | | 48.3 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | | 48.8 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | | 41.8 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | | 43.9 | ug/L | 0.400 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | | 39.0 | ug/L | 0.300 | 1.00 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | **Date Collected:** | **05/07/2013 12:58** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202877851** | **Date Received:** | **05/09/2013 08:50** | | |
| **Client Sample:** | **QC for batch 1302540** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **CAMO-13-30616PSD** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302540** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/17/2013 17:13** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/17/2013 17:13** | | | | |
| **Data File:** | **051713V9\9M525.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | | 42.8 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | | 41.3 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | | 43.2 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 46.9 | 50.0 | ug/L | 93.9 | (78%-124%) |
| Bromofluorobenzene | 48.1 | 50.0 | ug/L | 96.3 | (80%-120%) |
| Toluene-d8 | 52.1 | 50.0 | ug/L | 104 | (80%-120%) |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202877852** | | | | |
| **Client Sample:** | **QC for batch 1302540** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1302540** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302540** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/17/2013 07:40** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/17/2013 07:40** | | | | |
| **Data File:** | **051713V9\9M504L3.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 75-71-8 | Dichlorodifluoromethane | | 49.4 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | | 56.9 | ug/L | 0.300 | 1.00 |
| 75-01-4 | Vinyl chloride | | 56.3 | ug/L | 0.300 | 1.00 |
| 74-83-9 | Bromomethane | | 51.3 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | | 51.6 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | | 50.5 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | | 43.0 | ug/L | 0.300 | 1.00 |
| 67-64-1 | Acetone | | 185 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | | 1130 | ug/L | 8.00 | 25.0 |
| 75-35-4 | 1,1-Dichloroethylene | | 51.9 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | | 217 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | | 45.8 | ug/L | 3.00 | 10.0 |
| 75-15-0 | Carbon disulfide | | 265 | ug/L | 1.50 | 5.00 |
| 1634-04-4 | tert-Butyl methyl ether | | 44.3 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | | 50.5 | ug/L | 0.300 | 1.00 |
| 108-05-4 | Vinyl acetate | | 236 | ug/L | 1.50 | 5.00 |
| 75-34-3 | 1,1-Dichloroethane | | 50.4 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | | 251 | ug/L | 2.00 | 5.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | | 51.8 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | | 52.4 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | | 49.1 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | | 46.8 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | | 49.3 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | | 51.9 | ug/L | 0.300 | 1.00 |
| 71-36-3 | n-Butyl alcohol | | 5380 | ug/L | 15.0 | 50.0 |
| 56-23-5 | Carbon tetrachloride | | 51.1 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | | 45.1 | ug/L | 0.300 | 1.00 |
| 71-43-2 | Benzene | | 52.8 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | | 51.5 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | | 48.8 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | | 49.9 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | | 46.7 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | | 224 | ug/L | 1.50 | 5.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | | 50.9 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | | 49.2 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | | 47.6 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | | 49.7 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | | 270 | ug/L | 2.20 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202877852** | | | | |
| **Client Sample:** | **QC for batch 1302540** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1302540** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302540** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/17/2013 07:40** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/17/2013 07:40** | | | | |
| **Data File:** | **051713V9\9M504L3.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 142-28-9 | 1,3-Dichloropropane | | 46.9 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | | 49.5 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | | 50.5 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | | 46.7 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | | 47.1 | ug/L | 0.300 | 1.00 |
| 100-41-4 | Ethylbenzene | | 48.0 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | | 97.4 | ug/L | 0.300 | 2.00 |
| 95-47-6 | o-Xylene | | 49.8 | ug/L | 0.300 | 1.00 |
| 100-42-5 | Styrene | | 52.8 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | | 56.2 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | | 48.4 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | | 44.4 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | | 46.9 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | | 49.7 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | | 47.8 | ug/L | 0.300 | 1.00 |
| 98-82-8 | Isopropylbenzene | | 53.4 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | | 49.1 | ug/L | 0.300 | 1.00 |
| 106-43-4 | 4-Chlorotoluene | | 53.5 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | | 48.8 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | | 50.8 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | | 53.5 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | | 51.0 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | | 48.7 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | | 47.6 | ug/L | 0.300 | 1.00 |
| 104-51-8 | n-Butylbenzene | | 55.0 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | | 48.2 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | | 42.0 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | | 41.0 | ug/L | 0.400 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | | 39.8 | ug/L | 0.300 | 1.00 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202877852** | | | | |
| **Client Sample:** | **QC for batch 1302540** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1302540** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302540** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/17/2013 07:40** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/17/2013 07:40** | | | | |
| **Data File:** | **051713V9\9M504L3.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | | 45.9 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | | 41.9 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | | 46.0 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 46.2 | 50.0 | ug/L | 92.5 | (78%-124%) |
| Bromofluorobenzene | 52.4 | 50.0 | ug/L | 105 | (80%-120%) |
| Toluene-d8 | 48.4 | 50.0 | ug/L | 96.9 | (80%-120%) |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202877853** | | | | |
| **Client Sample:** | **QC for batch 1302540** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1302540** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302540** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/17/2013 09:01** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/17/2013 09:01** | | | | |
| **Data File:** | **051713V9\9M507L3.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 75-71-8 | Dichlorodifluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-01-4 | Vinyl chloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-83-9 | Bromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-64-1 | Acetone | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | U | 25.0 | ug/L | 8.00 | 25.0 |
| 75-35-4 | 1,1-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-15-0 | Carbon disulfide | U | 5.00 | ug/L | 1.50 | 5.00 |
| 1634-04-4 | tert-Butyl methyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-05-4 | Vinyl acetate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-34-3 | 1,1-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | U | 5.00 | ug/L | 2.00 | 5.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-36-3 | n-Butyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 56-23-5 | Carbon tetrachloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-43-2 | Benzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | U | 5.00 | ug/L | 2.20 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202877853** | | | | |
| **Client Sample:** | **QC for batch 1302540** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1302540** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302540** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/17/2013 09:01** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/17/2013 09:01** | | | | |
| **Data File:** | **051713V9\9M507L3.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 142-28-9 | 1,3-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-41-4 | Ethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | U | 2.00 | ug/L | 0.300 | 2.00 |
| 95-47-6 | o-Xylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-42-5 | Styrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-82-8 | Isopropylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-43-4 | 4-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 104-51-8 | n-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.400 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-02-8 | Acrolein | | 208 | ug/L | 1.50 | 5.00 |
| 76-13-1 | Trichlorotrifluoroethane | | 238 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | | 229 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | | 218 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | | 39.9 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | | 218 | ug/L | 1.50 | 5.00 |
| 126-98-7 | Methacrylonitrile | | 221 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | | 2480 | ug/L | 15.0 | 50.0 |
| 80-62-6 | Methyl methacrylate | | 214 | ug/L | 1.50 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202877853** | | | | |
| **Client Sample:** | **QC for batch 1302540** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1302540** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302540** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/17/2013 09:01** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/17/2013 09:01** | | | | |
| **Data File:** | **051713V9\9M507L3.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 97-63-2 | Ethyl methacrylate | | 226 | ug/L | 1.50 | 5.00 |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 41.4 | 50.0 | ug/L | 82.7 | (78%-124%) |
| Bromofluorobenzene | 51.9 | 50.0 | ug/L | 104 | (80%-120%) |
| Toluene-d8 | 45.6 | 50.0 | ug/L | 91.2 | (80%-120%) |

# Miscellaneous

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 21-MAY-13 | Federal | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| VOA GC/MS | SW846 8260B DOE-AL | Liquid | ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1302540 | 325204001, 325285001, 1202877850, 1202877851 | | |

**Potentially affected work order(s)(SDG): 325204(2013-805),325284(2013-809),325285(2013-810),325394(2013-813),325410(2013-814)**

**Application Issues:**

Failed Recovery for Surrogate or Tracer

Failed RPD for MS/MSD, or PS/PSD

Sample received out of holding

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Sample 325204001 was received out of holding.<br><br>2. Sample 325285001 did not meet the acceptable surrogate recovery criteria.<br><br>3. The MS 1202877850 and MSD 1202877851 had unacceptable %RPD values. | 1. The sample was analyzed "as received" and the data results were reported.<br><br>2. The sample matrix for 325285001 was very "foamy"; therefore, this resulted in matrix interference which caused the biased high surrogate recoveries. Re-analysis confirmed the poor recoveries. The data results were narrated and reported.<br><br>3. Re-analysis confirmed the poor recoveries. The data results were narrated and reported. |

**Originator's Name:**

Ramona Yarbrough 29-MAY-13

**Data Validator/Group Leader:**

Erin Haubert 30-MAY-13

# Semi-Volatile Analysis

# Case Narrative

**Semi-Volatile Case Narrative**
**ARS International (ARSL)**
**SDG 2013-813**

## Method/Analysis Information

| | |
|---|---|
| **Procedure:** | **Analysis of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry** |
| Analytical Method: | SW846 8270C |
| Prep Method: | SW846 3510C |
| Analytical Batch Number: | 1300969 |
| Prep Batch Number: | 1300968 |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 8270C:

| Sample ID | Client ID |
|---|---|
| 325394001 | CAMO-13-30572 |
| 325394003 | CAMO-13-30559 |
| 325394004 | CAMO-13-30561 |
| 1202873988 | Method Blank (MB) |
| 1202873989 | Laboratory Control Sample (LCS) |
| 1202873990 | 325285001(WST55-13-32015) Matrix Spike (MS) |
| 1202873991 | 325285001(WST55-13-32015) Matrix Spike Duplicate (MSD) |

The samples in this SDG were analyzed on an "as received" basis.

## Preparation/Analytical Method Verification

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-009 REV# 30.

Raw data reports are processed and reviewed by the analyst using the data analysis software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP).

## Calibration Information

A complete list of the initial calibration data files are shown in the Calibration History report located in the Standard Data section of the data package. The various calibration mixes may not be calibrated using all of the calibration levels. In addition, not all of the mixes are calibrated using the same levels.

Diphenylamine has now superseded N-Nitroso-diphenylamine on Quantitation Reports, Initial Calibration Reports, Calibration Check Standard Reports, etc. Previous versions of EPA Methodologies referenced N-Nitroso-diphenylamine. However, as stated in EPA Methodology, "N-Nitroso-diphenylamine decomposes in the gas chromatographic inlet and cannot be separated from Diphenylamine." Studies of these two compounds at GEL, both independent of each other and together, showed that they not only co-elute, but also have similar mass spectra. N-Nitroso-diphenylamine and Diphenylamine will be reported as Diphenylamine on all reports and forms.

**Initial Calibration**
All initial calibration requirements have been met for this sample delivery group (SDG) in this batch. A second source initial calibration verification (ICV) was included in the standard section directly behind the initial calibration.

**CCV Requirements**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG in this batch met the acceptance criteria.

**Surrogate Recoveries**
Samples 1202873990 (WST55-13-32015) and 1202873991 (WST55-13-32015) failed surrogate recovery limits. Please see the QC Summary/Spike Recovery Report for specific failures. The samples were analyzed at a dilution due to the presence of non-target analytes. As a result, some surrogates were diluted out of the acceptance criteria and the data results have been reported.

**Laboratory Control Sample (LCS) Recovery**
The LCS(1202873989) did not meet spike recovery limits for 4-Nitrophenol at 9% (limits: 16%-77%) and Atrazine at 31% (limits: 47%-115%). The 4-Nitrophenol and Atrazine failures represent less than 5% of the total requested spike analyte list. That satisfied the acceptance criteria for the client and the data results have been reported.

**QC Sample Designation**
Sample 325285001 (WST55-13-32015) was selected for analysis as the matrix spike and matrix spike duplicate.

**Matrix Spike (MS) Recovery Statement**
The MS, 1202873990 (WST55-13-32015), failed multiple spike recovery limits. Please see the QC Summary/Spike Recovery Report for specific failures. The samples were analyzed at a dilution due to the presence of non-target analytes. As a result, some spike analytes were diluted out of the acceptance criteria and the data results have been reported.

**Matrix Spike Duplicate (MSD) Recovery Statement**
The MSD, 1202873991 (WST55-13-32015), failed multiple spike recovery limits. Please see the QC Summary/Spike Recovery Report for specific failures. The samples were analyzed at a dilution due to the presence of non-target analytes. As a result, some spike analytes were diluted out of the acceptance criteria and the data results have been reported.

**MS/MSD Relative Percent Difference (RPD) Statement**
The RPD values between the MS and MSD met the acceptance limits.

**Internal Standard (ISTD) Acceptance**
Samples 1202873990 (WST55-13-32015) and 1202873991 (WST55-13-32015) failed ISTD acceptance criteria. As the MS and MSD displayed similar responses as the parent sample, the failures were attributed to sample matrix interference and the data results have been reported.

**Technical Information:**

**Holding Time Specifications**
All samples in this SDG in this batch met the specified holding time. GEL assigns holding times based on the associated methodology that assigns the date and time from sample collection or sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

**Preparation/Analytical Method Verification**
All procedures were performed as stated in the SOP. All reported compound mass spectra met the detection specifications in the method.

**Sample Dilutions**
Samples 1202873990 (WST55-13-32015) and 1202873991 (WST55-13-32015) were diluted due to the presence of non-target analytes. The data from the dilutions have been reported.

**Sample Re-extraction/Re-analysis**
Re-extractions or re-analyses were not required in this SDG in this analytical batch unless confirmations or dilutions were required.

**Miscellaneous Information:**

**Data Exception (DER) Documentation**
Data exception report 1185859 was generated for the samples in this batch for this SDG.

**Manual Integrations**
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations. Manual integrations, if any, are included with the raw data.

**TIC Comment**
Tentatively identified compounds (TIC) may be requested for samples 1202873988 (MB), 325394001 (CAMO-13-30572), 325394003 (CAMO-13-30559) and 325394004 (CAMO-13-30561) in this delivery group/work order. Please note that non-requested calibrated analytes detected in a client sample may be reported on the Form 1/Certificate of Analysis as TICs. TIC data, if requested, are included on the Sample Data Summary (Form 1) and are also included with the sample raw data.

**Additional Comments**
The additional comments field is used to address special issues associated with each analysis, clarify method/contractual issues pertaining to the analysis, and to list any report documents generated as a result of sample analysis or review. The following additional comments were required:

Due to rounding differences in the calculation, the data reported in the Surrogate Recovery Report may differ slightly from the raw data. Due to software issue, the raw data may not correctly display the updated SPC limits. Please see Sample Data Summary Report and Surrogate Recovery Report for the correct surrogate acceptance limits.

**Electronic Package Comment**

The following package was generated using an electronic data processing program referred to as "virtual packaging". In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from "traditional" packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative of each electronic package will indicate the reviewer name associated with the generation of the data and package. The data validator will always sign and date the

case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**System Configuration**

The Semi-Volatile-GC/MS analysis was performed on the following instrument configuration:

| Instrument ID | Instrument | System Configuration | Column ID | Column Description |
|---|---|---|---|---|
| MSD4.I | Agilent 7890A/5975C GC/MS w/ 7683 Autosampler | HP6890/HP5973 | DB-5MS | 25m x 0.2mm, 0.33um (5% Phenylmethylpolysiloxane) |

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-813  GEL Work Order: 325394

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

**  Analyte is a surrogate compound

J  Value is estimated

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL  Indicates that sample is diluted.
RA  Indicates that sample is re-analyzed without re-extraction.
RE  Indicates that sample is re-extracted.

**Review/Validation**

GEL requires all analytical data to be verified by a qualified data reviewer.  In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

**Signature:** Barbara Bailey  **Name: Barbara Bailey**

**Date: 04 JUN 2013**  **Title: Data Validator**

# Sample Data Summary

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | **Date Collected:** | **05/07/2013 12:20** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325394001** | **Date Received:** | **05/09/2013 08:50** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30572** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 20:20** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **950 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1318.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 62-75-9 | N-Methyl-N-nitrosomethylamine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 110-86-1 | Pyridine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 62-53-3 | Aniline | U | 10.5 | ug/L | 3.16 | 10.5 |
| 108-95-2 | Phenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 111-44-4 | bis(2-Chloroethyl) ether | U | 10.5 | ug/L | 3.16 | 10.5 |
| 95-57-8 | 2-Chlorophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 39638-32-9 | bis(2-Chloroisopropyl)ether | U | 10.5 | ug/L | 3.16 | 10.5 |
| 100-51-6 | Benzyl alcohol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 95-48-7 | o-Cresol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 65794-96-9 | m,p-Cresols | U | 10.5 | ug/L | 3.16 | 10.5 |
| 621-64-7 | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | U | 10.5 | ug/L | 3.16 | 10.5 |
| 67-72-1 | Hexachloroethane | U | 10.5 | ug/L | 3.16 | 10.5 |
| 98-95-3 | Nitrobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 78-59-1 | Isophorone | U | 10.5 | ug/L | 3.16 | 10.5 |
| 88-75-5 | 2-Nitrophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 105-67-9 | 2,4-Dimethylphenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 111-91-1 | bis(2-Chloroethoxy)methane | U | 10.5 | ug/L | 3.16 | 10.5 |
| 120-83-2 | 2,4-Dichlorophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 65-85-0 | Benzoic acid | U | 21.1 | ug/L | 6.32 | 21.1 |
| 106-47-8 | 4-Chloroaniline | U | 10.5 | ug/L | 3.47 | 10.5 |
| 87-68-3 | Hexachlorobutadiene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 59-50-7 | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | U | 10.5 | ug/L | 3.16 | 10.5 |
| 91-57-6 | 2-Methylnaphthalene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 91-20-3 | Naphthalene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 90-12-0 | 1-Methylnaphthalene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 77-47-4 | Hexachlorocyclopentadiene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 88-06-2 | 2,4,6-Trichlorophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 95-95-4 | 2,4,5-Trichlorophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 91-58-7 | 2-Chloronaphthalene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 88-74-4 | 2-Nitroaniline<br>*o-Nitroaniline* | U | 10.5 | ug/L | 3.16 | 10.5 |
| 99-09-2 | 3-Nitroaniline<br>*m-Nitroaniline* | U | 10.5 | ug/L | 3.16 | 10.5 |
| 131-11-3 | Dimethylphthalate | U | 10.5 | ug/L | 3.16 | 10.5 |
| 606-20-2 | 2,6-Dinitrotoluene | U | 10.5 | ug/L | 3.16 | 10.5 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | **Date Collected:** | **05/07/2013 12:20** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325394001** | **Date Received:** | **05/09/2013 08:50** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30572** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 20:20** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **950 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1318.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 121-14-2 | 2,4-Dinitrotoluene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 208-96-8 | Acenaphthylene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 83-32-9 | Acenaphthene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 51-28-5 | 2,4-Dinitrophenol | U | 21.1 | ug/L | 5.26 | 21.1 |
| 132-64-9 | Dibenzofuran | U | 10.5 | ug/L | 3.16 | 10.5 |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 84-66-2 | Diethylphthalate | U | 10.5 | ug/L | 3.16 | 10.5 |
| 100-02-7 | 4-Nitrophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 86-73-7 | Fluorene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 7005-72-3 | 4-Chlorophenylphenylether | U | 10.5 | ug/L | 3.16 | 10.5 |
| 100-01-6 | 4-Nitroaniline | U | 10.5 | ug/L | 3.16 | 10.5 |
| | *p-Nitroaniline* | | | | | |
| 534-52-1 | 2-Methyl-4,6-dinitrophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 122-39-4 | Diphenylamine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 122-66-7 | Azobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| | *1,2-Diphenylhydrazine* | | | | | |
| 101-55-3 | 4-Bromophenylphenylether | U | 10.5 | ug/L | 3.16 | 10.5 |
| 118-74-1 | Hexachlorobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 87-86-5 | Pentachlorophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 88-85-7 | Dinoseb | U | 10.5 | ug/L | 3.16 | 10.5 |
| 85-01-8 | Phenanthrene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 120-12-7 | Anthracene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 84-74-2 | Di-n-butylphthalate | U | 10.5 | ug/L | 3.16 | 10.5 |
| 206-44-0 | Fluoranthene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 129-00-0 | Pyrene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 85-68-7 | Butylbenzylphthalate | U | 10.5 | ug/L | 3.16 | 10.5 |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | U | 10.5 | ug/L | 3.16 | 10.5 |
| 56-55-3 | Benzo(a)anthracene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 218-01-9 | Chrysene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 117-84-0 | Di-n-octylphthalate | U | 10.5 | ug/L | 3.16 | 10.5 |
| 205-99-2 | Benzo(b)fluoranthene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 207-08-9 | Benzo(k)fluoranthene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 50-32-8 | Benzo(a)pyrene | U | 1.05 | ug/L | 0.463 | 1.05 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 53-70-3 | Dibenzo(a,h)anthracene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 191-24-2 | Benzo(ghi)perylene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 123-91-1 | 1,4-Dioxane | J | 5.08 | ug/L | 3.16 | 10.5 |
| 55-18-5 | N-Nitrosodiethylamine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 930-55-2 | N-Nitrosopyrrolidine | U | 10.5 | ug/L | 3.16 | 10.5 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | **Date Collected:** | **05/07/2013 12:20** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325394001** | **Date Received:** | **05/09/2013 08:50** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30572** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 20:20** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **950 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1318.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 924-16-3 | N-Nitrosodi-n-butylamine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 608-93-5 | Pentachlorobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 1912-24-9 | Atrazine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 92-87-5 | Benzidine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 91-94-1 | 3,3'-Dichlorobenzidine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 2,4,6-Tribromophenol | 67.1 | 105 | ug/L | 63.7 | (26%-129%) |
| 2-Fluorobiphenyl | 28.1 | 52.6 | ug/L | 53.4 | (32%-102%) |
| 2-Fluorophenol | 40.2 | 105 | ug/L | 38.2 | (10%-78%) |
| Nitrobenzene-d5 | 31.9 | 52.6 | ug/L | 60.5 | (36%-125%) |
| Phenol-d5 | 25.9 | 105 | ug/L | 24.6 | (10%-104%) |
| p-Terphenyl-d14 | 44.2 | 52.6 | ug/L | 83.9 | (34%-135%) |

**Tentatively Identified Compound Summary**

| CAS No. | Tentatively Identified Compound (TIC) | RT | Estimated | Units | Fit | Qual |
|---|---|---|---|---|---|---|
| | unknown | 2.022 | 25.9 | ug/L | 0 | J |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | **Date Collected:** | **05/07/2013 12:20** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325394003** | **Date Received:** | **05/09/2013 08:50** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30559** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 20:50** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **950 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1319.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 62-75-9 | N-Methyl-N-nitrosomethylamine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 110-86-1 | Pyridine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 62-53-3 | Aniline | U | 10.5 | ug/L | 3.16 | 10.5 |
| 108-95-2 | Phenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 111-44-4 | bis(2-Chloroethyl) ether | U | 10.5 | ug/L | 3.16 | 10.5 |
| 95-57-8 | 2-Chlorophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 39638-32-9 | bis(2-Chloroisopropyl)ether | U | 10.5 | ug/L | 3.16 | 10.5 |
| 100-51-6 | Benzyl alcohol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 95-48-7 | o-Cresol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 65794-96-9 | m,p-Cresols | U | 10.5 | ug/L | 3.16 | 10.5 |
| 621-64-7 | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | U | 10.5 | ug/L | 3.16 | 10.5 |
| 67-72-1 | Hexachloroethane | U | 10.5 | ug/L | 3.16 | 10.5 |
| 98-95-3 | Nitrobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 78-59-1 | Isophorone | U | 10.5 | ug/L | 3.16 | 10.5 |
| 88-75-5 | 2-Nitrophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 105-67-9 | 2,4-Dimethylphenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 111-91-1 | bis(2-Chloroethoxy)methane | U | 10.5 | ug/L | 3.16 | 10.5 |
| 120-83-2 | 2,4-Dichlorophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 65-85-0 | Benzoic acid | U | 21.1 | ug/L | 6.32 | 21.1 |
| 106-47-8 | 4-Chloroaniline | U | 10.5 | ug/L | 3.47 | 10.5 |
| 87-68-3 | Hexachlorobutadiene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 59-50-7 | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | U | 10.5 | ug/L | 3.16 | 10.5 |
| 91-57-6 | 2-Methylnaphthalene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 91-20-3 | Naphthalene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 90-12-0 | 1-Methylnaphthalene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 77-47-4 | Hexachlorocyclopentadiene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 88-06-2 | 2,4,6-Trichlorophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 95-95-4 | 2,4,5-Trichlorophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 91-58-7 | 2-Chloronaphthalene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 88-74-4 | 2-Nitroaniline<br>*o-Nitroaniline* | U | 10.5 | ug/L | 3.16 | 10.5 |
| 99-09-2 | 3-Nitroaniline<br>*m-Nitroaniline* | U | 10.5 | ug/L | 3.16 | 10.5 |
| 131-11-3 | Dimethylphthalate | U | 10.5 | ug/L | 3.16 | 10.5 |
| 606-20-2 | 2,6-Dinitrotoluene | U | 10.5 | ug/L | 3.16 | 10.5 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | **Date Collected:** | **05/07/2013 12:20** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325394003** | **Date Received:** | **05/09/2013 08:50** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30559** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 20:50** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **950 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1319.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 121-14-2 | 2,4-Dinitrotoluene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 208-96-8 | Acenaphthylene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 83-32-9 | Acenaphthene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 51-28-5 | 2,4-Dinitrophenol | U | 21.1 | ug/L | 5.26 | 21.1 |
| 132-64-9 | Dibenzofuran | U | 10.5 | ug/L | 3.16 | 10.5 |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 84-66-2 | Diethylphthalate | U | 10.5 | ug/L | 3.16 | 10.5 |
| 100-02-7 | 4-Nitrophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 86-73-7 | Fluorene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 7005-72-3 | 4-Chlorophenylphenylether | U | 10.5 | ug/L | 3.16 | 10.5 |
| 100-01-6 | 4-Nitroaniline | U | 10.5 | ug/L | 3.16 | 10.5 |
| | *p-Nitroaniline* | | | | | |
| 534-52-1 | 2-Methyl-4,6-dinitrophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 122-39-4 | Diphenylamine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 122-66-7 | Azobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| | *1,2-Diphenylhydrazine* | | | | | |
| 101-55-3 | 4-Bromophenylphenylether | U | 10.5 | ug/L | 3.16 | 10.5 |
| 118-74-1 | Hexachlorobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 87-86-5 | Pentachlorophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 88-85-7 | Dinoseb | U | 10.5 | ug/L | 3.16 | 10.5 |
| 85-01-8 | Phenanthrene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 120-12-7 | Anthracene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 84-74-2 | Di-n-butylphthalate | U | 10.5 | ug/L | 3.16 | 10.5 |
| 206-44-0 | Fluoranthene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 129-00-0 | Pyrene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 85-68-7 | Butylbenzylphthalate | U | 10.5 | ug/L | 3.16 | 10.5 |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | U | 10.5 | ug/L | 3.16 | 10.5 |
| 56-55-3 | Benzo(a)anthracene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 218-01-9 | Chrysene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 117-84-0 | Di-n-octylphthalate | U | 10.5 | ug/L | 3.16 | 10.5 |
| 205-99-2 | Benzo(b)fluoranthene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 207-08-9 | Benzo(k)fluoranthene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 50-32-8 | Benzo(a)pyrene | U | 1.05 | ug/L | 0.463 | 1.05 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 53-70-3 | Dibenzo(a,h)anthracene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 191-24-2 | Benzo(ghi)perylene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 123-91-1 | 1,4-Dioxane | U | 10.5 | ug/L | 3.16 | 10.5 |
| 55-18-5 | N-Nitrosodiethylamine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 930-55-2 | N-Nitrosopyrrolidine | U | 10.5 | ug/L | 3.16 | 10.5 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | **Date Collected:** | **05/07/2013 12:20** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325394003** | **Date Received:** | **05/09/2013 08:50** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30559** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 20:50** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **950 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1319.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 924-16-3 | N-Nitrosodi-n-butylamine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 608-93-5 | Pentachlorobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 1912-24-9 | Atrazine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 92-87-5 | Benzidine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 91-94-1 | 3,3'-Dichlorobenzidine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 2,4,6-Tribromophenol | 64.8 | 105 | ug/L | 61.5 | (26%-129%) |
| 2-Fluorobiphenyl | 31.1 | 52.6 | ug/L | 59.1 | (32%-102%) |
| 2-Fluorophenol | 45.9 | 105 | ug/L | 43.6 | (10%-78%) |
| Nitrobenzene-d5 | 30.0 | 52.6 | ug/L | 57.0 | (36%-125%) |
| Phenol-d5 | 29.1 | 105 | ug/L | 27.6 | (10%-104%) |
| p-Terphenyl-d14 | 38.9 | 52.6 | ug/L | 73.9 | (34%-135%) |

**Tentatively Identified Compound Summary**

| CAS No. | Tentatively Identified Compound (TIC) | RT | Estimated | Units | Fit | Qual |
|---|---|---|---|---|---|---|
| | unknown | 2.022 | 28.5 | ug/L | 0 | J |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | **Date Collected:** | **05/07/2013 12:20** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325394004** | **Date Received:** | **05/09/2013 08:50** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30561** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 21:19** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **930 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1320.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 62-75-9 | N-Methyl-N-nitrosomethylamine | U | 10.8 | ug/L | 3.23 | 10.8 |
| 110-86-1 | Pyridine | U | 10.8 | ug/L | 3.23 | 10.8 |
| 62-53-3 | Aniline | U | 10.8 | ug/L | 3.23 | 10.8 |
| 108-95-2 | Phenol | U | 10.8 | ug/L | 3.23 | 10.8 |
| 111-44-4 | bis(2-Chloroethyl) ether | U | 10.8 | ug/L | 3.23 | 10.8 |
| 95-57-8 | 2-Chlorophenol | U | 10.8 | ug/L | 3.23 | 10.8 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 10.8 | ug/L | 3.23 | 10.8 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 10.8 | ug/L | 3.23 | 10.8 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 10.8 | ug/L | 3.23 | 10.8 |
| 39638-32-9 | bis(2-Chloroisopropyl)ether | U | 10.8 | ug/L | 3.23 | 10.8 |
| 100-51-6 | Benzyl alcohol | U | 10.8 | ug/L | 3.23 | 10.8 |
| 95-48-7 | o-Cresol | U | 10.8 | ug/L | 3.23 | 10.8 |
| 65794-96-9 | m,p-Cresols | U | 10.8 | ug/L | 3.23 | 10.8 |
| 621-64-7 | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | U | 10.8 | ug/L | 3.23 | 10.8 |
| 67-72-1 | Hexachloroethane | U | 10.8 | ug/L | 3.23 | 10.8 |
| 98-95-3 | Nitrobenzene | U | 10.8 | ug/L | 3.23 | 10.8 |
| 78-59-1 | Isophorone | U | 10.8 | ug/L | 3.23 | 10.8 |
| 88-75-5 | 2-Nitrophenol | U | 10.8 | ug/L | 3.23 | 10.8 |
| 105-67-9 | 2,4-Dimethylphenol | U | 10.8 | ug/L | 3.23 | 10.8 |
| 111-91-1 | bis(2-Chloroethoxy)methane | U | 10.8 | ug/L | 3.23 | 10.8 |
| 120-83-2 | 2,4-Dichlorophenol | U | 10.8 | ug/L | 3.23 | 10.8 |
| 65-85-0 | Benzoic acid | U | 21.5 | ug/L | 6.45 | 21.5 |
| 106-47-8 | 4-Chloroaniline | U | 10.8 | ug/L | 3.55 | 10.8 |
| 87-68-3 | Hexachlorobutadiene | U | 10.8 | ug/L | 3.23 | 10.8 |
| 59-50-7 | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | U | 10.8 | ug/L | 3.23 | 10.8 |
| 91-57-6 | 2-Methylnaphthalene | U | 1.08 | ug/L | 0.323 | 1.08 |
| 91-20-3 | Naphthalene | U | 1.08 | ug/L | 0.323 | 1.08 |
| 90-12-0 | 1-Methylnaphthalene | U | 1.08 | ug/L | 0.323 | 1.08 |
| 77-47-4 | Hexachlorocyclopentadiene | U | 10.8 | ug/L | 3.23 | 10.8 |
| 88-06-2 | 2,4,6-Trichlorophenol | U | 10.8 | ug/L | 3.23 | 10.8 |
| 95-95-4 | 2,4,5-Trichlorophenol | U | 10.8 | ug/L | 3.23 | 10.8 |
| 91-58-7 | 2-Chloronaphthalene | U | 1.08 | ug/L | 0.323 | 1.08 |
| 88-74-4 | 2-Nitroaniline<br>*o-Nitroaniline* | U | 10.8 | ug/L | 3.23 | 10.8 |
| 99-09-2 | 3-Nitroaniline<br>*m-Nitroaniline* | U | 10.8 | ug/L | 3.23 | 10.8 |
| 131-11-3 | Dimethylphthalate | U | 10.8 | ug/L | 3.23 | 10.8 |
| 606-20-2 | 2,6-Dinitrotoluene | U | 10.8 | ug/L | 3.23 | 10.8 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | **Date Collected:** | **05/07/2013 12:20** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325394004** | **Date Received:** | **05/09/2013 08:50** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30561** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 21:19** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **930 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1320.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 121-14-2 | 2,4-Dinitrotoluene | U | 10.8 | ug/L | 3.23 | 10.8 |
| 208-96-8 | Acenaphthylene | U | 1.08 | ug/L | 0.323 | 1.08 |
| 83-32-9 | Acenaphthene | U | 1.08 | ug/L | 0.323 | 1.08 |
| 51-28-5 | 2,4-Dinitrophenol | U | 21.5 | ug/L | 5.38 | 21.5 |
| 132-64-9 | Dibenzofuran | U | 10.8 | ug/L | 3.23 | 10.8 |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | U | 10.8 | ug/L | 3.23 | 10.8 |
| 84-66-2 | Diethylphthalate | U | 10.8 | ug/L | 3.23 | 10.8 |
| 100-02-7 | 4-Nitrophenol | U | 10.8 | ug/L | 3.23 | 10.8 |
| 86-73-7 | Fluorene | U | 1.08 | ug/L | 0.323 | 1.08 |
| 7005-72-3 | 4-Chlorophenylphenylether | U | 10.8 | ug/L | 3.23 | 10.8 |
| 100-01-6 | 4-Nitroaniline | U | 10.8 | ug/L | 3.23 | 10.8 |
| | *p-Nitroaniline* | | | | | |
| 534-52-1 | 2-Methyl-4,6-dinitrophenol | U | 10.8 | ug/L | 3.23 | 10.8 |
| 122-39-4 | Diphenylamine | U | 10.8 | ug/L | 3.23 | 10.8 |
| 122-66-7 | Azobenzene | U | 10.8 | ug/L | 3.23 | 10.8 |
| | *1,2-Diphenylhydrazine* | | | | | |
| 101-55-3 | 4-Bromophenylphenylether | U | 10.8 | ug/L | 3.23 | 10.8 |
| 118-74-1 | Hexachlorobenzene | U | 10.8 | ug/L | 3.23 | 10.8 |
| 87-86-5 | Pentachlorophenol | U | 10.8 | ug/L | 3.23 | 10.8 |
| 88-85-7 | Dinoseb | U | 10.8 | ug/L | 3.23 | 10.8 |
| 85-01-8 | Phenanthrene | U | 1.08 | ug/L | 0.323 | 1.08 |
| 120-12-7 | Anthracene | U | 1.08 | ug/L | 0.323 | 1.08 |
| 84-74-2 | Di-n-butylphthalate | U | 10.8 | ug/L | 3.23 | 10.8 |
| 206-44-0 | Fluoranthene | U | 1.08 | ug/L | 0.323 | 1.08 |
| 129-00-0 | Pyrene | U | 1.08 | ug/L | 0.323 | 1.08 |
| 85-68-7 | Butylbenzylphthalate | U | 10.8 | ug/L | 3.23 | 10.8 |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | U | 10.8 | ug/L | 3.23 | 10.8 |
| 56-55-3 | Benzo(a)anthracene | U | 1.08 | ug/L | 0.323 | 1.08 |
| 218-01-9 | Chrysene | U | 1.08 | ug/L | 0.323 | 1.08 |
| 117-84-0 | Di-n-octylphthalate | U | 10.8 | ug/L | 3.23 | 10.8 |
| 205-99-2 | Benzo(b)fluoranthene | U | 1.08 | ug/L | 0.323 | 1.08 |
| 207-08-9 | Benzo(k)fluoranthene | U | 1.08 | ug/L | 0.323 | 1.08 |
| 50-32-8 | Benzo(a)pyrene | U | 1.08 | ug/L | 0.473 | 1.08 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | U | 1.08 | ug/L | 0.323 | 1.08 |
| 53-70-3 | Dibenzo(a,h)anthracene | U | 1.08 | ug/L | 0.323 | 1.08 |
| 191-24-2 | Benzo(ghi)perylene | U | 1.08 | ug/L | 0.323 | 1.08 |
| 123-91-1 | 1,4-Dioxane | J | 5.61 | ug/L | 3.23 | 10.8 |
| 55-18-5 | N-Nitrosodiethylamine | U | 10.8 | ug/L | 3.23 | 10.8 |
| 930-55-2 | N-Nitrosopyrrolidine | U | 10.8 | ug/L | 3.23 | 10.8 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | **Date Collected:** | **05/07/2013 12:20** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325394004** | **Date Received:** | **05/09/2013 08:50** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30561** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 21:19** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **930 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1320.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 924-16-3 | N-Nitrosodi-n-butylamine | U | 10.8 | ug/L | 3.23 | 10.8 |
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | U | 10.8 | ug/L | 3.23 | 10.8 |
| 608-93-5 | Pentachlorobenzene | U | 10.8 | ug/L | 3.23 | 10.8 |
| 1912-24-9 | Atrazine | U | 10.8 | ug/L | 3.23 | 10.8 |
| 92-87-5 | Benzidine | U | 10.8 | ug/L | 3.23 | 10.8 |
| 91-94-1 | 3,3'-Dichlorobenzidine | U | 10.8 | ug/L | 3.23 | 10.8 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 10.8 | ug/L | 3.23 | 10.8 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 2,4,6-Tribromophenol | 71.8 | 108 | ug/L | 66.8 | (26%-129%) |
| 2-Fluorobiphenyl | 30.5 | 53.8 | ug/L | 56.7 | (32%-102%) |
| 2-Fluorophenol | 44.7 | 108 | ug/L | 41.6 | (10%-78%) |
| Nitrobenzene-d5 | 35.8 | 53.8 | ug/L | 66.5 | (36%-125%) |
| Phenol-d5 | 26.3 | 108 | ug/L | 24.5 | (10%-104%) |
| p-Terphenyl-d14 | 41.9 | 53.8 | ug/L | 77.9 | (34%-135%) |

**Tentatively Identified Compound Summary**

| CAS No. | Tentatively Identified Compound (TIC) | RT | Estimated | Units | Fit | Qual |
|---|---|---|---|---|---|---|
| | unknown | 2.022 | 28.7 | ug/L | 0 | J |

# Quality Control Summary

**Semi-Volatile**

## Surrogate Recovery Report

**SDG Number: 2013-813**

**Matrix Type: LIQUID**

| Sample ID | Client ID | 2FP %REC | | PHL %REC | | NBZ %REC | | FBP %REC | | TBP %REC | | TPH %REC | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1202873988 | MB for batch 1300968 | 44 | | 26 | | 67 | | 38 | | 61 | | 104 | |
| 1202873989 | LCS for batch 1300968 | 38 | | 25 | | 61 | | 51 | | 66 | | 75 | |
| 325394001 | CAMO-13-30572 | 38 | | 25 | | 61 | | 53 | | 64 | | 84 | |
| 325394003 | CAMO-13-30559 | 44 | | 28 | | 57 | | 59 | | 62 | | 74 | |
| 325394004 | CAMO-13-30561 | 42 | | 24 | | 67 | | 57 | | 67 | | 78 | |
| 1202873990 | WST55-13-32015MS | 0 * | D | 0 * | D | 32 * | D | 34 | D | 0 * | D | 60 | D |
| 1202873991 | WST55-13-32015MSD | 0 * | D | 0 * | D | 30 * | D | 30 * | D | 0 * | D | 51 | D |

| Surrogate | | | Acceptance Limits |
|---|---|---|---|
| 2FP | = | 2-Fluorophenol | (10%-78%) |
| PHL | = | Phenol-d5 | (10%-104%) |
| NBZ | = | Nitrobenzene-d5 | (36%-125%) |
| FBP | = | 2-Fluorobiphenyl | (32%-102%) |
| TBP | = | 2,4,6-Tribromophenol | (26%-129%) |
| TPH | = | p-Terphenyl-d14 | (34%-135%) |

* Recovery outside Acceptance Limits
# Column to be used to flag recovery values
D Sample Diluted

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-813**
**Client ID:** **LCS for batch 1300968**
**Lab Sample ID:** **1202873989**
**Instrument:** **MSD4.I**
**Analyst:** **JMB3**
**Inj. Vol:** **1 uL**

**Sample Type:** **Laboratory Control Sample**
**Matrix:** **WATER**
**Analysis Date:** **05/13/2013 19:20**
**Prep Batch ID:** **1300968**
**Batch ID:** **1300969**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 62-75-9 | LCS | N-Methyl-N-nitrosomethylam | 50.0 | 0.0 | 17.7 | 35 | 18-75 |
| 110-86-1 | LCS | Pyridine | 50.0 | 0.0 | 25.5 | 51 | 11-88 |
| 62-53-3 | LCS | Aniline | 50.0 | 0.0 | 35.3 | 71 | 35-107 |
| 108-95-2 | LCS | Phenol | 50.0 | 0.0 | 12.2 | 24 | 13-77 |
| 111-44-4 | LCS | bis(2-Chloroethyl) ether | 50.0 | 0.0 | 27.8 | 56 | 35-111 |
| 95-57-8 | LCS | 2-Chlorophenol | 50.0 | 0.0 | 30.3 | 61 | 39-99 |
| 541-73-1 | LCS | 1,3-Dichlorobenzene | 50.0 | 0.0 | 26.9 | 54 | 25-100 |
| 106-46-7 | LCS | 1,4-Dichlorobenzene | 50.0 | 0.0 | 25.7 | 51 | 24-88 |
| 95-50-1 | LCS | 1,2-Dichlorobenzene | 50.0 | 0.0 | 25.8 | 52 | 27-87 |
| 39638-32-9 | LCS | bis(2-Chloroisopropyl)ether | 50.0 | 0.0 | 30.8 | 62 | 23-120 |
| 100-51-6 | LCS | Benzyl alcohol | 50.0 | 0.0 | 28.8 | 58 | 33-90 |
| 95-48-7 | LCS | o-Cresol | 50.0 | 0.0 | 27.2 | 54 | 32-90 |
| 65794-96-9 | LCS | m,p-Cresols | 50.0 | 0.0 | 29.8 | 60 | 28-100 |
| 621-64-7 | LCS | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | 50.0 | 0.0 | 35.9 | 72 | 39-113 |
| 67-72-1 | LCS | Hexachloroethane | 50.0 | 0.0 | 26.0 | 52 | 20-85 |
| 98-95-3 | LCS | Nitrobenzene | 50.0 | 0.0 | 30.2 | 60 | 41-119 |
| 78-59-1 | LCS | Isophorone | 50.0 | 0.0 | 33.9 | 68 | 49-133 |
| 88-75-5 | LCS | 2-Nitrophenol | 50.0 | 0.0 | 29.8 | 60 | 42-111 |
| 105-67-9 | LCS | 2,4-Dimethylphenol | 50.0 | 0.0 | 34.9 | 70 | 43-99 |
| 111-91-1 | LCS | bis(2-Chloroethoxy)methane | 50.0 | 0.0 | 34.6 | 69 | 44-109 |
| 120-83-2 | LCS | 2,4-Dichlorophenol | 50.0 | 0.0 | 32.1 | 64 | 45-106 |
| 65-85-0 | LCS | Benzoic acid | 100 | 0.0 | 21.4 | 21 | 10-81 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-813**
**Client ID:** **LCS for batch 1300968**
**Lab Sample ID:** **1202873989**
**Instrument:** **MSD4.I**
**Analyst:** **JMB3**
**Inj. Vol:** **1 uL**

**Sample Type:** **Laboratory Control Sample**
**Matrix:** **WATER**
**Analysis Date:** **05/13/2013 19:20**
**Prep Batch ID:** **1300968**
**Batch ID:** **1300969**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 106-47-8 | LCS | 4-Chloroaniline | 50.0 | 0.0 | 40.1 | 80 | 50-122 |
| 87-68-3 | LCS | Hexachlorobutadiene | 50.0 | 0.0 | 25.9 | 52 | 19-92 |
| 59-50-7 | LCS | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | 50.0 | 0.0 | 32.5 | 65 | 46-111 |
| 91-57-6 | LCS | 2-Methylnaphthalene | 50.0 | 0.0 | 25.8 | 52 | 33-102 |
| 91-20-3 | LCS | Naphthalene | 50.0 | 0.0 | 28.5 | 57 | 31-98 |
| 90-12-0 | LCS | 1-Methylnaphthalene | 50.0 | 0.0 | 25.2 | 50 | 35-106 |
| 77-47-4 | LCS | Hexachlorocyclopentadiene | 50.0 | 0.0 | 15.5 | 31 | 15-72 |
| 88-06-2 | LCS | 2,4,6-Trichlorophenol | 50.0 | 0.0 | 30.2 | 60 | 41-109 |
| 95-95-4 | LCS | 2,4,5-Trichlorophenol | 50.0 | 0.0 | 34.1 | 68 | 41-111 |
| 91-58-7 | LCS | 2-Chloronaphthalene | 50.0 | 0.0 | 27.6 | 55 | 36-98 |
| 88-74-4 | LCS | 2-Nitroaniline<br>*o-Nitroaniline* | 50.0 | 0.0 | 39.4 | 79 | 44-117 |
| 99-09-2 | LCS | 3-Nitroaniline<br>*m-Nitroaniline* | 50.0 | 0.0 | 37.3 | 75 | 45-124 |
| 131-11-3 | LCS | Dimethylphthalate | 50.0 | 0.0 | 35.1 | 70 | 53-112 |
| 606-20-2 | LCS | 2,6-Dinitrotoluene | 50.0 | 0.0 | 34.7 | 69 | 52-117 |
| 121-14-2 | LCS | 2,4-Dinitrotoluene | 50.0 | 0.0 | 38.9 | 78 | 45-124 |
| 208-96-8 | LCS | Acenaphthylene | 50.0 | 0.0 | 28.0 | 56 | 37-107 |
| 83-32-9 | LCS | Acenaphthene | 50.0 | 0.0 | 25.3 | 51 | 40-104 |
| 51-28-5 | LCS | 2,4-Dinitrophenol | 50.0 | 0.0 | 13.9 | 28 | 19-110 |
| 132-64-9 | LCS | Dibenzofuran | 50.0 | 0.0 | 31.4 | 63 | 45-107 |
| 58-90-2 | LCS | 2,3,4,6-Tetrachlorophenol | 50.0 | 0.0 | 37.3 | 75 | 45-120 |
| 84-66-2 | LCS | Diethylphthalate | 50.0 | 0.0 | 38.4 | 77 | 51-116 |
| 100-02-7 | LCS | 4-Nitrophenol | 50.0 | 0.0 | 4.72 | 9 * | 16-77 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-813**
**Client ID:** **LCS for batch 1300968**
**Lab Sample ID:** **1202873989**
**Instrument:** **MSD4.I**
**Analyst:** **JMB3**
**Inj. Vol:** **1 uL**

**Sample Type:** **Laboratory Control Sample**
**Matrix:** **WATER**
**Analysis Date:** **05/13/2013 19:20**
**Prep Batch ID:** **1300968**
**Batch ID:** **1300969**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 86-73-7 | LCS | Fluorene | 50.0 | 0.0 | 33.2 | 66 | 43-110 |
| 7005-72-3 | LCS | 4-Chlorophenylphenylether | 50.0 | 0.0 | 32.1 | 64 | 40-114 |
| 100-01-6 | LCS | 4-Nitroaniline<br>*p-Nitroaniline* | 50.0 | 0.0 | 44.9 | 90 | 38-133 |
| 534-52-1 | LCS | 2-Methyl-4,6-dinitrophenol | 50.0 | 0.0 | 36.3 | 73 | 34-114 |
| 122-39-4 | LCS | Diphenylamine | 50.0 | 0.0 | 40.9 | 82 | 47-111 |
| 122-66-7 | LCS | Azobenzene<br>*1,2-Diphenylhydrazine* | 50.0 | 0.0 | 36.4 | 73 | 40-112 |
| 101-55-3 | LCS | 4-Bromophenylphenylether | 50.0 | 0.0 | 32.7 | 65 | 41-113 |
| 118-74-1 | LCS | Hexachlorobenzene | 50.0 | 0.0 | 33.5 | 67 | 43-116 |
| 87-86-5 | LCS | Pentachlorophenol | 50.0 | 0.0 | 21.4 | 43 | 27-102 |
| 85-01-8 | LCS | Phenanthrene | 50.0 | 0.0 | 32.0 | 64 | 47-111 |
| 120-12-7 | LCS | Anthracene | 50.0 | 0.0 | 35.0 | 70 | 46-110 |
| 84-74-2 | LCS | Di-n-butylphthalate | 50.0 | 0.0 | 34.9 | 70 | 49-116 |
| 206-44-0 | LCS | Fluoranthene | 50.0 | 0.0 | 33.4 | 67 | 45-118 |
| 129-00-0 | LCS | Pyrene | 50.0 | 0.0 | 29.6 | 59 | 38-127 |
| 85-68-7 | LCS | Butylbenzylphthalate | 50.0 | 0.0 | 29.6 | 59 | 40-122 |
| 117-81-7 | LCS | bis(2-Ethylhexyl)phthalate | 50.0 | 0.0 | 30.0 | 60 | 37-124 |
| 56-55-3 | LCS | Benzo(a)anthracene | 50.0 | 0.0 | 32.4 | 65 | 49-111 |
| 218-01-9 | LCS | Chrysene | 50.0 | 0.0 | 32.6 | 65 | 44-117 |
| 117-84-0 | LCS | Di-n-octylphthalate | 50.0 | 0.0 | 25.4 | 51 | 33-122 |
| 205-99-2 | LCS | Benzo(b)fluoranthene | 50.0 | 0.0 | 33.8 | 68 | 47-117 |
| 207-08-9 | LCS | Benzo(k)fluoranthene | 50.0 | 0.0 | 36.4 | 73 | 46-119 |
| 50-32-8 | LCS | Benzo(a)pyrene | 50.0 | 0.0 | 31.1 | 62 | 47-110 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-813**
**Client ID:** **LCS for batch 1300968**
**Lab Sample ID:** **1202873989**
**Instrument:** **MSD4.I**
**Analyst:** **JMB3**
**Inj. Vol:** **1 uL**

**Sample Type:** **Laboratory Control Sample**
**Matrix:** **WATER**
**Analysis Date:** **05/13/2013 19:20**
**Prep Batch ID:** **1300968**
**Batch ID:** **1300969**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 193-39-5 | LCS | Indeno(1,2,3-cd)pyrene | 50.0 | 0.0 | 28.0 | 56 | 37-125 |
| 53-70-3 | LCS | Dibenzo(a,h)anthracene | 50.0 | 0.0 | 30.4 | 61 | 36-125 |
| 191-24-2 | LCS | Benzo(ghi)perylene | 50.0 | 0.0 | 29.4 | 59 | 33-126 |
| 123-91-1 | LCS | 1,4-Dioxane | 50.0 | 0.0 | 19.4 | 39 | 26-73 |
| 930-55-2 | LCS | N-Nitrosopyrrolidine | 50.0 | 0.0 | 33.9 | 68 | 42-106 |
| 95-94-3 | LCS | 1,2,4,5-Tetrachlorobenzene | 50.0 | 0.0 | 24.0 | 48 | 36-95 |
| 1912-24-9 | LCS | Atrazine | 50.0 | 0.0 | 15.6 | 31 * | 47-115 |
| 92-87-5 | LCS | Benzidine | 100 | 0.0 | 80.6 | 81 | 10-124 |
| 91-94-1 | LCS | 3,3'-Dichlorobenzidine | 50.0 | 0.0 | 31.6 | 63 | 31-113 |
| 120-82-1 | LCS | 1,2,4-Trichlorobenzene | 50.0 | 0.0 | 26.3 | 53 | 26-92 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-813**
**Client ID:** **WST55-13-32015MS**
**Lab Sample ID:** **1202873990**
**Instrument:** **MSD4.I**
**Analyst:** **JMB3**
**Inj. Vol:** **1 uL**

**Sample Type:** **Matrix Spike**
**Matrix:** **W**
**Analysis Date:** **05/14/2013 00:47**
**Prep Batch ID:** **1300968**
**Batch ID:** **1300969**
**Dilution: 20**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 62-75-9 | MS | N-Methyl-N-nitrosomethylam | 116 | 0.00 | U | 0.00 | 0 * | 21-88 |
| 110-86-1 | MS | Pyridine | 116 | 0.00 | U | 0.00 | 0 * | 14-94 |
| 62-53-3 | MS | Aniline | 116 | 0.00 | U | 0.00 | 0 * | 24-109 |
| 108-95-2 | MS | Phenol | 116 | 0.00 | U | 0.00 | 0 * | 10-88 |
| 111-44-4 | MS | bis(2-Chloroethyl) ether | 116 | 0.00 | U | 0.00 | 0 * | 25-114 |
| 95-57-8 | MS | 2-Chlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 31-103 |
| 541-73-1 | MS | 1,3-Dichlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 18-83 |
| 106-46-7 | MS | 1,4-Dichlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 20-86 |
| 95-50-1 | MS | 1,2-Dichlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 21-85 |
| 39638-32-9 | MS | bis(2-Chloroisopropyl)ether | 116 | 0.00 | U | 0.00 | 0 * | 16-121 |
| 100-51-6 | MS | Benzyl alcohol | 116 | 0.00 | U | 0.00 | 0 * | 31-100 |
| 95-48-7 | MS | o-Cresol | 116 | 0.00 | U | 0.00 | 0 * | 26-97 |
| 65794-96-9 | MS | m,p-Cresols | 116 | 0.00 | U | 0.00 | 0 * | 24-110 |
| 621-64-7 | MS | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | 116 | 0.00 | U | 0.00 | 0 * | 29-116 |
| 67-72-1 | MS | Hexachloroethane | 116 | 0.00 | U | 0.00 | 0 * | 17-82 |
| 98-95-3 | MS | Nitrobenzene | 116 | 0.00 | U | 0.00 | 0 * | 32-126 |
| 78-59-1 | MS | Isophorone | 116 | 0.00 | U | 0.00 | 0 * | 36-139 |
| 88-75-5 | MS | 2-Nitrophenol | 116 | 0.00 | U | 0.00 | 0 * | 29-117 |
| 105-67-9 | MS | 2,4-Dimethylphenol | 116 | 0.00 | U | 0.00 | 0 * | 28-107 |
| 111-91-1 | MS | bis(2-Chloroethoxy)methane | 116 | 0.00 | U | 0.00 | 0 * | 34-112 |
| 120-83-2 | MS | 2,4-Dichlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 34-111 |
| 65-85-0 | MS | Benzoic acid | 233 | 0.00 | U | 0.00 | 0 * | 10-105 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-813**
**Client ID:** **WST55-13-32015MS**
**Lab Sample ID:** **1202873990**
**Instrument:** **MSD4.I**
**Analyst:** **JMB3**
**Inj. Vol:** **1 uL**

**Sample Type:** **Matrix Spike**
**Matrix:** **W**
**Analysis Date:** **05/14/2013 00:47**
**Prep Batch ID:** **1300968**
**Batch ID:** **1300969**
**Dilution: 20**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 106-47-8 | MS | 4-Chloroaniline | 116 | 0.00 | U | 0.00 | 0 * | 28-123 |
| 87-68-3 | MS | Hexachlorobutadiene | 116 | 0.00 | U | 0.00 | 0 * | 11-97 |
| 59-50-7 | MS | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | 116 | 0.00 | U | 0.00 | 0 * | 31-119 |
| 91-57-6 | MS | 2-Methylnaphthalene | 116 | 0.00 | U | 47.9 | 41 | 26-103 |
| 91-20-3 | MS | Naphthalene | 116 | 0.00 | U | 41.9 | 36 | 25-100 |
| 90-12-0 | MS | 1-Methylnaphthalene | 116 | 0.00 | U | 46.5 | 40 | 27-107 |
| 77-47-4 | MS | Hexachlorocyclopentadiene | 116 | 0.00 | U | 0.00 | 0 * | 14-73 |
| 88-06-2 | MS | 2,4,6-Trichlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 31-113 |
| 95-95-4 | MS | 2,4,5-Trichlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 30-117 |
| 91-58-7 | MS | 2-Chloronaphthalene | 116 | 0.00 | U | 43.7 | 38 | 30-97 |
| 88-74-4 | MS | 2-Nitroaniline<br>*o-Nitroaniline* | 116 | 0.00 | U | 0.00 | 0 * | 28-122 |
| 99-09-2 | MS | 3-Nitroaniline<br>*m-Nitroaniline* | 116 | 0.00 | U | 0.00 | 0 * | 29-125 |
| 131-11-3 | MS | Dimethylphthalate | 116 | 0.00 | U | 0.00 | 0 * | 41-116 |
| 606-20-2 | MS | 2,6-Dinitrotoluene | 116 | 0.00 | U | 0.00 | 0 * | 40-123 |
| 121-14-2 | MS | 2,4-Dinitrotoluene | 116 | 0.00 | U | 0.00 | 0 * | 34-126 |
| 208-96-8 | MS | Acenaphthylene | 116 | 0.00 | U | 43.7 | 38 | 33-104 |
| 83-32-9 | MS | Acenaphthene | 116 | 0.00 | U | 44.2 | 38 | 31-103 |
| 51-28-5 | MS | 2,4-Dinitrophenol | 116 | 0.00 | U | 0.00 | 0 * | 17-110 |
| 132-64-9 | MS | Dibenzofuran | 116 | 0.00 | U | 0.00 | 0 * | 36-107 |
| 58-90-2 | MS | 2,3,4,6-Tetrachlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 29-126 |
| 84-66-2 | MS | Diethylphthalate | 116 | 0.00 | U | 0.00 | 0 * | 41-117 |
| 100-02-7 | MS | 4-Nitrophenol | 116 | 0.00 | U | 0.00 | 0 * | 16-71 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-813** **Sample Type:** **Matrix Spike**

**Client ID:** **WST55-13-32015MS** **Matrix:** **W**

**Lab Sample ID:** **1202873990**

**Instrument:** **MSD4.I** **Analysis Date:** **05/14/2013 00:47** **Dilution: 20**

**Analyst:** **JMB3** **Prep Batch ID:** **1300968**

**Inj. Vol:** **1 uL** **Batch ID:** **1300969**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 86-73-7 | MS | Fluorene | 116 | 0.00 | U | 43.7 | 38 | 32-111 |
| 7005-72-3 | MS | 4-Chlorophenylphenylether | 116 | 0.00 | U | 0.00 | 0 * | 30-112 |
| 100-01-6 | MS | 4-Nitroaniline<br>*p-Nitroaniline* | 116 | 0.00 | U | 0.00 | 0 * | 25-133 |
| 534-52-1 | MS | 2-Methyl-4,6-dinitrophenol | 116 | 0.00 | U | 0.00 | 0 * | 22-118 |
| 122-39-4 | MS | Diphenylamine | 116 | 0.00 | U | 0.00 | 0 * | 34-111 |
| 122-66-7 | MS | Azobenzene<br>*1,2-Diphenylhydrazine* | 116 | 0.00 | U | 0.00 | 0 * | 30-112 |
| 101-55-3 | MS | 4-Bromophenylphenylether | 116 | 0.00 | U | 0.00 | 0 * | 32-111 |
| 118-74-1 | MS | Hexachlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 33-115 |
| 87-86-5 | MS | Pentachlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 19-112 |
| 85-01-8 | MS | Phenanthrene | 116 | 0.00 | U | 44.2 | 38 | 34-112 |
| 120-12-7 | MS | Anthracene | 116 | 0.00 | U | 42.3 | 36 | 33-108 |
| 84-74-2 | MS | Di-n-butylphthalate | 116 | 0.00 | U | 0.00 | 0 * | 35-118 |
| 206-44-0 | MS | Fluoranthene | 116 | 0.00 | U | 39.5 | 34 | 31-118 |
| 129-00-0 | MS | Pyrene | 116 | 0.00 | U | 53.0 | 46 | 27-126 |
| 85-68-7 | MS | Butylbenzylphthalate | 116 | 0.00 | U | 0.00 | 0 * | 29-121 |
| 117-81-7 | MS | bis(2-Ethylhexyl)phthalate | 116 | 0.00 | U | 0.00 | 0 * | 29-120 |
| 56-55-3 | MS | Benzo(a)anthracene | 116 | 0.00 | U | 42.3 | 36 | 35-112 |
| 218-01-9 | MS | Chrysene | 116 | 0.00 | U | 41.9 | 36 | 32-116 |
| 117-84-0 | MS | Di-n-octylphthalate | 116 | 0.00 | U | 0.00 | 0 * | 25-118 |
| 205-99-2 | MS | Benzo(b)fluoranthene | 116 | 0.00 | U | 50.7 | 44 | 34-116 |
| 207-08-9 | MS | Benzo(k)fluoranthene | 116 | 0.00 | U | 52.1 | 45 | 34-119 |
| 50-32-8 | MS | Benzo(a)pyrene | 116 | 0.00 | U | 36.7 | 32 * | 34-110 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-813**
**Client ID:** **WST55-13-32015MS**
**Lab Sample ID:** **1202873990**
**Instrument:** **MSD4.I**
**Analyst:** **JMB3**
**Inj. Vol:** **1 uL**

**Sample Type:** **Matrix Spike**
**Matrix:** **W**
**Analysis Date:** **05/14/2013 00:47**
**Prep Batch ID:** **1300968**
**Batch ID:** **1300969**
**Dilution: 20**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 193-39-5 | MS | Indeno(1,2,3-cd)pyrene | 116 | 0.00 | U | 23.7 | 20 * | 25-122 |
| 53-70-3 | MS | Dibenzo(a,h)anthracene | 116 | 0.00 | U | 23.7 | 20 * | 24-123 |
| 191-24-2 | MS | Benzo(ghi)perylene | 116 | 0.00 | U | 24.7 | 21 * | 22-122 |
| 123-91-1 | MS | 1,4-Dioxane | 116 | 0.00 | U | 0.00 | 0 * | 26-88 |
| 930-55-2 | MS | N-Nitrosopyrrolidine | 116 | 0.00 | U | 0.00 | 0 * | 42-110 |
| 95-94-3 | MS | 1,2,4,5-Tetrachlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 29-96 |
| 1912-24-9 | MS | Atrazine | 116 | 0.00 | U | 0.00 | 0 * | 33-121 |
| 92-87-5 | MS | Benzidine | 233 | 0.00 | U | 0.00 | 0 * | 10-117 |
| 91-94-1 | MS | 3,3'-Dichlorobenzidine | 116 | 0.00 | U | 0.00 | 0 * | 22-111 |
| 120-82-1 | MS | 1,2,4-Trichlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 20-90 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-813** **Sample Type:** **Matrix Spike Duplicate**

**Client ID:** **WST55-13-32015MSD** **Matrix:** **W**

**Lab Sample ID:** **1202873991**

**Instrument:** **MSD4.I** **Analysis Date:** **05/14/2013 01:17** **Dilution: 20**

**Analyst:** **JMB3** **Prep Batch ID:** **1300968**

**Inj. Vol:** **1 uL** **Batch ID:** **1300969**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 62-75-9 | MSD | N-Methyl-N-nitrosomethylam | 116 | 0.00 | U | 0.00 | 0 * | 21-88 | 0 | 0-30 |
| 110-86-1 | MSD | Pyridine | 116 | 0.00 | U | 0.00 | 0 * | 14-94 | 0 | 0-30 |
| 62-53-3 | MSD | Aniline | 116 | 0.00 | U | 0.00 | 0 * | 24-109 | 0 | 0-30 |
| 108-95-2 | MSD | Phenol | 116 | 0.00 | U | 0.00 | 0 * | 10-88 | 0 | 0-30 |
| 111-44-4 | MSD | bis(2-Chloroethyl) ether | 116 | 0.00 | U | 0.00 | 0 * | 25-114 | 0 | 0-30 |
| 95-57-8 | MSD | 2-Chlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 31-103 | 0 | 0-30 |
| 541-73-1 | MSD | 1,3-Dichlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 18-83 | 0 | 0-30 |
| 106-46-7 | MSD | 1,4-Dichlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 20-86 | 0 | 0-30 |
| 95-50-1 | MSD | 1,2-Dichlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 21-85 | 0 | 0-30 |
| 39638-32-9 | MSD | bis(2-Chloroisopropyl)ether | 116 | 0.00 | U | 0.00 | 0 * | 16-121 | 0 | 0-30 |
| 100-51-6 | MSD | Benzyl alcohol | 116 | 0.00 | U | 0.00 | 0 * | 31-100 | 0 | 0-30 |
| 95-48-7 | MSD | o-Cresol | 116 | 0.00 | U | 0.00 | 0 * | 26-97 | 0 | 0-30 |
| 65794-96-9 | MSD | m,p-Cresols | 116 | 0.00 | U | 0.00 | 0 * | 24-110 | 0 | 0-30 |
| 621-64-7 | MSD | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | 116 | 0.00 | U | 0.00 | 0 * | 29-116 | 0 | 0-30 |
| 67-72-1 | MSD | Hexachloroethane | 116 | 0.00 | U | 0.00 | 0 * | 17-82 | 0 | 0-30 |
| 98-95-3 | MSD | Nitrobenzene | 116 | 0.00 | U | 0.00 | 0 * | 32-126 | 0 | 0-30 |
| 78-59-1 | MSD | Isophorone | 116 | 0.00 | U | 0.00 | 0 * | 36-139 | 0 | 0-30 |
| 88-75-5 | MSD | 2-Nitrophenol | 116 | 0.00 | U | 0.00 | 0 * | 29-117 | 0 | 0-30 |
| 105-67-9 | MSD | 2,4-Dimethylphenol | 116 | 0.00 | U | 0.00 | 0 * | 28-107 | 0 | 0-30 |
| 111-91-1 | MSD | bis(2-Chloroethoxy)methane | 116 | 0.00 | U | 0.00 | 0 * | 34-112 | 0 | 0-30 |
| 120-83-2 | MSD | 2,4-Dichlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 34-111 | 0 | 0-30 |
| 65-85-0 | MSD | Benzoic acid | 233 | 0.00 | U | 0.00 | 0 * | 10-105 | 0 | 0-30 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-813**
**Client ID:** **WST55-13-32015MSD**
**Lab Sample ID:** **1202873991**
**Instrument:** **MSD4.I**
**Analyst:** **JMB3**
**Inj. Vol:** **1 uL**

**Sample Type:** **Matrix Spike Duplicate**
**Matrix:** **W**
**Analysis Date:** **05/14/2013 01:17**
**Prep Batch ID:** **1300968**
**Batch ID:** **1300969**
**Dilution: 20**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 106-47-8 | MSD | 4-Chloroaniline | 116 | 0.00 | U | 0.00 | 0 * | 28-123 | 0 | 0-30 |
| 87-68-3 | MSD | Hexachlorobutadiene | 116 | 0.00 | U | 0.00 | 0 * | 11-97 | 0 | 0-30 |
| 59-50-7 | MSD | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | 116 | 0.00 | U | 0.00 | 0 * | 31-119 | 0 | 0-30 |
| 91-57-6 | MSD | 2-Methylnaphthalene | 116 | 0.00 | U | 45.1 | 39 | 26-103 | 6 | 0-30 |
| 91-20-3 | MSD | Naphthalene | 116 | 0.00 | U | 40.9 | 35 | 25-100 | 2 | 0-30 |
| 90-12-0 | MSD | 1-Methylnaphthalene | 116 | 0.00 | U | 41.9 | 36 | 27-107 | 11 | 0-30 |
| 77-47-4 | MSD | Hexachlorocyclopentadiene | 116 | 0.00 | U | 0.00 | 0 * | 14-73 | 0 | 0-30 |
| 88-06-2 | MSD | 2,4,6-Trichlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 31-113 | 0 | 0-30 |
| 95-95-4 | MSD | 2,4,5-Trichlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 30-117 | 0 | 0-30 |
| 91-58-7 | MSD | 2-Chloronaphthalene | 116 | 0.00 | U | 42.3 | 36 | 30-97 | 3 | 0-30 |
| 88-74-4 | MSD | 2-Nitroaniline<br>*o-Nitroaniline* | 116 | 0.00 | U | 0.00 | 0 * | 28-122 | 0 | 0-30 |
| 99-09-2 | MSD | 3-Nitroaniline<br>*m-Nitroaniline* | 116 | 0.00 | U | 0.00 | 0 * | 29-125 | 0 | 0-30 |
| 131-11-3 | MSD | Dimethylphthalate | 116 | 0.00 | U | 0.00 | 0 * | 41-116 | 0 | 0-30 |
| 606-20-2 | MSD | 2,6-Dinitrotoluene | 116 | 0.00 | U | 0.00 | 0 * | 40-123 | 0 | 0-30 |
| 121-14-2 | MSD | 2,4-Dinitrotoluene | 116 | 0.00 | U | 0.00 | 0 * | 34-126 | 0 | 0-30 |
| 208-96-8 | MSD | Acenaphthylene | 116 | 0.00 | U | 44.2 | 38 | 33-104 | 1 | 0-30 |
| 83-32-9 | MSD | Acenaphthene | 116 | 0.00 | U | 42.3 | 36 | 31-103 | 4 | 0-30 |
| 51-28-5 | MSD | 2,4-Dinitrophenol | 116 | 0.00 | U | 0.00 | 0 * | 17-110 | 0 | 0-30 |
| 132-64-9 | MSD | Dibenzofuran | 116 | 0.00 | U | 0.00 | 0 * | 36-107 | 0 | 0-30 |
| 58-90-2 | MSD | 2,3,4,6-Tetrachlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 29-126 | 0 | 0-30 |
| 84-66-2 | MSD | Diethylphthalate | 116 | 0.00 | U | 0.00 | 0 * | 41-117 | 0 | 0-30 |
| 100-02-7 | MSD | 4-Nitrophenol | 116 | 0.00 | U | 0.00 | 0 * | 16-71 | 0 | 0-30 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-813** **Sample Type:** **Matrix Spike Duplicate**

**Client ID:** **WST55-13-32015MSD** **Matrix:** **W**

**Lab Sample ID:** **1202873991**

**Instrument:** **MSD4.I** **Analysis Date:** **05/14/2013 01:17** **Dilution: 20**

**Analyst:** **JMB3** **Prep Batch ID:** **1300968**

**Inj. Vol:** **1 uL** **Batch ID:** **1300969**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 86-73-7 | MSD | Fluorene | 116 | 0.00 | U | 41.9 | 36 | 32-111 | 4 | 0-30 |
| 7005-72-3 | MSD | 4-Chlorophenylphenylether | 116 | 0.00 | U | 0.00 | 0 * | 30-112 | 0 | 0-30 |
| 100-01-6 | MSD | 4-Nitroaniline<br>*p-Nitroaniline* | 116 | 0.00 | U | 0.00 | 0 * | 25-133 | 0 | 0-30 |
| 534-52-1 | MSD | 2-Methyl-4,6-dinitrophenol | 116 | 0.00 | U | 0.00 | 0 * | 22-118 | 0 | 0-30 |
| 122-39-4 | MSD | Diphenylamine | 116 | 0.00 | U | 0.00 | 0 * | 34-111 | 0 | 0-30 |
| 122-66-7 | MSD | Azobenzene<br>*1,2-Diphenylhydrazine* | 116 | 0.00 | U | 0.00 | 0 * | 30-112 | 0 | 0-30 |
| 101-55-3 | MSD | 4-Bromophenylphenylether | 116 | 0.00 | U | 0.00 | 0 * | 32-111 | 0 | 0-30 |
| 118-74-1 | MSD | Hexachlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 33-115 | 0 | 0-30 |
| 87-86-5 | MSD | Pentachlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 19-112 | 0 | 0-30 |
| 85-01-8 | MSD | Phenanthrene | 116 | 0.00 | U | 42.3 | 36 | 34-112 | 4 | 0-30 |
| 120-12-7 | MSD | Anthracene | 116 | 0.00 | U | 41.4 | 36 | 33-108 | 2 | 0-30 |
| 84-74-2 | MSD | Di-n-butylphthalate | 116 | 0.00 | U | 0.00 | 0 * | 35-118 | 0 | 0-30 |
| 206-44-0 | MSD | Fluoranthene | 116 | 0.00 | U | 40.9 | 35 | 31-118 | 3 | 0-30 |
| 129-00-0 | MSD | Pyrene | 116 | 0.00 | U | 44.7 | 38 | 27-126 | 17 | 0-30 |
| 85-68-7 | MSD | Butylbenzylphthalate | 116 | 0.00 | U | 0.00 | 0 * | 29-121 | 0 | 0-30 |
| 117-81-7 | MSD | bis(2-Ethylhexyl)phthalate | 116 | 0.00 | U | 0.00 | 0 * | 29-120 | 0 | 0-30 |
| 56-55-3 | MSD | Benzo(a)anthracene | 116 | 0.00 | U | 41.9 | 36 | 35-112 | 1 | 0-30 |
| 218-01-9 | MSD | Chrysene | 116 | 0.00 | U | 39.5 | 34 | 32-116 | 6 | 0-30 |
| 117-84-0 | MSD | Di-n-octylphthalate | 116 | 0.00 | U | 0.00 | 0 * | 25-118 | 0 | 0-30 |
| 205-99-2 | MSD | Benzo(b)fluoranthene | 116 | 0.00 | U | 45.1 | 39 | 34-116 | 12 | 0-30 |
| 207-08-9 | MSD | Benzo(k)fluoranthene | 116 | 0.00 | U | 59.1 | 51 | 34-119 | 13 | 0-30 |
| 50-32-8 | MSD | Benzo(a)pyrene | 116 | 0.00 | U | 39.1 | 34 | 34-110 | 6 | 0-30 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-813**
**Sample Type:** **Matrix Spike Duplicate**
**Client ID:** **WST55-13-32015MSD**
**Matrix:** **W**
**Lab Sample ID:** **1202873991**
**Instrument:** **MSD4.I**
**Analysis Date:** **05/14/2013 01:17**
**Dilution: 20**
**Analyst:** **JMB3**
**Prep Batch ID:** **1300968**
**Inj. Vol:** **1 uL**
**Batch ID:** **1300969**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 193-39-5 | MSD | Indeno(1,2,3-cd)pyrene | 116 | 0.00 | U | 30.2 | 26 | 25-122 | 24 | 0-30 |
| 53-70-3 | MSD | Dibenzo(a,h)anthracene | 116 | 0.00 | U | 25.1 | 22 * | 24-123 | 6 | 0-30 |
| 191-24-2 | MSD | Benzo(ghi)perylene | 116 | 0.00 | U | 27.4 | 24 | 22-122 | 11 | 0-30 |
| 123-91-1 | MSD | 1,4-Dioxane | 116 | 0.00 | U | 0.00 | 0 * | 26-88 | 0 | 0-30 |
| 930-55-2 | MSD | N-Nitrosopyrrolidine | 116 | 0.00 | U | 0.00 | 0 * | 42-110 | 0 | 0-30 |
| 95-94-3 | MSD | 1,2,4,5-Tetrachlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 29-96 | 0 | 0-30 |
| 1912-24-9 | MSD | Atrazine | 116 | 0.00 | U | 0.00 | 0 * | 33-121 | 0 | 0-30 |
| 92-87-5 | MSD | Benzidine | 233 | 0.00 | U | 0.00 | 0 * | 10-117 | 0 | 0-30 |
| 91-94-1 | MSD | 3,3'-Dichlorobenzidine | 116 | 0.00 | U | 0.00 | 0 * | 22-111 | 0 | 0-30 |
| 120-82-1 | MSD | 1,2,4-Trichlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 20-90 | 0 | 0-30 |

# Method Blank Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | **Client:** | **ARSL001** | **Matrix:** | **WATER** |
| **Client ID:** | **MB for batch 1300968** | **Instrument ID:** | **MSD4.I** | **Data File:** | **s051313a.B\s4e1315.D** |
| **Lab Sample ID:** | **1202873988** | **Prep Date:** | **05/13/2013 10:10** | **Analyzed:** | **05/13/13 18:50** |
| **Column:** | **DB-5ms** | | | | |

**This method blank applies to the following samples and quality control samples:**

| | Client Sample ID | Lab Sample ID | File ID | Date Analyzed | Time Analyzed |
|---|---|---|---|---|---|
| 01 | LCS for batch 1300968 | 1202873989 | s051313a.B\s4e1316.D | 05/13/13 | 1920 |
| 02 | CAMO-13-30572 | 325394001 | s051313a.B\s4e1318.D | 05/13/13 | 2020 |
| 03 | CAMO-13-30559 | 325394003 | s051313a.B\s4e1319.D | 05/13/13 | 2050 |
| 04 | CAMO-13-30561 | 325394004 | s051313a.B\s4e1320.D | 05/13/13 | 2119 |
| 05 | WST55-13-32015MS | 1202873990 | s051313a.B\s4e1327.D | 05/14/13 | 0047 |
| 06 | WST55-13-32015MSD | 1202873991 | s051313a.B\s4e1328.D | 05/14/13 | 0117 |

# Quality Control Data

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202873988** | | | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **MB for batch 1300968** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 18:50** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **1000 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1315.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 62-75-9 | N-Methyl-N-nitrosomethylamine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 110-86-1 | Pyridine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 62-53-3 | Aniline | U | 10.0 | ug/L | 3.00 | 10.0 |
| 108-95-2 | Phenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 111-44-4 | bis(2-Chloroethyl) ether | U | 10.0 | ug/L | 3.00 | 10.0 |
| 95-57-8 | 2-Chlorophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 39638-32-9 | bis(2-Chloroisopropyl)ether | U | 10.0 | ug/L | 3.00 | 10.0 |
| 100-51-6 | Benzyl alcohol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 95-48-7 | o-Cresol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 65794-96-9 | m,p-Cresols | U | 10.0 | ug/L | 3.00 | 10.0 |
| 621-64-7 | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | U | 10.0 | ug/L | 3.00 | 10.0 |
| 67-72-1 | Hexachloroethane | U | 10.0 | ug/L | 3.00 | 10.0 |
| 98-95-3 | Nitrobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 78-59-1 | Isophorone | U | 10.0 | ug/L | 3.00 | 10.0 |
| 88-75-5 | 2-Nitrophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 105-67-9 | 2,4-Dimethylphenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 111-91-1 | bis(2-Chloroethoxy)methane | U | 10.0 | ug/L | 3.00 | 10.0 |
| 120-83-2 | 2,4-Dichlorophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 65-85-0 | Benzoic acid | U | 20.0 | ug/L | 6.00 | 20.0 |
| 106-47-8 | 4-Chloroaniline | U | 10.0 | ug/L | 3.30 | 10.0 |
| 87-68-3 | Hexachlorobutadiene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 59-50-7 | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | U | 10.0 | ug/L | 3.00 | 10.0 |
| 91-57-6 | 2-Methylnaphthalene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 90-12-0 | 1-Methylnaphthalene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 77-47-4 | Hexachlorocyclopentadiene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 88-06-2 | 2,4,6-Trichlorophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 95-95-4 | 2,4,5-Trichlorophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 91-58-7 | 2-Chloronaphthalene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 88-74-4 | 2-Nitroaniline<br>*o-Nitroaniline* | U | 10.0 | ug/L | 3.00 | 10.0 |
| 99-09-2 | 3-Nitroaniline<br>*m-Nitroaniline* | U | 10.0 | ug/L | 3.00 | 10.0 |
| 131-11-3 | Dimethylphthalate | U | 10.0 | ug/L | 3.00 | 10.0 |
| 606-20-2 | 2,6-Dinitrotoluene | U | 10.0 | ug/L | 3.00 | 10.0 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202873988** | | | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **MB for batch 1300968** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 18:50** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **1000 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1315.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 121-14-2 | 2,4-Dinitrotoluene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 208-96-8 | Acenaphthylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 83-32-9 | Acenaphthene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 51-28-5 | 2,4-Dinitrophenol | U | 20.0 | ug/L | 5.00 | 20.0 |
| 132-64-9 | Dibenzofuran | U | 10.0 | ug/L | 3.00 | 10.0 |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 84-66-2 | Diethylphthalate | U | 10.0 | ug/L | 3.00 | 10.0 |
| 100-02-7 | 4-Nitrophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 86-73-7 | Fluorene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 7005-72-3 | 4-Chlorophenylphenylether | U | 10.0 | ug/L | 3.00 | 10.0 |
| 100-01-6 | 4-Nitroaniline | U | 10.0 | ug/L | 3.00 | 10.0 |
| | *p-Nitroaniline* | | | | | |
| 534-52-1 | 2-Methyl-4,6-dinitrophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 122-39-4 | Diphenylamine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 122-66-7 | Azobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| | *1,2-Diphenylhydrazine* | | | | | |
| 101-55-3 | 4-Bromophenylphenylether | U | 10.0 | ug/L | 3.00 | 10.0 |
| 118-74-1 | Hexachlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 87-86-5 | Pentachlorophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 88-85-7 | Dinoseb | U | 10.0 | ug/L | 3.00 | 10.0 |
| 85-01-8 | Phenanthrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 120-12-7 | Anthracene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 84-74-2 | Di-n-butylphthalate | U | 10.0 | ug/L | 3.00 | 10.0 |
| 206-44-0 | Fluoranthene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 129-00-0 | Pyrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 85-68-7 | Butylbenzylphthalate | U | 10.0 | ug/L | 3.00 | 10.0 |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | U | 10.0 | ug/L | 3.00 | 10.0 |
| 56-55-3 | Benzo(a)anthracene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 218-01-9 | Chrysene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 117-84-0 | Di-n-octylphthalate | U | 10.0 | ug/L | 3.00 | 10.0 |
| 205-99-2 | Benzo(b)fluoranthene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 207-08-9 | Benzo(k)fluoranthene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 50-32-8 | Benzo(a)pyrene | U | 1.00 | ug/L | 0.440 | 1.00 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 53-70-3 | Dibenzo(a,h)anthracene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 191-24-2 | Benzo(ghi)perylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 123-91-1 | 1,4-Dioxane | U | 10.0 | ug/L | 3.00 | 10.0 |
| 55-18-5 | N-Nitrosodiethylamine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 930-55-2 | N-Nitrosopyrrolidine | U | 10.0 | ug/L | 3.00 | 10.0 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202873988** | | | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **MB for batch 1300968** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 18:50** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **1000 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1315.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 924-16-3 | N-Nitrosodi-n-butylamine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 608-93-5 | Pentachlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 1912-24-9 | Atrazine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 92-87-5 | Benzidine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 91-94-1 | 3,3'-Dichlorobenzidine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 2,4,6-Tribromophenol | 61.2 | 100 | ug/L | 61.2 | (26%-129%) |
| 2-Fluorobiphenyl | 18.8 | 50.0 | ug/L | 37.7 | (32%-102%) |
| 2-Fluorophenol | 44.0 | 100 | ug/L | 44.0 | (10%-78%) |
| Nitrobenzene-d5 | 33.3 | 50.0 | ug/L | 66.6 | (36%-125%) |
| Phenol-d5 | 26.5 | 100 | ug/L | 26.5 | (10%-104%) |
| p-Terphenyl-d14 | 51.9 | 50.0 | ug/L | 104 | (34%-135%) |

**Tentatively Identified Compound Summary**

| CAS No. | Tentatively Identified Compound (TIC) | RT | Estimated | Units | Fit | Qual |
|---|---|---|---|---|---|---|
| | unknown | 2.028 | 30.2 | ug/L | 0 | J |
| | unknown | 23.7 | 5.44 | ug/L | 0 | J |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202873989** | | | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1300968** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 19:20** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **1000 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1316.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 62-75-9 | N-Methyl-N-nitrosomethylamine | | 17.7 | ug/L | 3.00 | 10.0 |
| 110-86-1 | Pyridine | | 25.5 | ug/L | 3.00 | 10.0 |
| 62-53-3 | Aniline | | 35.3 | ug/L | 3.00 | 10.0 |
| 108-95-2 | Phenol | | 12.2 | ug/L | 3.00 | 10.0 |
| 111-44-4 | bis(2-Chloroethyl) ether | | 27.8 | ug/L | 3.00 | 10.0 |
| 95-57-8 | 2-Chlorophenol | | 30.3 | ug/L | 3.00 | 10.0 |
| 541-73-1 | 1,3-Dichlorobenzene | | 26.9 | ug/L | 3.00 | 10.0 |
| 106-46-7 | 1,4-Dichlorobenzene | | 25.7 | ug/L | 3.00 | 10.0 |
| 95-50-1 | 1,2-Dichlorobenzene | | 25.8 | ug/L | 3.00 | 10.0 |
| 39638-32-9 | bis(2-Chloroisopropyl)ether | | 30.8 | ug/L | 3.00 | 10.0 |
| 100-51-6 | Benzyl alcohol | | 28.8 | ug/L | 3.00 | 10.0 |
| 95-48-7 | o-Cresol | | 27.2 | ug/L | 3.00 | 10.0 |
| 65794-96-9 | m,p-Cresols | | 29.8 | ug/L | 3.00 | 10.0 |
| 621-64-7 | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | | 35.9 | ug/L | 3.00 | 10.0 |
| 67-72-1 | Hexachloroethane | | 26.0 | ug/L | 3.00 | 10.0 |
| 98-95-3 | Nitrobenzene | | 30.2 | ug/L | 3.00 | 10.0 |
| 78-59-1 | Isophorone | | 33.9 | ug/L | 3.00 | 10.0 |
| 88-75-5 | 2-Nitrophenol | | 29.8 | ug/L | 3.00 | 10.0 |
| 105-67-9 | 2,4-Dimethylphenol | | 34.9 | ug/L | 3.00 | 10.0 |
| 111-91-1 | bis(2-Chloroethoxy)methane | | 34.6 | ug/L | 3.00 | 10.0 |
| 120-83-2 | 2,4-Dichlorophenol | | 32.1 | ug/L | 3.00 | 10.0 |
| 65-85-0 | Benzoic acid | | 21.4 | ug/L | 6.00 | 20.0 |
| 106-47-8 | 4-Chloroaniline | | 40.1 | ug/L | 3.30 | 10.0 |
| 87-68-3 | Hexachlorobutadiene | | 25.9 | ug/L | 3.00 | 10.0 |
| 59-50-7 | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | | 32.5 | ug/L | 3.00 | 10.0 |
| 91-57-6 | 2-Methylnaphthalene | | 25.8 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | | 28.5 | ug/L | 0.300 | 1.00 |
| 90-12-0 | 1-Methylnaphthalene | | 25.2 | ug/L | 0.300 | 1.00 |
| 77-47-4 | Hexachlorocyclopentadiene | | 15.5 | ug/L | 3.00 | 10.0 |
| 88-06-2 | 2,4,6-Trichlorophenol | | 30.2 | ug/L | 3.00 | 10.0 |
| 95-95-4 | 2,4,5-Trichlorophenol | | 34.1 | ug/L | 3.00 | 10.0 |
| 91-58-7 | 2-Chloronaphthalene | | 27.6 | ug/L | 0.300 | 1.00 |
| 88-74-4 | 2-Nitroaniline<br>*o-Nitroaniline* | | 39.4 | ug/L | 3.00 | 10.0 |
| 99-09-2 | 3-Nitroaniline<br>*m-Nitroaniline* | | 37.3 | ug/L | 3.00 | 10.0 |
| 131-11-3 | Dimethylphthalate | | 35.1 | ug/L | 3.00 | 10.0 |
| 606-20-2 | 2,6-Dinitrotoluene | | 34.7 | ug/L | 3.00 | 10.0 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202873989** | | | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1300968** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 19:20** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **1000 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1316.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 121-14-2 | 2,4-Dinitrotoluene | | 38.9 | ug/L | 3.00 | 10.0 |
| 208-96-8 | Acenaphthylene | | 28.0 | ug/L | 0.300 | 1.00 |
| 83-32-9 | Acenaphthene | | 25.3 | ug/L | 0.300 | 1.00 |
| 51-28-5 | 2,4-Dinitrophenol | J | 13.9 | ug/L | 5.00 | 20.0 |
| 132-64-9 | Dibenzofuran | | 31.4 | ug/L | 3.00 | 10.0 |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | | 37.3 | ug/L | 3.00 | 10.0 |
| 84-66-2 | Diethylphthalate | | 38.4 | ug/L | 3.00 | 10.0 |
| 100-02-7 | 4-Nitrophenol | J | 4.72 | ug/L | 3.00 | 10.0 |
| 86-73-7 | Fluorene | | 33.2 | ug/L | 0.300 | 1.00 |
| 7005-72-3 | 4-Chlorophenylphenylether | | 32.1 | ug/L | 3.00 | 10.0 |
| 100-01-6 | 4-Nitroaniline<br>*p-Nitroaniline* | | 44.9 | ug/L | 3.00 | 10.0 |
| 534-52-1 | 2-Methyl-4,6-dinitrophenol | | 36.3 | ug/L | 3.00 | 10.0 |
| 122-39-4 | Diphenylamine | | 40.9 | ug/L | 3.00 | 10.0 |
| 122-66-7 | Azobenzene<br>*1,2-Diphenylhydrazine* | | 36.4 | ug/L | 3.00 | 10.0 |
| 101-55-3 | 4-Bromophenylphenylether | | 32.7 | ug/L | 3.00 | 10.0 |
| 118-74-1 | Hexachlorobenzene | | 33.5 | ug/L | 3.00 | 10.0 |
| 87-86-5 | Pentachlorophenol | | 21.4 | ug/L | 3.00 | 10.0 |
| 88-85-7 | Dinoseb | U | 10.0 | ug/L | 3.00 | 10.0 |
| 85-01-8 | Phenanthrene | | 32.0 | ug/L | 0.300 | 1.00 |
| 120-12-7 | Anthracene | | 35.0 | ug/L | 0.300 | 1.00 |
| 84-74-2 | Di-n-butylphthalate | | 34.9 | ug/L | 3.00 | 10.0 |
| 206-44-0 | Fluoranthene | | 33.4 | ug/L | 0.300 | 1.00 |
| 129-00-0 | Pyrene | | 29.6 | ug/L | 0.300 | 1.00 |
| 85-68-7 | Butylbenzylphthalate | | 29.6 | ug/L | 3.00 | 10.0 |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | | 30.0 | ug/L | 3.00 | 10.0 |
| 56-55-3 | Benzo(a)anthracene | | 32.4 | ug/L | 0.300 | 1.00 |
| 218-01-9 | Chrysene | | 32.6 | ug/L | 0.300 | 1.00 |
| 117-84-0 | Di-n-octylphthalate | | 25.4 | ug/L | 3.00 | 10.0 |
| 205-99-2 | Benzo(b)fluoranthene | | 33.8 | ug/L | 0.300 | 1.00 |
| 207-08-9 | Benzo(k)fluoranthene | | 36.4 | ug/L | 0.300 | 1.00 |
| 50-32-8 | Benzo(a)pyrene | | 31.1 | ug/L | 0.440 | 1.00 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | | 28.0 | ug/L | 0.300 | 1.00 |
| 53-70-3 | Dibenzo(a,h)anthracene | | 30.4 | ug/L | 0.300 | 1.00 |
| 191-24-2 | Benzo(ghi)perylene | | 29.4 | ug/L | 0.300 | 1.00 |
| 123-91-1 | 1,4-Dioxane | | 19.4 | ug/L | 3.00 | 10.0 |
| 55-18-5 | N-Nitrosodiethylamine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 930-55-2 | N-Nitrosopyrrolidine | | 33.9 | ug/L | 3.00 | 10.0 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202873989** | | | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1300968** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 19:20** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **1000 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1316.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 924-16-3 | N-Nitrosodi-n-butylamine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | | 24.0 | ug/L | 3.00 | 10.0 |
| 608-93-5 | Pentachlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 1912-24-9 | Atrazine | | 15.6 | ug/L | 3.00 | 10.0 |
| 92-87-5 | Benzidine | | 80.6 | ug/L | 3.00 | 10.0 |
| 91-94-1 | 3,3'-Dichlorobenzidine | | 31.6 | ug/L | 3.00 | 10.0 |
| 120-82-1 | 1,2,4-Trichlorobenzene | | 26.3 | ug/L | 3.00 | 10.0 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 2,4,6-Tribromophenol | 65.7 | 100 | ug/L | 65.7 | (26%-129%) |
| 2-Fluorobiphenyl | 25.5 | 50.0 | ug/L | 51.0 | (32%-102%) |
| 2-Fluorophenol | 37.6 | 100 | ug/L | 37.6 | (10%-78%) |
| Nitrobenzene-d5 | 30.3 | 50.0 | ug/L | 60.7 | (36%-125%) |
| Phenol-d5 | 24.8 | 100 | ug/L | 24.8 | (10%-104%) |
| p-Terphenyl-d14 | 37.5 | 50.0 | ug/L | 74.9 | (34%-135%) |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | **Date Collected:** | **05/07/2013 09:30** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202873990** | **Date Received:** | **05/08/2013 08:55** | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **WST55-13-32015MS** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **20** |
| **Run Date:** | **05/14/2013 00:47** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **430 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1327.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 62-75-9 | N-Methyl-N-nitrosomethylamine | U | 465 | ug/L | 140 | 465 |
| 110-86-1 | Pyridine | U | 465 | ug/L | 140 | 465 |
| 62-53-3 | Aniline | U | 465 | ug/L | 140 | 465 |
| 108-95-2 | Phenol | U | 465 | ug/L | 140 | 465 |
| 111-44-4 | bis(2-Chloroethyl) ether | U | 465 | ug/L | 140 | 465 |
| 95-57-8 | 2-Chlorophenol | U | 465 | ug/L | 140 | 465 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 465 | ug/L | 140 | 465 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 465 | ug/L | 140 | 465 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 465 | ug/L | 140 | 465 |
| 39638-32-9 | bis(2-Chloroisopropyl)ether | U | 465 | ug/L | 140 | 465 |
| 100-51-6 | Benzyl alcohol | U | 465 | ug/L | 140 | 465 |
| 95-48-7 | o-Cresol | U | 465 | ug/L | 140 | 465 |
| 65794-96-9 | m,p-Cresols | U | 465 | ug/L | 140 | 465 |
| 621-64-7 | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | U | 465 | ug/L | 140 | 465 |
| 67-72-1 | Hexachloroethane | U | 465 | ug/L | 140 | 465 |
| 98-95-3 | Nitrobenzene | U | 465 | ug/L | 140 | 465 |
| 78-59-1 | Isophorone | U | 465 | ug/L | 140 | 465 |
| 88-75-5 | 2-Nitrophenol | U | 465 | ug/L | 140 | 465 |
| 105-67-9 | 2,4-Dimethylphenol | U | 465 | ug/L | 140 | 465 |
| 111-91-1 | bis(2-Chloroethoxy)methane | U | 465 | ug/L | 140 | 465 |
| 120-83-2 | 2,4-Dichlorophenol | U | 465 | ug/L | 140 | 465 |
| 65-85-0 | Benzoic acid | U | 930 | ug/L | 279 | 930 |
| 106-47-8 | 4-Chloroaniline | U | 465 | ug/L | 153 | 465 |
| 87-68-3 | Hexachlorobutadiene | U | 465 | ug/L | 140 | 465 |
| 59-50-7 | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | U | 465 | ug/L | 140 | 465 |
| 91-57-6 | 2-Methylnaphthalene | | 47.9 | ug/L | 14.0 | 46.5 |
| 91-20-3 | Naphthalene | J | 41.9 | ug/L | 14.0 | 46.5 |
| 90-12-0 | 1-Methylnaphthalene | | 46.5 | ug/L | 14.0 | 46.5 |
| 77-47-4 | Hexachlorocyclopentadiene | U | 465 | ug/L | 140 | 465 |
| 88-06-2 | 2,4,6-Trichlorophenol | U | 465 | ug/L | 140 | 465 |
| 95-95-4 | 2,4,5-Trichlorophenol | U | 465 | ug/L | 140 | 465 |
| 91-58-7 | 2-Chloronaphthalene | J | 43.7 | ug/L | 14.0 | 46.5 |
| 88-74-4 | 2-Nitroaniline<br>*o-Nitroaniline* | U | 465 | ug/L | 140 | 465 |
| 99-09-2 | 3-Nitroaniline<br>*m-Nitroaniline* | U | 465 | ug/L | 140 | 465 |
| 131-11-3 | Dimethylphthalate | U | 465 | ug/L | 140 | 465 |
| 606-20-2 | 2,6-Dinitrotoluene | U | 465 | ug/L | 140 | 465 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | **Date Collected:** | **05/07/2013 09:30** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202873990** | **Date Received:** | **05/08/2013 08:55** | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **WST55-13-32015MS** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **20** |
| **Run Date:** | **05/14/2013 00:47** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **430 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1327.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 121-14-2 | 2,4-Dinitrotoluene | U | 465 | ug/L | 140 | 465 |
| 208-96-8 | Acenaphthylene | J | 43.7 | ug/L | 14.0 | 46.5 |
| 83-32-9 | Acenaphthene | J | 44.2 | ug/L | 14.0 | 46.5 |
| 51-28-5 | 2,4-Dinitrophenol | U | 930 | ug/L | 233 | 930 |
| 132-64-9 | Dibenzofuran | U | 465 | ug/L | 140 | 465 |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | U | 465 | ug/L | 140 | 465 |
| 84-66-2 | Diethylphthalate | U | 465 | ug/L | 140 | 465 |
| 100-02-7 | 4-Nitrophenol | U | 465 | ug/L | 140 | 465 |
| 86-73-7 | Fluorene | J | 43.7 | ug/L | 14.0 | 46.5 |
| 7005-72-3 | 4-Chlorophenylphenylether | U | 465 | ug/L | 140 | 465 |
| 100-01-6 | 4-Nitroaniline | U | 465 | ug/L | 140 | 465 |
| | *p-Nitroaniline* | | | | | |
| 534-52-1 | 2-Methyl-4,6-dinitrophenol | U | 465 | ug/L | 140 | 465 |
| 122-39-4 | Diphenylamine | U | 465 | ug/L | 140 | 465 |
| 122-66-7 | Azobenzene | U | 465 | ug/L | 140 | 465 |
| | *1,2-Diphenylhydrazine* | | | | | |
| 101-55-3 | 4-Bromophenylphenylether | U | 465 | ug/L | 140 | 465 |
| 118-74-1 | Hexachlorobenzene | U | 465 | ug/L | 140 | 465 |
| 87-86-5 | Pentachlorophenol | U | 465 | ug/L | 140 | 465 |
| 88-85-7 | Dinoseb | U | 465 | ug/L | 140 | 465 |
| 85-01-8 | Phenanthrene | J | 44.2 | ug/L | 14.0 | 46.5 |
| 120-12-7 | Anthracene | J | 42.3 | ug/L | 14.0 | 46.5 |
| 84-74-2 | Di-n-butylphthalate | U | 465 | ug/L | 140 | 465 |
| 206-44-0 | Fluoranthene | J | 39.5 | ug/L | 14.0 | 46.5 |
| 129-00-0 | Pyrene | | 53.0 | ug/L | 14.0 | 46.5 |
| 85-68-7 | Butylbenzylphthalate | U | 465 | ug/L | 140 | 465 |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | U | 465 | ug/L | 140 | 465 |
| 56-55-3 | Benzo(a)anthracene | J | 42.3 | ug/L | 14.0 | 46.5 |
| 218-01-9 | Chrysene | J | 41.9 | ug/L | 14.0 | 46.5 |
| 117-84-0 | Di-n-octylphthalate | U | 465 | ug/L | 140 | 465 |
| 205-99-2 | Benzo(b)fluoranthene | | 50.7 | ug/L | 14.0 | 46.5 |
| 207-08-9 | Benzo(k)fluoranthene | | 52.1 | ug/L | 14.0 | 46.5 |
| 50-32-8 | Benzo(a)pyrene | J | 36.7 | ug/L | 20.5 | 46.5 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | J | 23.7 | ug/L | 14.0 | 46.5 |
| 53-70-3 | Dibenzo(a,h)anthracene | J | 23.7 | ug/L | 14.0 | 46.5 |
| 191-24-2 | Benzo(ghi)perylene | J | 24.7 | ug/L | 14.0 | 46.5 |
| 123-91-1 | 1,4-Dioxane | U | 465 | ug/L | 140 | 465 |
| 55-18-5 | N-Nitrosodiethylamine | U | 465 | ug/L | 140 | 465 |
| 930-55-2 | N-Nitrosopyrrolidine | U | 465 | ug/L | 140 | 465 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | **Date Collected:** | **05/07/2013 09:30** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202873990** | **Date Received:** | **05/08/2013 08:55** | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **WST55-13-32015MS** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **20** |
| **Run Date:** | **05/14/2013 00:47** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **430 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1327.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 924-16-3 | N-Nitrosodi-n-butylamine | U | 465 | ug/L | 140 | 465 |
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | U | 465 | ug/L | 140 | 465 |
| 608-93-5 | Pentachlorobenzene | U | 465 | ug/L | 140 | 465 |
| 1912-24-9 | Atrazine | U | 465 | ug/L | 140 | 465 |
| 92-87-5 | Benzidine | U | 465 | ug/L | 140 | 465 |
| 91-94-1 | 3,3'-Dichlorobenzidine | U | 465 | ug/L | 140 | 465 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 465 | ug/L | 140 | 465 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | | Acceptable Limits |
|---|---|---|---|---|---|---|
| 2,4,6-Tribromophenol | 0.00 | 233 | ug/L | 0.00 | * | (26%-129%) |
| 2-Fluorobiphenyl | 39.5 | 116 | ug/L | 34.0 | | (32%-102%) |
| 2-Fluorophenol | 0.00 | 233 | ug/L | 0.00 | * | (10%-78%) |
| Nitrobenzene-d5 | 37.7 | 116 | ug/L | 32.4 | * | (36%-125%) |
| Phenol-d5 | 0.00 | 233 | ug/L | 0.00 | * | (10%-104%) |
| p-Terphenyl-d14 | 69.3 | 116 | ug/L | 59.6 | | (34%-135%) |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | **Date Collected:** | **05/07/2013 09:30** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202873991** | **Date Received:** | **05/08/2013 08:55** | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **WST55-13-32015MSD** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **20** |
| **Run Date:** | **05/14/2013 01:17** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **430 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1328.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 62-75-9 | N-Methyl-N-nitrosomethylamine | U | 465 | ug/L | 140 | 465 |
| 110-86-1 | Pyridine | U | 465 | ug/L | 140 | 465 |
| 62-53-3 | Aniline | U | 465 | ug/L | 140 | 465 |
| 108-95-2 | Phenol | U | 465 | ug/L | 140 | 465 |
| 111-44-4 | bis(2-Chloroethyl) ether | U | 465 | ug/L | 140 | 465 |
| 95-57-8 | 2-Chlorophenol | U | 465 | ug/L | 140 | 465 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 465 | ug/L | 140 | 465 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 465 | ug/L | 140 | 465 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 465 | ug/L | 140 | 465 |
| 39638-32-9 | bis(2-Chloroisopropyl)ether | U | 465 | ug/L | 140 | 465 |
| 100-51-6 | Benzyl alcohol | U | 465 | ug/L | 140 | 465 |
| 95-48-7 | o-Cresol | U | 465 | ug/L | 140 | 465 |
| 65794-96-9 | m,p-Cresols | U | 465 | ug/L | 140 | 465 |
| 621-64-7 | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | U | 465 | ug/L | 140 | 465 |
| 67-72-1 | Hexachloroethane | U | 465 | ug/L | 140 | 465 |
| 98-95-3 | Nitrobenzene | U | 465 | ug/L | 140 | 465 |
| 78-59-1 | Isophorone | U | 465 | ug/L | 140 | 465 |
| 88-75-5 | 2-Nitrophenol | U | 465 | ug/L | 140 | 465 |
| 105-67-9 | 2,4-Dimethylphenol | U | 465 | ug/L | 140 | 465 |
| 111-91-1 | bis(2-Chloroethoxy)methane | U | 465 | ug/L | 140 | 465 |
| 120-83-2 | 2,4-Dichlorophenol | U | 465 | ug/L | 140 | 465 |
| 65-85-0 | Benzoic acid | U | 930 | ug/L | 279 | 930 |
| 106-47-8 | 4-Chloroaniline | U | 465 | ug/L | 153 | 465 |
| 87-68-3 | Hexachlorobutadiene | U | 465 | ug/L | 140 | 465 |
| 59-50-7 | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | U | 465 | ug/L | 140 | 465 |
| 91-57-6 | 2-Methylnaphthalene | J | 45.1 | ug/L | 14.0 | 46.5 |
| 91-20-3 | Naphthalene | J | 40.9 | ug/L | 14.0 | 46.5 |
| 90-12-0 | 1-Methylnaphthalene | J | 41.9 | ug/L | 14.0 | 46.5 |
| 77-47-4 | Hexachlorocyclopentadiene | U | 465 | ug/L | 140 | 465 |
| 88-06-2 | 2,4,6-Trichlorophenol | U | 465 | ug/L | 140 | 465 |
| 95-95-4 | 2,4,5-Trichlorophenol | U | 465 | ug/L | 140 | 465 |
| 91-58-7 | 2-Chloronaphthalene | J | 42.3 | ug/L | 14.0 | 46.5 |
| 88-74-4 | 2-Nitroaniline<br>*o-Nitroaniline* | U | 465 | ug/L | 140 | 465 |
| 99-09-2 | 3-Nitroaniline<br>*m-Nitroaniline* | U | 465 | ug/L | 140 | 465 |
| 131-11-3 | Dimethylphthalate | U | 465 | ug/L | 140 | 465 |
| 606-20-2 | 2,6-Dinitrotoluene | U | 465 | ug/L | 140 | 465 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | **Date Collected:** | **05/07/2013 09:30** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202873991** | **Date Received:** | **05/08/2013 08:55** | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **WST55-13-32015MSD** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **20** |
| **Run Date:** | **05/14/2013 01:17** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **430 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1328.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 121-14-2 | 2,4-Dinitrotoluene | U | 465 | ug/L | 140 | 465 |
| 208-96-8 | Acenaphthylene | J | 44.2 | ug/L | 14.0 | 46.5 |
| 83-32-9 | Acenaphthene | J | 42.3 | ug/L | 14.0 | 46.5 |
| 51-28-5 | 2,4-Dinitrophenol | U | 930 | ug/L | 233 | 930 |
| 132-64-9 | Dibenzofuran | U | 465 | ug/L | 140 | 465 |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | U | 465 | ug/L | 140 | 465 |
| 84-66-2 | Diethylphthalate | U | 465 | ug/L | 140 | 465 |
| 100-02-7 | 4-Nitrophenol | U | 465 | ug/L | 140 | 465 |
| 86-73-7 | Fluorene | J | 41.9 | ug/L | 14.0 | 46.5 |
| 7005-72-3 | 4-Chlorophenylphenylether | U | 465 | ug/L | 140 | 465 |
| 100-01-6 | 4-Nitroaniline | U | 465 | ug/L | 140 | 465 |
| | *p-Nitroaniline* | | | | | |
| 534-52-1 | 2-Methyl-4,6-dinitrophenol | U | 465 | ug/L | 140 | 465 |
| 122-39-4 | Diphenylamine | U | 465 | ug/L | 140 | 465 |
| 122-66-7 | Azobenzene | U | 465 | ug/L | 140 | 465 |
| | *1,2-Diphenylhydrazine* | | | | | |
| 101-55-3 | 4-Bromophenylphenylether | U | 465 | ug/L | 140 | 465 |
| 118-74-1 | Hexachlorobenzene | U | 465 | ug/L | 140 | 465 |
| 87-86-5 | Pentachlorophenol | U | 465 | ug/L | 140 | 465 |
| 88-85-7 | Dinoseb | U | 465 | ug/L | 140 | 465 |
| 85-01-8 | Phenanthrene | J | 42.3 | ug/L | 14.0 | 46.5 |
| 120-12-7 | Anthracene | J | 41.4 | ug/L | 14.0 | 46.5 |
| 84-74-2 | Di-n-butylphthalate | U | 465 | ug/L | 140 | 465 |
| 206-44-0 | Fluoranthene | J | 40.9 | ug/L | 14.0 | 46.5 |
| 129-00-0 | Pyrene | J | 44.7 | ug/L | 14.0 | 46.5 |
| 85-68-7 | Butylbenzylphthalate | U | 465 | ug/L | 140 | 465 |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | U | 465 | ug/L | 140 | 465 |
| 56-55-3 | Benzo(a)anthracene | J | 41.9 | ug/L | 14.0 | 46.5 |
| 218-01-9 | Chrysene | J | 39.5 | ug/L | 14.0 | 46.5 |
| 117-84-0 | Di-n-octylphthalate | U | 465 | ug/L | 140 | 465 |
| 205-99-2 | Benzo(b)fluoranthene | J | 45.1 | ug/L | 14.0 | 46.5 |
| 207-08-9 | Benzo(k)fluoranthene | | 59.1 | ug/L | 14.0 | 46.5 |
| 50-32-8 | Benzo(a)pyrene | J | 39.1 | ug/L | 20.5 | 46.5 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | J | 30.2 | ug/L | 14.0 | 46.5 |
| 53-70-3 | Dibenzo(a,h)anthracene | J | 25.1 | ug/L | 14.0 | 46.5 |
| 191-24-2 | Benzo(ghi)perylene | J | 27.4 | ug/L | 14.0 | 46.5 |
| 123-91-1 | 1,4-Dioxane | U | 465 | ug/L | 140 | 465 |
| 55-18-5 | N-Nitrosodiethylamine | U | 465 | ug/L | 140 | 465 |
| 930-55-2 | N-Nitrosopyrrolidine | U | 465 | ug/L | 140 | 465 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-813** | **Date Collected:** | **05/07/2013 09:30** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202873991** | **Date Received:** | **05/08/2013 08:55** | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **WST55-13-32015MSD** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **20** |
| **Run Date:** | **05/14/2013 01:17** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **430 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1328.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 924-16-3 | N-Nitrosodi-n-butylamine | U | 465 | ug/L | 140 | 465 |
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | U | 465 | ug/L | 140 | 465 |
| 608-93-5 | Pentachlorobenzene | U | 465 | ug/L | 140 | 465 |
| 1912-24-9 | Atrazine | U | 465 | ug/L | 140 | 465 |
| 92-87-5 | Benzidine | U | 465 | ug/L | 140 | 465 |
| 91-94-1 | 3,3'-Dichlorobenzidine | U | 465 | ug/L | 140 | 465 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 465 | ug/L | 140 | 465 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | | Acceptable Limits |
|---|---|---|---|---|---|---|
| 2,4,6-Tribromophenol | 0.00 | 233 | ug/L | 0.00 | * | (26%-129%) |
| 2-Fluorobiphenyl | 35.3 | 116 | ug/L | 30.4 | * | (32%-102%) |
| 2-Fluorophenol | 0.00 | 233 | ug/L | 0.00 | * | (10%-78%) |
| Nitrobenzene-d5 | 35.3 | 116 | ug/L | 30.4 | * | (36%-125%) |
| Phenol-d5 | 0.00 | 233 | ug/L | 0.00 | * | (10%-104%) |
| p-Terphenyl-d14 | 59.5 | 116 | ug/L | 51.2 | | (34%-135%) |

# Miscellaneous

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 14-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| SEMIVOA GC/MS | SW846 8270C | Liquid | ARSL (ESHL) |
| **Batch ID:** | **Sample Numbers:** | | |
| 1300969 | See Below | | |

**Potentially affected work order(s)(SDG):** **325284(2013-809),325285(2013-810),325394(2013-813),325410(2013-814),325479(2013-822),325480(2013-823)**

**Application Issues:**

Failed Recovery for MS/PS

Failed Recovery for LCS/LCSD

Failed Yield for Surrogates

Failed Recovery for MSD/PSD

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Sample 325285001, the MS(1202873990), and MSD(1202873991) failed surrogate recovery limits. Please see the QC Summary/Spike Recovery Report for specific failures. | 1. The samples were analyzed at a dilution due to the presence of non-target analytes. As a result, some surrogates were diluted out of the acceptance criteria and the data results have been reported. |
| 2. The LCS(1202873989) did not meet spike recovery limits for 4-Nitrophenol at 9% (limits: 16%-77%) and Atrazine at 31% (limits: 47%-115%). | 2. The 4-Nitrophenol and Atrazine failures represent less than 5% of the total requested spike analyte list. That satisfied the acceptance criteria for the client and the data results have been reported. |
| 3. The MS(1202873990) and MSD(1202873991) failed multiple spike recovery limits. Please see the QC Summary/Spike Recovery Report for specific failures. | 3. The samples were analyzed at a dilution due to the presence of non-target analytes. As a result, some spike analytes were diluted out of the acceptance criteria and the data results have been reported. |

**Originator's Name:**

Josh Brooks 14-MAY-13

**Data Validator/Group Leader:**

Barbara Bailey 15-MAY-13

# Perchlorates by LCMSMS Analysis

# Case Narrative

**Perchlorate by LC/MSMS**
**ARS International (ARSL)**
**SDG 2013-813**

## Method/Analysis Information

| | |
|---|---|
| **Procedure:** | **Definitive Low Level Perchlorate Analysis Utilizing Liquid Chromatography/Mass Spectrometry/Mass Spectrometry (LC/MS/MS) by EPA Method 6850 Modified (6850M)** |
| Analytical Method: | SW846 6850 Modified |
| Prep Method: | SW846 6850 Modified |
| Analytical Batch Number: | 1301785 |
| Prep Batch Number: | 1301783 |

## Sample Analysis

| Sample ID | Client ID |
|---|---|
| 325394002 | CAMO-13-30588 |
| 325394005 | CAMO-13-30563 |
| 1202876024 | Interference Check Sample (ICS) |
| 1202876020 | Method Blank (MB) |
| 1202876021 | Laboratory Control Sample (LCS) |
| 1202876022 | 325284004(CAMO-13-30592) Matrix Spike (MS) |
| 1202876023 | 325284004(CAMO-13-30592) Matrix Spike Duplicate (MSD) |

The samples in this SDG were analyzed on an "as received" basis.

## Preparation/Analytical Method Verification

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-067 REV# 10.

## Calibration Information

**Initial Calibration**
All initial calibration requirements have been met for this SDG. Due to software constraints, all Initial

Calibration Blanks must be designated as IPB001.

**ICV Requirements**
All associated initial calibration verification standard(s) (ICV) met the acceptance criteria.

**CCB Requirements**
All continuing calibration blanks (CCB) bracketing the analyses associated with this batch were within acceptance criteria.

**CCV Requirements**
All continuing calibration checks (CCV) requirements were met by all bracketing CCV standards.

**Low Level Standard (CRI) Requirements**
All low level calibration verification (CRI) requirements were met by all bracketing CRI standards.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Interference Check Sample (ICS)**
The ICS met all recovery acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recoveries met the acceptance limits.

**QC Sample Designation**
Client sample 325284004 (CAMO-13-30592) was chosen for matrix spike and matrix spike duplicate analysis.

**Matrix Spike (MS) Recovery Statement**
The MS recoveries were within the established acceptance limits.

**Matrix Spike Duplicate (MSD) Recovery Statement**
The MSD recoveries were within the established acceptance limits.

**MS/MSD Relative Percent Difference (RPD) Statement**
The RPD(s) between the MS and MSD met the acceptance limits.

**Retention Time Standard Area Acceptance**
The retention time standard areas were within the required acceptance criteria for all samples and QC.

**Retention Time**
During the analysis of Perchlorate by LC/MS/MS, retention time shifts are commonly observed. These retention time shifts, which are caused by fouling of the column by the sample matrices, are problematic when the retention time is used as one of the criterion for confirmation. To overcome this problem, a known amount of O(18) labeled Perchlorate was added to each sample as a retention time standard. The presence of Perchlorate was confirmed by the relative retention time (RRT) of the Perchlorate peak and the O(18) standard. A RRT window of 0.98 to 1.02, as required by Method 332.0, has been used. In addition to the isotopic ratio, the presence of Perchlorate in the samples associated with this data package have been confirmed using the relative retention criteria stated above, not the absolute retention time.

**Technical Information**

**Holding Time Specifications**
All samples in this SDG in this analytical batch met the specified holding time. GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those

holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

**Preparation/Analytical Method Verification**
All procedures were performed as stated in the SOP.

**Sample Dilutions**
Samples 1202876022 (CAMO-13-30592), 1202876023 (CAMO-13-30592), 325394002 (CAMO-13-30588) and 325394005 (CAMO-13-30563) were diluted to bring the over range concentrations within the calibration range.

| Parmname | 325394 | |
|---|---|---|
| | **002** | **005** |
| All | 100X | 100X |

**Sample Re-extraction/Re-analysis**
The 1:100 dilution of sample 325394002 (CAMO-13-30588) required re-analysis on the following day due to a poor injection.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Manual Integrations**
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations.

**Method Comments**
The samples in this SDG were not originally analyzed using EPA Method 314.0.

**Additional Comments**
The Perchlorate Isotope Ratio on the Form I may differ slightly from the ratio on the corresponding raw data due to rounding rules and/or significant figures or due to software limitations when there are manual integrations, dilutions or other factors. The ratio value of the Form I is the correct value. The retention time marker, Perchlorate-O (18), is added to all samples, instrument blanks, and standards prior to injection. It is used to verify the retention time of Perchlorate and Perchlorate-101 and to insure an accurate injection occurred. Due to various anions affecting the recovery of Perchlorate-O (18) and not Perchlorate and Perchlorate-101, the calibration curves of Perchlorate and Perchlorate-101 are not internally corrected for using Perchlorate-O (18). They are external calibrations.

**Perchlorate Isotope Ratio**
The Perchlorate isotope ratio met acceptance criteria for all samples and QC samples. Please see the isotope ratio criteria in the Miscellaneous Section.

**System Configuration**

The laboratory utilizes a Waters LC 2795 liquid chromatography instrument for Perchlorate analysis. It is coupled with either a Micromass Quattro Micro Mass Spectrometer/ Mass Spectrometer, or a Micromass Quattro Ultima Mass Spectrometer/ Mass Spectrometer. Each being designated as LCMSMS #1 and LCMSMS #2, respectively. It is fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis. The laboratory may also utilize an Agilent 1100 liquid chromatography instrument for Perchlorate analysis. It is coupled with an Applied Biosystems 4000 Mass Spectrometer/ Mass Spectrometer, designated as LCMSMS #3 or LCMSMS #4. It is also fitted with an electrospray probe that is operated in the

negative electrospray ionization mode for Perchlorate analysis.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Chromatographic Columns**

Chromatographic separation of Perchlorate is accomplished through analysis on the following anion column:

Dionex: IonPac AG-16 2 x 50 mm.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-813 GEL Work Order: 325394

**The Qualifiers in this report are defined as follows:**

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

**Review/Validation**

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

**Signature:** Pat Steele **Name: Patricia Steele**

**Date: 28 MAY 2013** **Title: Data Validator**

# Sample Data Summary

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1301783

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CAMO-13-30588

**Date Received:** 09-MAY-13

**GEL Job No (SDG):** 2013-813

**GEL Sample ID:** 325394002

**Date Filtered:** 15-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | 5 | 20 | 79.1 | ug/L | | 100 | 21-MAY-13 14:15 | per0521014a |
| | Perchlorate Isotope Ratio | | | 3.12 | | | 100 | 21-MAY-13 14:15 | per0521014a |
| 14797-73-0 | Perchlorate-101 | 5 | 20 | 79.1 | ug/L | | 100 | 21-MAY-13 14:15 | per0521014a |
| | Perchlorate-O(18) | | | 50.0 | ug/L | | 100 | 21-MAY-13 14:15 | per0521014a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1301783

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CAMO-13-30563

**Date Received:** 09-MAY-13

**GEL Job No (SDG):** 2013-813

**GEL Sample ID:** 325394005

**Date Filtered:** 15-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | 5 | 20 | 81.7 | ug/L | | 100 | 21-MAY-13 14:23 | per0521015a |
| | Perchlorate Isotope Ratio | | | 3.11 | | | 100 | 21-MAY-13 14:23 | per0521015a |
| 14797-73-0 | Perchlorate-101 | 5 | 20 | 82.2 | ug/L | | 100 | 21-MAY-13 14:23 | per0521015a |
| | Perchlorate-O(18) | | | 49.7 | ug/L | | 100 | 21-MAY-13 14:23 | per0521015a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Quality Control Summary

## Perchlorate Laboratory Control Sample

**Lab Name:** General Engineering Laboratories

**Lab Code:** GEL

**GEL Job No. (SDG):** 2013-813

**Extract Batch Code:** 1301783

**Date Filtered:** 15-MAY-13

**Matrix:** WATER

**Sample ID:** 1202876021

| Analyte^ | True | Found | Units | %Rec | Q | Control Limits |
|---|---|---|---|---|---|---|
| Perchlorate | 0.200 | .203 | ug/L | 102 | | 85 - 115 |
| Perchlorate Isotope Ratio | | 3 | | | | - |
| Perchlorate-101 | 0.200 | .21 | ug/L | 105 | | 85 - 115 |
| Perchlorate-O(18) | | .505 | ug/L | | | - |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

## Perchlorate Spike/Spike Duplicate Summary

**Lab Name:** General Engineering Laboratories

**Lab Code:** GEL

**GEL Job No (SDG):** 2013-813

**Extract Batch Code:** 1301783

**Date Extracted:** 15-MAY-13

**GEL MS/PS ID:** 1202876022

**Client ID:** CAMO-13-30592

**GEL MSD/PSD ID:** 1202876023

**QC Type:** MS

| Compound^ | Spike Added | Sample Conc | Units | MS Conc | MS Rec # | MSD Conc | MSD Rec # | RPD # | RPD Limit | Recovery Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| Perchlorate | 0.200 | 0.931 | ug/L | 1.11 | 90 | 1.16 | 114 | 4.19 | 30 | 75 - 125 |
| Perchlorate Isotope Ratio | 0 | 3.07 | | 3.13 | | 3.05 | | 2.52 | | - |
| Perchlorate-101 | 0.200 | 0.944 | ug/L | 1.10 | 80.5 | 1.18 | 119 | 6.71 | 30 | 75 - 125 |
| Perchlorate-O(18) | 0 | 0.994 | ug/L | 0.985 | | 1.02 | | 3.41 | | - |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

# Quality Control Data

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** EPA 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1301783

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
MB

**Date Received:** 15-MAY-13

**GEL Job No (SDG):** 2013-813

**GEL Sample ID:** 1202876020

**Date Filtered:** 15-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.050 | ug/L | U | 1 | 20-MAY-13 15:52 | per0520021a |
| | Perchlorate Isotope Ratio | | | | | | 1 | 20-MAY-13 15:52 | per0520021a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.050 | ug/L | U | 1 | 20-MAY-13 15:52 | per0520021a |
| | Perchlorate-O(18) | | | 0.496 | ug/L | | 1 | 20-MAY-13 15:52 | per0520021a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** EPA 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1301783

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
LCS

**Date Received:** 15-MAY-13

**GEL Job No (SDG):** 2013-813

**GEL Sample ID:** 1202876021

**Date Filtered:** 15-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.203 | ug/L | | 1 | 20-MAY-13 16:00 | per0520022a |
| | Perchlorate Isotope Ratio | | | 3 | | | 1 | 20-MAY-13 16:00 | per0520022a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.210 | ug/L | | 1 | 20-MAY-13 16:00 | per0520022a |
| | Perchlorate-O(18) | | | 0.505 | ug/L | | 1 | 20-MAY-13 16:00 | per0520022a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1301783

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
ICS

**Date Received:**

**GEL Job No (SDG):** 2013-813

**GEL Sample ID:** 1202876024

**Date Filtered:** 15-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.209 | ug/L | | 1 | 20-MAY-13 16:08 | per0520023a |
| | Perchlorate Isotope Ratio | | | 3.07 | | | 1 | 20-MAY-13 16:08 | per0520023a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.212 | ug/L | | 1 | 20-MAY-13 16:08 | per0520023a |
| | Perchlorate-O(18) | | | 0.506 | ug/L | | 1 | 20-MAY-13 16:08 | per0520023a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1301783

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CAMO-13-30592MS

**Date Received:** 08-MAY-13

**GEL Job No (SDG):** 2013-813

**GEL Sample ID:** 1202876022

**Date Filtered:** 15-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .1 | .4 | 1.11 | ug/L | | 2 | 20-MAY-13 19:29 | per0520048a |
| | Perchlorate Isotope Ratio | | | 3.13 | | | 2 | 20-MAY-13 19:29 | per0520048a |
| 14797-73-0 | Perchlorate-101 | .1 | .4 | 1.10 | ug/L | | 2 | 20-MAY-13 19:29 | per0520048a |
| | Perchlorate-O(18) | | | 0.985 | ug/L | | 2 | 20-MAY-13 19:29 | per0520048a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1301783

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CAMO-13-30592MSD

**Date Received:** 08-MAY-13

**GEL Job No (SDG):** 2013-813

**GEL Sample ID:** 1202876023

**Date Filtered:** 15-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .1 | .4 | 1.16 | ug/L | | 2 | 20-MAY-13 19:37 | per0520049a |
| | Perchlorate Isotope Ratio | | | 3.05 | | | 2 | 20-MAY-13 19:37 | per0520049a |
| 14797-73-0 | Perchlorate-101 | .1 | .4 | 1.18 | ug/L | | 2 | 20-MAY-13 19:37 | per0520049a |
| | Perchlorate-O(18) | | | 1.02 | ug/L | | 2 | 20-MAY-13 19:37 | per0520049a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Metals Analysis

# Case Narrative

**Metals Fractional Narrative**
**ARS International (ARSL)**
**SDG 2013-813**

## Sample Analysis

| Sample ID | Client ID |
|---|---|
| 325394002 | CAMO-13-30588 |
| 325394005 | CAMO-13-30563 |
| 1202874202 | Method Blank (MB) **ICP** |
| 1202874203 | Laboratory Control Sample (LCS) |
| 1202874206 | 325480002(CAMO-13-30589L) Serial Dilution (SD) |
| 1202874204 | 325480002(CAMO-13-30589D) Sample Duplicate (DUP) |
| 1202874205 | 325480002(CAMO-13-30589S) Matrix Spike (MS) |
| 1202874210 | Method Blank (MB) **ICP-MS** |
| 1202874211 | Laboratory Control Sample (LCS) |
| 1202874214 | 325480002(CAMO-13-30589L) Serial Dilution (SD) |
| 1202874212 | 325480002(CAMO-13-30589D) Sample Duplicate (DUP) |
| 1202874213 | 325480002(CAMO-13-30589S) Matrix Spike (MS) |
| 1202876202 | Method Blank (MB) **CVAA** |
| 1202876203 | Laboratory Control Sample (LCS) |
| 1202876206 | 325394002(CAMO-13-30588L) Serial Dilution (SD) |
| 1202876204 | 325394002(CAMO-13-30588D) Sample Duplicate (DUP) |
| 1202876205 | 325394002(CAMO-13-30588S) Matrix Spike (MS) |

## Method/Analysis Information

| | |
|---|---|
| **Analytical Batch:** | 1301065, 1301067, 1301863 and 1305711 |
| **Prep Batch :** | 1301064, 1301066 and 1301862 |
| **Standard Operating Procedures:** | GL-MA-E-013 REV# 22, GL-MA-E-006 REV# 9, GL-MA-E-014 REV# 25, GL-MA-E-010 REV# 26 and GL-GC-E-107 REV# 8 |
| **Analytical Method:** | SW846 3005/6010B, SW846 3005/6020 DOE-AL, EPA 245.1/245.2 and SM 2340 B |

**Prep Method :** SW846 3005A and EPA 245.1/245.2 Prep

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

**System Configuration**

The Hardness as CaCO3 is calculated from Calcium and Magnesium results.

The Metals analysis-ICP was performed on a P E 5300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis-ICP was performed on a PE 7300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN 9000 inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadruple mass spectrometer, and dual mode electron multiplier detector. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum. Operating conditions are set at 1400W power and combined argon pressures of 360+/-7 kPa for the plasma and auxiliary gases, and 0.85 L/min carrier gas flow, and an initial lens voltage of 5.2.

The Metals analysis-Mercury was performed on a Perkin-Elmer Flow Injection Mercury System (FIMS-100) automated mercury analyzer. The instrument consists of a cold vapor atomic absorption spectrometer set to detect mercury at a wavelength of 253.7 nm. Sample introduction through the flow injection system is performed via a peristaltic pump at 9 mL/min and nitrogen carrier gas rate of 80 mL/min.

**Calibration Information**

**Instrument Calibration**
All initial calibration requirements have been met for this sample delivery group (SDG).

**CRDL Requirements**
All CRDL standards met the referenced advisory control limits.

**ICSA/ICSAB Statement**
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

**Continuing Calibration Blank (CCB) Requirements**
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

**Continuing Calibration Verification (CCV) Requirements**
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MBs analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recoveries met the acceptance limits.

**Quality Control (QC) Sample Statement**
The following samples were selected as the quality control (QC) samples for this SDG: 325480002 (CAMO-13-30589)-ICP and ICP-MS and 325394002 (CAMO-13-30588)-CVAA.

**Matrix Spike (MS) Recovery Statement**
The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The MS met the recommended quality control acceptance criteria for percent recoveries for all applicable analytes with the exception of nickel.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. All applicable analytes met these requirements.

**Serial Dilution % Difference Statement**
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations that are 25X the IDL/MDL for CVAA, 50X the IDL/MDL for ICP, and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the acceptance criteria of less than 10% difference (%D).

## Technical Information

### Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

### Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

### Sample Dilutions
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. The samples in this SDG did not require dilutions.

### Preparation Information
The samples in this SDG were prepared exactly according to the cited SOP.

## Miscellaneous Information

### Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

### Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. The following DER was generated for this SDG: 1191916. A copy is included in the Miscellaneous Data section of this package.

### Additional Comments
Additional comments were not required for this SDG.
Total Hardness by Calculation is determined using the results of Total Calcium (Ca) and

Total Magnesium (Mg) determined by ICP or ICP-MS.

Hardness = 2.497 (Ca) + 4.118 (Mg)

Please refer to the Total Ca and Total Mg data to validate results appearing on the Hardness Summary sheet. Both results are in the Inorganic/metals section of the package. There is no Batch QC for calculated results, and thus no QC Summary for the Hardness by Calculation Batch. The MDLs and PQLs are calculated using the higher of the two calculated values of Ca or Mg.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

**Review Validation:**

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

**The following data validator verified the information presented in this case narrative:**

**Reviewer:**_____ **Date:** 06/05/13

# Sample Data Summary

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-813  GEL Work Order: 325394

**The Qualifiers in this report are defined as follows:**

* A quality control analyte recovery is outside of specified acceptance criteria

J Value is estimated

N Metals--The Matrix spike sample recovery is not within specified control limits

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____ 06/05/13

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−813 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

**SAMPLE ID:** 325394002 **BASIS:** As Received **DATE COLLECTED** 07−MAY−13

**CLIENT ID:** CAMO−13−30588 **LEVEL:** Low **DATE RECEIVED** 09−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7439−97−6 | Mercury | 0.20 | ug/L | U | 0.067 | 0.2 | 0.2 | 1 | AV | NOR1 | 05/16/13 11:15 | 051613W1−13 | 1301863 |

# METALS
## −1−
## INORGANICS ANALYSIS DATA PACKAGE

**SDG No:** 2013−813 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

**SAMPLE ID:** 325394002 **BASIS:** As Received **DATE COLLECTED** 07−MAY−13

**CLIENT ID:** CAMO−13−30588 **LEVEL:** Low **DATE RECEIVED** 09−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7429−90−5 | Aluminum | 200 | ug/L | U | 68 | 200 | 200 | 1 | P | HSC | 06/03/13 09:27 | 060313A−1 | 1301065 |
| 7440−36−0 | Antimony | 3 | ug/L | U | 1 | 3 | 3 | 1 | MS | PRB | 06/04/13 12:54 | 130604−12 | 1301067 |
| 7440−38−2 | Arsenic | 5 | ug/L | U | 1.7 | 5 | 5 | 1 | MS | BAJ | 06/04/13 04:07 | 130603−11 | 1301067 |
| 7440−39−3 | Barium | 17 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:27 | 060313A−1 | 1301065 |
| 7440−41−7 | Beryllium | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:27 | 060313A−1 | 1301065 |
| 7440−42−8 | Boron | 20 | ug/L | J | 15 | 50 | 50 | 1 | P | HSC | 06/03/13 09:27 | 060313A−1 | 1301065 |
| 7440−43−9 | Cadmium | 1 | ug/L | U | 0.11 | 1 | 1 | 1 | MS | BAJ | 06/01/13 14:34 | 130601−10 | 1301067 |
| 7440−70−2 | Calcium | 20500 | ug/L | | 50 | 200 | 200 | 1 | P | HSC | 06/03/13 09:27 | 060313A−1 | 1301065 |
| 7440−47−3 | Chromium | 8.06 | ug/L | J | 2 | 10 | 10 | 1 | MS | BAJ | 06/01/13 01:34 | 130531−3 | 1301067 |
| 7440−48−4 | Cobalt | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:27 | 060313A−1 | 1301065 |
| 7440−50−8 | Copper | 10 | ug/L | U | 3 | 10 | 10 | 1 | P | HSC | 06/03/13 09:27 | 060313A−1 | 1301065 |
| 7439−89−6 | Iron | 100 | ug/L | U | 30 | 100 | 100 | 1 | P | HSC | 06/03/13 09:27 | 060313A−1 | 1301065 |
| 7439−92−1 | Lead | 2 | ug/L | U | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/04/13 04:07 | 130603−11 | 1301067 |
| 7439−95−4 | Magnesium | 3880 | ug/L | | 110 | 300 | 300 | 1 | P | HSC | 06/03/13 09:27 | 060313A−1 | 1301065 |
| 7439−96−5 | Manganese | 10 | ug/L | U | 2 | 10 | 10 | 1 | P | HSC | 06/03/13 09:27 | 060313A−1 | 1301065 |
| 7439−98−7 | Molybdenum | 1.56 | ug/L | | 0.165 | 0.5 | 0.5 | 1 | MS | BAJ | 06/01/13 08:31 | 130531−7 | 1301067 |
| 7440−02−0 | Nickel | 0.993 | ug/L | J | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/01/13 01:34 | 130531−3 | 1301067 |
| 7440−09−7 | Potassium | 940 | ug/L | | 50 | 150 | 150 | 1 | P | HSC | 06/03/13 09:27 | 060313A−1 | 1301065 |
| 7782−49−2 | Selenium | 5 | ug/L | U | 1.5 | 5 | 5 | 1 | MS | BAJ | 06/04/13 04:07 | 130603−11 | 1301067 |
| 7631−86−9 | Silica | 66700 | ug/L | | 53 | 213 | 213 | 1 | P | HSC | 06/03/13 09:27 | 060313A−1 | 1301065 |
| 7440−22−4 | Silver | 1 | ug/L | U | 0.2 | 1 | 1 | 1 | MS | BAJ | 06/01/13 14:34 | 130601−10 | 1301067 |
| 7440−23−5 | Sodium | 14100 | ug/L | | 100 | 300 | 300 | 1 | P | HSC | 06/03/13 11:23 | 060313A−2 | 1301065 |
| 7440−24−6 | Strontium | 94.4 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:27 | 060313A−1 | 1301065 |
| 7440−28−0 | Thallium | 2 | ug/L | U | 0.45 | 2 | 2 | 1 | MS | BAJ | 06/04/13 04:07 | 130603−11 | 1301067 |
| 7440−31−5 | Tin | 10 | ug/L | U | 2.5 | 10 | 10 | 1 | P | HSC | 06/03/13 11:23 | 060313A−2 | 1301065 |
| 7440−61−1 | Uranium | 0.155 | ug/L | J | 0.067 | 0.2 | 0.2 | 1 | MS | BAJ | 06/01/13 12:05 | 130601−8 | 1301067 |
| 7440−62−2 | Vanadium | 2.25 | ug/L | J | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:27 | 060313A−1 | 1301065 |
| 7440−66−6 | Zinc | 10 | ug/L | U | 3.3 | 10 | 10 | 1 | P | HSC | 06/03/13 09:27 | 060313A−1 | 1301065 |

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−813 **CONTRACT:** ESHL00210 **METHOD TYPE:**

**SAMPLE ID:** 325394002 **BASIS:** As Received **DATE COLLECTED** 07−MAY−13

**CLIENT ID:** CAMO−13−30588 **LEVEL:** Low **DATE RECEIVED** 09−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Hardness as CaCO3 | 67.2 | mg/L | | 0.453 | 1.24 | 1.24 | 1 | | JJ2 | 06/04/13 11:28 | | 1305711 |

**Prep Information:**

| Analytical Batch | Prep Batch | Prep Method | Initial wt./vol. | Units | Final wt./vol. | Units | Date | Analyst |
|---|---|---|---|---|---|---|---|---|
| 1301065 | 1301064 | SW846 3005A | 50 | mL | 50 | mL | 05/31/13 | MTM1 |
| 1301067 | 1301066 | SW846 3005A | 50 | mL | 50 | mL | 05/31/13 | MTM1 |
| 1301863 | 1301862 | EPA 245.1/245.2 Prep | 20 | mL | 20 | mL | 05/15/13 | AXS5 |

***Analytical Methods:**

| | |
|---|---|
| **MS** | **SW846 3005/6020 DOE−AL** |
| **P** | **SW846 3005/6010B** |
| **AV** | **EPA 245.1/245.2** |

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−813 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

**SAMPLE ID:** 325394005 **BASIS:** As Received **DATE COLLECTED** 07−MAY−13

**CLIENT ID:** CAMO−13−30563 **LEVEL:** Low **DATE RECEIVED** 09−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7439−97−6 | Mercury | 0.20 | ug/L | U | 0.067 | 0.2 | 0.2 | 1 | AV | NOR1 | 05/16/13 11:21 | 051613W1−13 | 1301863 |

# METALS
## −1−
## INORGANICS ANALYSIS DATA PACKAGE

**SDG No:** 2013−813 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

**SAMPLE ID:** 325394005 **BASIS:** As Received **DATE COLLECTED** 07−MAY−13

**CLIENT ID:** CAMO−13−30563 **LEVEL:** Low **DATE RECEIVED** 09−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7429−90−5 | Aluminum | 200 | ug/L | U | 68 | 200 | 200 | 1 | P | HSC | 06/03/13 09:37 | 060313A−1 | 1301065 |
| 7440−36−0 | Antimony | 3 | ug/L | U | 1 | 3 | 3 | 1 | MS | PRB | 06/04/13 13:03 | 130604−12 | 1301067 |
| 7440−38−2 | Arsenic | 5 | ug/L | U | 1.7 | 5 | 5 | 1 | MS | BAJ | 06/04/13 04:10 | 130603−11 | 1301067 |
| 7440−39−3 | Barium | 16.2 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:37 | 060313A−1 | 1301065 |
| 7440−41−7 | Beryllium | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:37 | 060313A−1 | 1301065 |
| 7440−42−8 | Boron | 17.5 | ug/L | J | 15 | 50 | 50 | 1 | P | HSC | 06/03/13 09:37 | 060313A−1 | 1301065 |
| 7440−43−9 | Cadmium | 1 | ug/L | U | 0.11 | 1 | 1 | 1 | MS | BAJ | 06/01/13 14:38 | 130601−10 | 1301067 |
| 7440−70−2 | Calcium | 20100 | ug/L | | 50 | 200 | 200 | 1 | P | HSC | 06/03/13 09:37 | 060313A−1 | 1301065 |
| 7440−47−3 | Chromium | 7.67 | ug/L | J | 2 | 10 | 10 | 1 | MS | BAJ | 06/01/13 01:54 | 130531−3 | 1301067 |
| 7440−48−4 | Cobalt | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:37 | 060313A−1 | 1301065 |
| 7440−50−8 | Copper | 3.09 | ug/L | J | 3 | 10 | 10 | 1 | P | HSC | 06/03/13 09:37 | 060313A−1 | 1301065 |
| 7439−89−6 | Iron | 100 | ug/L | U | 30 | 100 | 100 | 1 | P | HSC | 06/03/13 09:37 | 060313A−1 | 1301065 |
| 7439−92−1 | Lead | 2 | ug/L | U | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/04/13 04:10 | 130603−11 | 1301067 |
| 7439−95−4 | Magnesium | 3730 | ug/L | | 110 | 300 | 300 | 1 | P | HSC | 06/03/13 09:37 | 060313A−1 | 1301065 |
| 7439−96−5 | Manganese | 10 | ug/L | U | 2 | 10 | 10 | 1 | P | HSC | 06/03/13 09:37 | 060313A−1 | 1301065 |
| 7439−98−7 | Molybdenum | 1.59 | ug/L | | 0.165 | 0.5 | 0.5 | 1 | MS | BAJ | 06/01/13 08:41 | 130531−7 | 1301067 |
| 7440−02−0 | Nickel | 2 | ug/L | | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/01/13 01:54 | 130531−3 | 1301067 |
| 7440−09−7 | Potassium | 576 | ug/L | | 50 | 150 | 150 | 1 | P | HSC | 06/03/13 09:37 | 060313A−1 | 1301065 |
| 7782−49−2 | Selenium | 5 | ug/L | U | 1.5 | 5 | 5 | 1 | MS | BAJ | 06/04/13 04:10 | 130603−11 | 1301067 |
| 7631−86−9 | Silica | 64600 | ug/L | | 53 | 213 | 213 | 1 | P | HSC | 06/03/13 09:37 | 060313A−1 | 1301065 |
| 7440−22−4 | Silver | 1 | ug/L | U | 0.2 | 1 | 1 | 1 | MS | BAJ | 06/01/13 14:38 | 130601−10 | 1301067 |
| 7440−23−5 | Sodium | 13300 | ug/L | | 100 | 300 | 300 | 1 | P | HSC | 06/03/13 11:26 | 060313A−2 | 1301065 |
| 7440−24−6 | Strontium | 96.7 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:37 | 060313A−1 | 1301065 |
| 7440−28−0 | Thallium | 2 | ug/L | U | 0.45 | 2 | 2 | 1 | MS | BAJ | 06/04/13 04:10 | 130603−11 | 1301067 |
| 7440−31−5 | Tin | 10 | ug/L | U | 2.5 | 10 | 10 | 1 | P | HSC | 06/03/13 11:26 | 060313A−2 | 1301065 |
| 7440−61−1 | Uranium | 0.147 | ug/L | J | 0.067 | 0.2 | 0.2 | 1 | MS | BAJ | 06/01/13 12:07 | 130601−8 | 1301067 |
| 7440−62−2 | Vanadium | 1.99 | ug/L | J | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:37 | 060313A−1 | 1301065 |
| 7440−66−6 | Zinc | 10 | ug/L | U | 3.3 | 10 | 10 | 1 | P | HSC | 06/03/13 09:37 | 060313A−1 | 1301065 |

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−813 **CONTRACT:** ESHL00210 **METHOD TYPE:**

**SAMPLE ID:** 325394005 **BASIS:** As Received **DATE COLLECTED** 07−MAY−13

**CLIENT ID:** CAMO−13−30563 **LEVEL:** Low **DATE RECEIVED** 09−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Hardness as CaCO3 | 65.5 | mg/L | | 0.453 | 1.24 | 1.24 | 1 | | JJ2 | 06/04/13 11:28 | | 1305711 |

**Prep Information:**

| Analytical Batch | Prep Batch | Prep Method | Initial wt./vol. | Units | Final wt./vol. | Units | Date | Analyst |
|---|---|---|---|---|---|---|---|---|
| 1301065 | 1301064 | SW846 3005A | 50 | mL | 50 | mL | 05/31/13 | MTM1 |
| 1301067 | 1301066 | SW846 3005A | 50 | mL | 50 | mL | 05/31/13 | MTM1 |
| 1301863 | 1301862 | EPA 245.1/245.2 Prep | 20 | mL | 20 | mL | 05/15/13 | AXS5 |

***Analytical Methods:**

| | |
|---|---|
| **MS** | **SW846 3005/6020 DOE−AL** |
| **P** | **SW846 3005/6010B** |
| **AV** | **EPA 245.1/245.2** |

# Quality Control Summary

**METALS**
**−3b−**
**PREPARATION BLANK SUMMARY**

**SDG NO.** 2013−813

**Contract:** ESHL00210

**Matrix:** W

| Sample ID | Analyte | Result | Units | Acceptance Window | Conc Qual | M* | MDL | RDL |
|---|---|---|---|---|---|---|---|---|
| 1202874202 | | | | | | | | |
| | Aluminum | 68 | ug/L | +/−200 | U | P | 68 | 200 |
| | Barium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Beryllium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Boron | 15 | ug/L | +/−50 | U | P | 15 | 50 |
| | Calcium | 50 | ug/L | +/−200 | U | P | 50 | 200 |
| | Cobalt | 1.31 | ug/L | +/−5 | J | P | 1 | 5 |
| | Copper | 3 | ug/L | +/−10 | U | P | 3 | 10 |
| | Iron | 30 | ug/L | +/−100 | U | P | 30 | 100 |
| | Magnesium | 110 | ug/L | +/−300 | U | P | 110 | 300 |
| | Manganese | 2 | ug/L | +/−10 | U | P | 2 | 10 |
| | Potassium | 64.3 | ug/L | +/−150 | J | P | 50 | 150 |
| | Silica | 53 | ug/L | +/−213 | U | P | 53 | 213 |
| | Sodium | 100 | ug/L | +/−300 | U | P | 100 | 300 |
| | Strontium | 2.05 | ug/L | +/−5 | J | P | 1 | 5 |
| | Tin | 2.5 | ug/L | +/−10 | U | P | 2.5 | 10 |
| | Vanadium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Zinc | 3.3 | ug/L | +/−10 | U | P | 3.3 | 10 |
| 1202874210 | | | | | | | | |
| | Antimony | 1 | ug/L | +/−3 | U | MS | 1 | 3 |
| | Arsenic | 1.7 | ug/L | +/−5 | U | MS | 1.7 | 5 |
| | Cadmium | 0.11 | ug/L | +/−1 | U | MS | 0.11 | 1 |
| | Chromium | 2 | ug/L | +/−10 | U | MS | 2 | 10 |
| | Lead | 0.5 | ug/L | +/−2 | U | MS | 0.5 | 2 |
| | Molybdenum | 0.165 | ug/L | +/−0.5 | U | MS | 0.165 | 0.5 |
| | Nickel | 0.5 | ug/L | +/−2 | U | MS | 0.5 | 2 |
| | Selenium | 1.5 | ug/L | +/−5 | U | MS | 1.5 | 5 |
| | Silver | 0.2 | ug/L | +/−1 | U | MS | 0.2 | 1 |
| | Thallium | 0.45 | ug/L | +/−2 | U | MS | 0.45 | 2 |
| | Uranium | 0.067 | ug/L | +/−0.2 | U | MS | 0.067 | 0.2 |
| 1202876202 | | | | | | | | |
| | Mercury | 0.067 | ug/L | +/−0.2 | U | AV | 0.067 | 0.2 |

***Analytical Methods:**

| | |
|---|---|
| **MS** | **SW846 3005/6020 DOE−AL** |
| **P** | **SW846 3005/6010B** |
| **AV** | **EPA 245.1/245.2** |

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−813 **Client ID** CAMO−13−30589S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 325480002 **Spike ID:** 1202874205

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Tin | ug/L | 75−125 | 454 | | 2.5 | U | 500 | 90.8 | | P |
| Vanadium | ug/L | 75−125 | 469 | | 1 | U | 500 | 93.6 | | P |
| Zinc | ug/L | 75−125 | 430 | | 15.9 | | 500 | 82.8 | | P |
| Aluminum | ug/L | 75−125 | 5060 | | 68 | U | 5000 | 101 | | P |
| Barium | ug/L | 75−125 | 504 | | 41.1 | | 500 | 92.5 | | P |
| Beryllium | ug/L | 75−125 | 473 | | 1 | U | 500 | 94.5 | | P |
| Boron | ug/L | 75−125 | 509 | | 42.3 | J | 500 | 93.4 | | P |
| Calcium | ug/L | | 68900 | | 63900 | | 5000 | 98.3 | N/A | P |
| Cobalt | ug/L | 75−125 | 438 | | 1 | U | 500 | 87.5 | | P |
| Copper | ug/L | 75−125 | 490 | | 6.12 | J | 500 | 96.7 | | P |
| Iron | ug/L | 75−125 | 4790 | | 30 | U | 5000 | 95.6 | | P |
| Magnesium | ug/L | 75−125 | 17600 | | 13000 | | 5000 | 92.7 | | P |
| Manganese | ug/L | 75−125 | 450 | | 2.92 | J | 500 | 89.5 | | P |
| Potassium | ug/L | 75−125 | 5640 | | 881 | | 5000 | 95.2 | | P |
| Silica | ug/L | | 75900 | | 65300 | | 10700 | 99 | N/A | P |
| Sodium | ug/L | | 30200 | | 25500 | | 5000 | 93.5 | N/A | P |
| Strontium | ug/L | 75−125 | 812 | | 305 | | 500 | 101 | | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−813 **Client ID** CAMO−13−30589S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 325480002 **Spike ID:** 1202874213

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ug/L | 75−125 | 50.4 | | 1 | U | 50 | 100 | | MS |
| Arsenic | ug/L | 75−125 | 49.9 | | 1.7 | U | 50 | 99.9 | | MS |
| Cadmium | ug/L | 75−125 | 52.7 | | 0.11 | U | 50 | 105 | | MS |
| Chromium | ug/L | 75−125 | 135 | | 73.2 | | 50 | 124 | | MS |
| Lead | ug/L | 75−125 | 50.1 | | 0.5 | U | 50 | 100 | | MS |
| Molybdenum | ug/L | 75−125 | 55.4 | | 1.45 | | 50 | 108 | | MS |
| Nickel | ug/L | 75−125 | 104 | | 41.3 | | 50 | 126 | N | MS |
| Selenium | ug/L | 75−125 | 54.9 | | 1.5 | U | 50 | 108 | | MS |
| Silver | ug/L | 75−125 | 51.5 | | 0.2 | U | 50 | 103 | | MS |
| Thallium | ug/L | 75−125 | 45.7 | | 0.45 | U | 50 | 91.1 | | MS |
| Uranium | ug/L | 75−125 | 55 | | 1.27 | | 50 | 108 | | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−813 **Client ID** CAMO−13−30588S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 325394002 **Spike ID:** 1202876205

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | ug/L | 75−125 | 1.99 | | 0.067 | U | 2 | 99.5 | | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−813 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CAMO−13−30589D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325480002 **Duplicate ID:** 1202874204 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | ug/L | | 68 | U | 68 | U | | | P |
| Barium | ug/L | +/−20% | 41.1 | | 41.6 | | 1.31 | | P |
| Beryllium | ug/L | | 1 | U | 1 | U | | | P |
| Boron | ug/L | +/−50 | 42.3 | J | 42.5 | J | .481 | | P |
| Calcium | ug/L | +/−20% | 63900 | | 65400 | | 2.23 | | P |
| Cobalt | ug/L | | 1 | U | 1.08 | J | 200 | | P |
| Copper | ug/L | +/−10 | 6.12 | J | 6.13 | J | .16 | | P |
| Iron | ug/L | | 30 | U | 30 | U | | | P |
| Magnesium | ug/L | +/−20% | 13000 | | 13200 | | 1.48 | | P |
| Manganese | ug/L | +/−10 | 2.92 | J | 2.81 | J | 3.67 | | P |
| Potassium | ug/L | +/−20% | 881 | | 863 | | 2.09 | | P |
| Silica | ug/L | +/−20% | 65300 | | 66300 | | 1.56 | | P |
| Sodium | ug/L | +/−20% | 25500 | | 25500 | | .0667 | | P |
| Strontium | ug/L | +/−20% | 305 | | 312 | | 2.26 | | P |
| Tin | ug/L | | 2.5 | U | 2.5 | U | | | P |
| Vanadium | ug/L | | 1 | U | 1 | U | | | P |
| Zinc | ug/L | +/−10 | 15.9 | | 14.5 | | 9.43 | | P |

***Analytical Methods:**

**P SW846 3005/6010B**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−813 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CAMO−13−30589D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325480002 **Duplicate ID:** 1202874212 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Antimony | ug/L | | 1 | U | 1 | U | | | MS |
| Arsenic | ug/L | | 1.7 | U | 1.7 | U | | | MS |
| Cadmium | ug/L | | 0.11 | U | 0.11 | U | | | MS |
| Chromium | ug/L | +/−20% | 73.2 | | 72.1 | | 1.52 | | MS |
| Lead | ug/L | | 0.5 | U | 0.5 | U | | | MS |
| Molybdenum | ug/L | +/−.5 | 1.45 | | 1.44 | | .416 | | MS |
| Nickel | ug/L | +/−20% | 41.3 | | 40.3 | | 2.57 | | MS |
| Selenium | ug/L | | 1.5 | U | 1.5 | U | | | MS |
| Silver | ug/L | | 0.2 | U | 0.2 | U | | | MS |
| Thallium | ug/L | | 0.45 | U | 0.45 | U | | | MS |
| Uranium | ug/L | +/−20% | 1.27 | | 1.22 | | 4.25 | | MS |

***Analytical Methods:**

**MS SW846 3005/6020 DOE−AL**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−813 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CAMO−13−30588D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325394002 **Duplicate ID:** 1202876204 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | ug/L | | 0.067 | U | 0.067 | U | | | AV |

***Analytical Methods:**

**AV EPA 245.1/245.2**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−813

**Contract:** ESHL00210

**Aqueous LCS Source:** OS2I **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202874203 | | | | | | | | |
| | Aluminum | ug/L | 5000 | 5220 | | 104 | 80−120 | P |
| | Barium | ug/L | 500 | 478 | | 95.6 | 80−120 | P |
| | Beryllium | ug/L | 500 | 485 | | 97 | 80−120 | P |
| | Boron | ug/L | 500 | 462 | | 92.4 | 80−120 | P |
| | Calcium | ug/L | 5000 | 4940 | | 98.8 | 80−120 | P |
| | Cobalt | ug/L | 500 | 465 | | 93.1 | 80−120 | P |
| | Copper | ug/L | 500 | 484 | | 96.9 | 80−120 | P |
| | Iron | ug/L | 5000 | 4950 | | 99.1 | 80−120 | P |
| | Magnesium | ug/L | 5000 | 4900 | | 98 | 80−120 | P |
| | Manganese | ug/L | 500 | 469 | | 93.8 | 80−120 | P |
| | Potassium | ug/L | 5000 | 4880 | | 97.6 | 80−120 | P |
| | Silica | ug/L | 10700 | 9820 | | 91.7 | 80−120 | P |
| | Sodium | ug/L | 5000 | 4920 | | 98.4 | 80−120 | P |
| | Strontium | ug/L | 500 | 513 | | 103 | 80−120 | P |
| | Tin | ug/L | 500 | 480 | | 96 | 80−120 | P |
| | Vanadium | ug/L | 500 | 476 | | 95.1 | 80−120 | P |
| | Zinc | ug/L | 500 | 443 | | 88.7 | 80−120 | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−813

**Contract:** ESHL00210

**Aqueous LCS Source:** O2Si **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202874211 | | | | | | | | |
| | Thallium | ug/L | 50 | 47.5 | | 95 | 80−120 | MS |
| | Uranium | ug/L | 50 | 51.5 | | 103 | 80−120 | MS |
| | Antimony | ug/L | 50 | 52.9 | | 106 | 80−120 | MS |
| | Arsenic | ug/L | 50 | 52.2 | | 104 | 80−120 | MS |
| | Cadmium | ug/L | 50 | 52 | | 104 | 80−120 | MS |
| | Chromium | ug/L | 50 | 53 | | 106 | 80−120 | MS |
| | Lead | ug/L | 50 | 53.7 | | 107 | 80−120 | MS |
| | Molybdenum | ug/L | 50 | 50.7 | | 101 | 80−120 | MS |
| | Nickel | ug/L | 50 | 55.6 | | 111 | 80−120 | MS |
| | Selenium | ug/L | 50 | 55.4 | | 111 | 80−120 | MS |
| | Silver | ug/L | 50 | 52.5 | | 105 | 80−120 | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−813

**Contract:** ESHL00210

**Aqueous LCS Source:** GEL **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202876203 | | | | | | | | |
| | Mercury | ug/L | 2 | 2.05 | | 103 | 85−115 | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−813 **Client ID** CAMO−13−30589L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325480002 **Serial Dilution ID:** 1202874206

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Aluminum | 68 | U | 340 | U | | | | P |
| Barium | 41.1 | | 41.1 | | .033 | | | P |
| Beryllium | 1 | U | 5 | U | | | | P |
| Boron | 42.3 | J | 75 | U | 100 | | | P |
| Calcium | 63900 | | 64700 | | 1.18 | | 10 | P |
| Cobalt | 1 | U | 5 | U | | | | P |
| Copper | 6.12 | J | 15 | U | 100 | | | P |
| Iron | 30 | U | 150 | U | | | | P |
| Magnesium | 13000 | | 13000 | | .331 | | 10 | P |
| Manganese | 2.92 | J | 10 | U | 100 | | | P |
| Potassium | 881 | | 1120 | | 27.4 | | | P |
| Silica | 65300 | | 63400 | | 2.89 | | 10 | P |
| Sodium | 25500 | | 26000 | | 2.02 | | 10 | P |
| Strontium | 305 | | 311 | | 2.03 | | 10 | P |
| Tin | 2.5 | U | 12.5 | U | | | | P |
| Vanadium | 1 | U | 5 | U | | | | P |
| Zinc | 15.9 | | 16.5 | U | 100 | | | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−813 **Client ID** CAMO−13−30589L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325480002 **Serial Dilution ID:** 1202874214

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Antimony | 1 | U | 5 | U | | | | MS |
| Arsenic | 1.7 | U | 8.5 | U | | | | MS |
| Cadmium | .11 | U | .55 | U | | | | MS |
| Chromium | 73.2 | | 81.4 | | 11.2 | | | MS |
| Lead | .5 | U | 2.5 | U | | | | MS |
| Molybdenum | 1.45 | | 1.79 | J | 23.5 | | | MS |
| Nickel | 41.3 | | 43.4 | | 5.08 | | | MS |
| Selenium | 1.5 | U | 7.5 | U | | | | MS |
| Silver | .2 | U | 1 | U | | | | MS |
| Thallium | .45 | U | 2.65 | J | | | | MS |
| Uranium | 1.27 | | 1.3 | | 2.04 | | | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−813 **Client ID** CAMO−13−30588L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325394002 **Serial Dilution ID:** 1202876206

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Mercury | .067 | U | .335 | U | | | | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

# Miscellaneous

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 04-JUN-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| ICP/MS | SW846 3005/6020 DOE-AL | Liquid | ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1301067 | See Below | | |

**Potentially affected work order(s)(SDG):** **325283(2013-808),325284(2013-809),325285(2013-810),325394(2013-813),325410(2013-814),325479(2013-822),325480(2013-823)**

**Application Issues:**

Failed Recovery for MS/PS

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed Recovery for MS/PS:<br><br>QC 1202874213MS | The matrix spike recovery failed outside of the control limits for Ni due to possible matrix interferences and/or non-homogeneity. Per GEL's accredited methods and SOPs, a corrective action is not required and the data is qualified and reported. |

**Originator's Name:**

Elizabeth Janssen 04-JUN-13

**Data Validator/Group Leader:**

Paul Boyd 04-JUN-13

# General Chem Analysis

# Case Narrative

**General Chemistry Narrative**
**ARS International (ARSL)**
**SDG 2013-813**

## Method/Analysis Information

**Product:** **Carbon, Total Organic**

**Analytical Batch:** 1300890 **Method:** SW 9060 Total Organic Carbon

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9060:

| Sample ID | Client ID |
|---|---|
| 325394001 | CAMO-13-30572 |
| 325394004 | CAMO-13-30561 |
| 1202873770 | Method Blank (MB) |
| 1202873772 | 325410001(CAMO-13-30616) Sample Duplicate (DUP) |
| 1202873774 | 325410001(CAMO-13-30616) Post Spike (PS) |
| 1202873775 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-093 REV# 12.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Carbon analysis was performed on a O-I Analytical Model 1010 Total Organic Carbon Analyzer.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325410001 (CAMO-13-30616).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages

electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Specific Conductivity** | | |
| **Analytical Batch:** | 1300876 | **Method:** | EPA120.1 Specific Conductivity |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 120.1:

| Sample ID | Client ID |
|---|---|
| 325394002 | CAMO-13-30588 |
| 325394005 | CAMO-13-30563 |
| 1202873728 | Laboratory Control Sample (LCS) |
| 1202873730 | 325410002(CAMO-13-30620) Sample Duplicate (DUP) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-009 REV# 11.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Conductivity analysis was performed on a Orion 160 Conductivity Meter.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**

The following sample was selected for QC analysis: 325410002 (CAMO-13-30620).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

**Product:** **pH**

**Analytical Batch:** 1300897 **Method:** EPA 150.1 pH

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 150.1:

| Sample ID | Client ID |
|---|---|
| 325394002 | CAMO-13-30588 |
| 325394005 | CAMO-13-30563 |
| 1202873791 | 325394002(CAMO-13-30588) Sample Duplicate (DUP) |
| 1202873792 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-008 REV# 21.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Electrode analysis was performed on a PerpHect pH Meter Orion 370.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325394002 (CAMO-13-30588).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
The following samples from this sample group were received by the lab outside of the method specified holding time: 325394002 (CAMO-13-30588) and 325394005 (CAMO-13-30563).

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1188871 325394002 (CAMO-13-30588) and 325394005 (CAMO-13-30563).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Ion Chromatography** | | |
| **Analytical Batch:** | 1300722 | **Method:** | EPA 300.0 Anions Liquid 28 day |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

| Sample ID | Client ID |
|---|---|
| 325394002 | CAMO-13-30588 |
| 325394005 | CAMO-13-30563 |
| 1202873339 | Method Blank (MB) |
| 1202873340 | 325394002(CAMO-13-30588) Sample Duplicate (DUP) |
| 1202873341 | 325394002(CAMO-13-30588) Post Spike (PS) |
| 1202873342 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 21.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-3000 Ion Chromatograph.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325394002 (CAMO-13-30588).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The spike recovery falls outside of the established acceptance limits due to matrix interference: 1202873341 (CAMO-13-30588).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1186906 1202873341 (CAMO-13-30588).

**Manual Integrations**
The following samples from this sample group had to be manually integrated due to errors in the instrument software peak integration: 1202873340 (CAMO-13-30588), 1202873341 (CAMO-13-30588), 325394002 (CAMO-13-30588) and 325394005 (CAMO-13-30563).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Ammonia Nitrogen** | | |
| **Analytical Batch:** | 1300621 | **Method:** | EPA 350.1 Nitrogen and Ammonia L |
| **Prep Batch :** | 1300620 | **Method:** | EEPA 350.2 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 350.1:

| Sample ID | Client ID |
|---|---|
| 325394002 | CAMO-13-30588 |
| 325394005 | CAMO-13-30563 |
| 1202873025 | Method Blank (MB) |
| 1202873026 | 325283002(CAMO-13-30590) Sample Duplicate (DUP) |
| 1202873027 | 325283004(CAMO-13-30593) Sample Duplicate (DUP) |
| 1202873028 | 325283002(CAMO-13-30590) Matrix Spike (MS) |
| 1202873029 | 325283004(CAMO-13-30593) Matrix Spike (MS) |
| 1202873030 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-106 REV# 9.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Continuing Calibration Blanks**

All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following samples were selected for QC analysis: 325283002 (CAMO-13-30590) and 325283004 (CAMO-13-30593).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recoveries for this sample set were within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
One or more of the values for the sample and/or duplicate are less than 5 times the Practical Quantitation Limit (PQL), and the difference is within one PQL value; therefore, the RPD is not applicable. 1202873027 (CAMO-13-30593). The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample: 1202873026 (CAMO-13-30590).

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The following samples were re-analyzed due to CCV failure: 1202873027 (CAMO-13-30593) and 1202873029 (CAMO-13-30593).

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1185844 1202873026 (CAMO-13-30590).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Total Kjeldahl Nitrogen** | | |
| **Analytical Batch:** | 1300635 | **Method:** | Nitrogen and Total Kjeldahl (TKN) |
| **Prep Batch :** | 1300634 | **Method:** | EEPA 351.2 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 351.2:

| Sample ID | Client ID |
|---|---|
| 325394001 | CAMO-13-30572 |
| 325394004 | CAMO-13-30561 |
| 1202873058 | Method Blank (MB) |
| 1202873059 | 325283001(CAMO-13-30574) Sample Duplicate (DUP) |
| 1202873060 | 325283003(CAMO-13-30577) Sample Duplicate (DUP) |
| 1202873061 | 325283001(CAMO-13-30574) Matrix Spike (MS) |
| 1202873062 | 325283003(CAMO-13-30577) Matrix Spike (MS) |
| 1202873063 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-104 REV# 14.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following samples were selected for QC analysis: 325283001 (CAMO-13-30574) and 325283003 (CAMO-13-30577).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recoveries for this sample set were within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202873059 (CAMO-13-30574).

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The following samples were re-analyzed due to CCV failure: 1202873058 (MB), 1202873059 (CAMO-13-30574), 1202873060 (CAMO-13-30577), 1202873061 (CAMO-13-30574), 1202873062 (CAMO-13-30577) and 1202873063 (LCS).

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Nitrate Nitrite by Cadmium Reduction** | | |
| **Analytical Batch:** | 1301246 | **Method:** | EPA 353.2 Nitrogen and Nitrate/Nitrite |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 353.2:

| Sample ID | Client ID |
|---|---|
| 325394002 | CAMO-13-30588 |
| 325394005 | CAMO-13-30563 |
| 1202874598 | Method Blank (MB) |
| 1202874599 | 325284002(CAMO-13-30591) Sample Duplicate (DUP) |
| 1202874602 | 325284002(CAMO-13-30591) Post Spike (PS) |
| 1202874605 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-128 REV# 8.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8500 Series.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325284002 (CAMO-13-30591).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recoveries for this sample set were within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The following samples in this sample group were diluted due to high concentration: 1202874599 (CAMO-13-30591), 1202874602 (CAMO-13-30591), 325394002 (CAMO-13-30588) and 325394005 (CAMO-13-30563).

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Total Phosphorus** | | |
| **Analytical Batch:** | 1300626 | **Method:** | EPA 365.4 Phosphorus and Total in |
| **Prep Batch :** | 1300625 | **Method:** | EEPA 365.4 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 365.4:

| Sample ID | Client ID |
|---|---|
| 325394002 | CAMO-13-30588 |
| 325394005 | CAMO-13-30563 |
| 1202873039 | Method Blank (MB) |
| 1202873040 | 325283002(CAMO-13-30590) Sample Duplicate (DUP) |
| 1202873041 | 325287001(NP027-13-30514) Sample Duplicate (DUP) |
| 1202873042 | 325283002(CAMO-13-30590) Matrix Spike (MS) |
| 1202873043 | 325287001(NP027-13-30514) Matrix Spike (MS) |
| 1202873044 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-103 REV# 10.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following samples were selected for QC analysis: 325283002 (CAMO-13-30590) and 325287001 (NP027-13-30514).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recoveries for this sample set were within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The following samples in this sample group were diluted due to high concentration: 1202873041 (NP027-13-30514) and 1202873043 (NP027-13-30514).

**Sample Re-analysis**
The following samples were re-analyzed due to CCV failure: 1202873041 (NP027-13-30514), 1202873043 (NP027-13-30514) and 325394005 (CAMO-13-30563).

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Solids, Total Dissolved** | | |
| **Analytical Batch:** | 1300893 | **Method:** | EPA 160.1 Solids and Dissolved-F |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 160.1:

| Sample ID | Client ID |
|---|---|
| 325394002 | CAMO-13-30588 |
| 325394005 | CAMO-13-30563 |
| 1202873779 | Method Blank (MB) |
| 1202873780 | 325410002(CAMO-13-30620) Sample Duplicate (DUP) |
| 1202873781 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-001 REV# 13.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Solids analysis was performed on a Sartorius Balance BAL216. Solids lab

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

## Quality Control (QC) Information

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325410002 (CAMO-13-30620).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Sample Aliquot**
A sufficient amount of sample was provided by the client for analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

**Product:** **Alkalinity**

**Analytical Batch:** 1302074 **Method:** EPA 310.1 Total Alkalinity

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 310.1:

| Sample ID | Client ID |
|---|---|
| 325394002 | CAMO-13-30588 |
| 325394005 | CAMO-13-30563 |
| 1202876728 | Laboratory Control Sample (LCS) |
| 1202876731 | 325410002(CAMO-13-30620) Sample Duplicate (DUP) |
| 1202876732 | 325410002(CAMO-13-30620) Matrix Spike (MS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-033 REV# 10.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Titration analysis was performed on a Manually operated buret.

**Initial Standardization**
The titrant was properly standardized

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325410002 (CAMO-13-30620).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

**Review Validation:**

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

**The following data validator verified the information presented in this case narrative:**

**Reviewer:_____ Date:_____**

# Sample Data Summary

# GEL LABORATORIES LLC

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## Certificate of Analysis Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-813  GEL Work Order: 325394

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

**  Analyte is a Tracer compound

**  Analyte is a surrogate compound

H  Analytical holding time was exceeded

J  Value is estimated

N  Metals--The Matrix spike sample recovery is not within specified control limits

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____

# GEL LABORATORIES LLC

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## Certificate of Analysis

Report Date: June 4, 2013

| | |
|---|---|
| Company : | Los Alamos National Laboratory |
| Address : | PO Box 1663<br>TA-03, SM271, Drop Pt. 02U, Rm111<br>Los Alamos, New Mexico 87545 |
| Contact: | Keith Greene |
| Project: | LANL-WQH Water Samples |

Client SDG: 2013-813

| | | | |
|---|---|---|---|
| Client Sample ID: | CAMO-13-30572 | Project: | ESHL00210 |
| Sample ID: | 325394001 | Client ID: | ARSL001 |
| Matrix: | W | | |
| Collect Date: | 07-MAY-13 12:20 | | |
| Receive Date: | 09-MAY-13 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon Analysis | | | | | | | | | | | |
| SW 9060 Total Organic Carbon "As Received" | | | | | | | | | | | |
| Total Organic Carbon Average | J | 0.631 | 0.330 | 1.00 | mg/L | 1 | TSM | 05/10/13 | 2333 | 1300890 | 1 |
| Nutrient Analysis | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl (TKN) "As Received" | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | J | 0.0679 | 0.033 | 0.100 | mg/L | 1 | KLP1 | 05/14/13 | 1403 | 1300635 | 2 |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 351.2 Prep | EPA 351.2 Total Kjeldahl Nitrogen Prep | KLP1 | 05/13/13 | 1700 | 1300634 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | SW846 9060 | |
| 2 | EPA 351.2 | |

**Notes:**

# GEL LABORATORIES LLC

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## Certificate of Analysis

Report Date: June 4, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-813

Client Sample ID: CAMO-13-30588
Sample ID: 325394002
Matrix: W
Collect Date: 07-MAY-13 12:20
Receive Date: 09-MAY-13
Collector: Client
Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Conductivity Analysis | | | | | | | | | | | |
| EPA120.1 Specific Conductivity "As Received" | | | | | | | | | | | |
| Conductivity | | 205 | 1.00 | 1.00 | umhos/cm | 1 | LXA1 | 05/14/13 | 1153 | 1300876 | 1 |
| Electrode Analysis | | | | | | | | | | | |
| EPA 150.1 pH "As Received" | | | | | | | | | | | |
| pH at Temp 16.5C | H | 8.56 | 0.010 | 0.100 | SU | 1 | LYG1 | 05/10/13 | 0813 | 1300897 | 2 |
| Ion Chromatography | | | | | | | | | | | |
| EPA 300.0 Anions Liquid 28 day "As Received" | | | | | | | | | | | |
| Bromide | J | 0.116 | 0.067 | 0.200 | mg/L | 1 | VH1 | 05/15/13 | 2028 | 1300722 | 3 |
| Chloride | | 8.22 | 0.067 | 0.200 | mg/L | 1 | | | | | |
| Fluoride | | 0.199 | 0.033 | 0.100 | mg/L | 1 | | | | | |
| Sulfate | | 13.5 | 0.133 | 0.400 | mg/L | 1 | | | | | |
| Nutrient Analysis | | | | | | | | | | | |
| EPA 350.1 Nitrogen, Ammonia L "As Received" | | | | | | | | | | | |
| Nitrogen, Ammonia | | 0.0804 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/13/13 | 1636 | 1300621 | 4 |
| EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received" | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | 4.35 | 0.170 | 0.500 | mg/L | 10 | KLP1 | 06/03/13 | 1418 | 1301246 | 5 |
| EPA 365.4 Phosphorus, Total in "As Received" | | | | | | | | | | | |
| Phosphorus, Total as P | | 0.106 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/14/13 | 1105 | 1300626 | 6 |
| Solids Analysis | | | | | | | | | | | |
| EPA 160.1 Solids, Dissolved-F "As Received" | | | | | | | | | | | |
| Total Dissolved Solids | | 129 | 3.40 | 14.3 | mg/L | | LYG1 | 05/10/13 | 0823 | 1300893 | 7 |
| Titration Analysis | | | | | | | | | | | |
| EPA 310.1 Total Alkalinity "As Received" | | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | 52.8 | 0.725 | 1.00 | mg/L | | LXA1 | 05/16/13 | 1507 | 1302074 | 8 |
| Carbonate alkalinity (CaCO3) | | 5.08 | 0.725 | 1.00 | mg/L | | | | | | |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 350.2 Prep | EPA 350.1 Ammonia Nitrogen Prep | KLP1 | 05/13/13 | 1400 | 1300620 |
| EPA 365.4 Prep | EPA 365.4 Phosphorus, Total in liquid PR | KLP1 | 05/13/13 | 1700 | 1300625 |

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## Certificate of Analysis

Report Date: June 4, 2013

| | | | |
|---|---|---|---|
| Company : | Los Alamos National Laboratory | | |
| Address : | PO Box 1663<br>TA-03, SM271, Drop Pt. 02U, Rm111<br>Los Alamos, New Mexico 87545 | | |
| Contact: | Keith Greene | Client SDG: | 2013-813 |
| Project: | LANL-WQH Water Samples | | |

| | | | |
|---|---|---|---|
| Client Sample ID: | CAMO-13-30588 | Project: | ESHL00210 |
| Sample ID: | 325394002 | Client ID: | ARSL001 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | EPA 120.1 | |
| 2 | EPA 150.1 | |
| 3 | EPA 300.0 | |
| 4 | EPA 350.1 | |
| 5 | EPA 353.2 | |
| 6 | EPA 365.4 | |
| 7 | EPA 160.1 | |
| 8 | EPA 310.1 | |

**Notes:**

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## Certificate of Analysis

Report Date: June 4, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-813

Client Sample ID: CAMO-13-30561
Sample ID: 325394004
Matrix: W
Collect Date: 07-MAY-13 12:20
Receive Date: 09-MAY-13
Collector: Client
Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon Analysis | | | | | | | | | | | |
| SW 9060 Total Organic Carbon "As Received" | | | | | | | | | | | |
| Total Organic Carbon Average | J | 0.638 | 0.330 | 1.00 | mg/L | 1 | TSM | 05/11/13 | 0007 | 1300890 | 1 |
| Nutrient Analysis | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl (TKN) "As Received" | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | U | ND | 0.033 | 0.100 | mg/L | 1 | KLP1 | 05/14/13 | 1403 | 1300635 | 2 |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 351.2 Prep | EPA 351.2 Total Kjeldahl Nitrogen Prep | KLP1 | 05/13/13 | 1700 | 1300634 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | SW846 9060 | |
| 2 | EPA 351.2 | |

**Notes:**

# GEL LABORATORIES LLC

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## Certificate of Analysis

Report Date: June 4, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-813

Client Sample ID: CAMO-13-30563
Sample ID: 325394005
Matrix: W
Collect Date: 07-MAY-13 12:20
Receive Date: 09-MAY-13
Collector: Client
Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Conductivity Analysis | | | | | | | | | | | |
| EPA120.1 Specific Conductivity "As Received" | | | | | | | | | | | |
| Conductivity | | 202 | 1.00 | 1.00 | umhos/cm | 1 | LXA1 | 05/14/13 | 1153 | 1300876 | 1 |
| Electrode Analysis | | | | | | | | | | | |
| EPA 150.1 pH "As Received" | | | | | | | | | | | |
| pH at Temp 16.1C | H | 8.59 | 0.010 | 0.100 | SU | 1 | LYG1 | 05/10/13 | 0815 | 1300897 | 2 |
| Ion Chromatography | | | | | | | | | | | |
| EPA 300.0 Anions Liquid 28 day "As Received" | | | | | | | | | | | |
| Bromide | J | 0.113 | 0.067 | 0.200 | mg/L | 1 | VH1 | 05/15/13 | 2201 | 1300722 | 3 |
| Chloride | | 8.24 | 0.067 | 0.200 | mg/L | 1 | | | | | |
| Fluoride | | 0.196 | 0.033 | 0.100 | mg/L | 1 | | | | | |
| Sulfate | | 13.5 | 0.133 | 0.400 | mg/L | 1 | | | | | |
| Nutrient Analysis | | | | | | | | | | | |
| EPA 350.1 Nitrogen, Ammonia L "As Received" | | | | | | | | | | | |
| Nitrogen, Ammonia | U | ND | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/13/13 | 1637 | 1300621 | 4 |
| EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received" | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | 4.17 | 0.170 | 0.500 | mg/L | 10 | KLP1 | 06/03/13 | 1419 | 1301246 | 5 |
| EPA 365.4 Phosphorus, Total in "As Received" | | | | | | | | | | | |
| Phosphorus, Total as P | | 0.0948 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/14/13 | 1211 | 1300626 | 6 |
| Solids Analysis | | | | | | | | | | | |
| EPA 160.1 Solids, Dissolved-F "As Received" | | | | | | | | | | | |
| Total Dissolved Solids | | 147 | 3.40 | 14.3 | mg/L | | LYG1 | 05/10/13 | 0823 | 1300893 | 7 |
| Titration Analysis | | | | | | | | | | | |
| EPA 310.1 Total Alkalinity "As Received" | | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | 54.3 | 0.725 | 1.00 | mg/L | | LXA1 | 05/16/13 | 1514 | 1302074 | 8 |
| Carbonate alkalinity (CaCO3) | | 2.03 | 0.725 | 1.00 | mg/L | | | | | | |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 350.2 Prep | EPA 350.1 Ammonia Nitrogen Prep | KLP1 | 05/13/13 | 1400 | 1300620 |
| EPA 365.4 Prep | EPA 365.4 Phosphorus, Total in liquid PR | KLP1 | 05/13/13 | 1700 | 1300625 |

# GEL LABORATORIES LLC

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## Certificate of Analysis

Report Date: June 4, 2013

| | | | |
|---|---|---|---|
| Company : | Los Alamos National Laboratory | | |
| Address : | PO Box 1663<br>TA-03, SM271, Drop Pt. 02U, Rm111<br>Los Alamos, New Mexico 87545 | | |
| Contact: | Keith Greene | Client SDG: | 2013-813 |
| Project: | LANL-WQH Water Samples | | |

| | | | |
|---|---|---|---|
| Client Sample ID: | CAMO-13-30563 | Project: | ESHL00210 |
| Sample ID: | 325394005 | Client ID: | ARSL001 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | EPA 120.1 | |
| 2 | EPA 150.1 | |
| 3 | EPA 300.0 | |
| 4 | EPA 350.1 | |
| 5 | EPA 353.2 | |
| 6 | EPA 365.4 | |
| 7 | EPA 160.1 | |
| 8 | EPA 310.1 | |

**Notes:**

# Quality Control Summary

# GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

## QC Summary

**Report Date: June 4, 2013**


**Los Alamos National Laboratory**
**PO Box 1663**
**TA-03, SM271, Drop Pt. 02U, Rm111**
**Los Alamos, New Mexico**

**Contact:** **Keith Greene**

**Workorder:** **325394**

| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Carbon Analysis** | | | | | | | | | | | | |
| Batch 1300890 | | | | | | | | | | | | |
| QC1202873772 325410001 DUP | | | | | | | | | | | | |
| Total Organic Carbon Average | | J | 0.467 | J | 0.542 | mg/L | 14.9 | ^ | | (+/-1.00) | TSM | 05/11/13 01:14 |
| QC1202873775 LCS | | | | | | | | | | | | |
| Total Organic Carbon Average | 10.0 | | | | 9.94 | mg/L | | | 99.4 | (85%-115%) | | 05/10/13 19:14 |
| QC1202873770 MB | | | | | | | | | | | | |
| Total Organic Carbon Average | | | | U | ND | mg/L | | | | | | 05/10/13 19:05 |
| QC1202873774 325410001 PS | | | | | | | | | | | | |
| Total Organic Carbon Average | 10.0 | J | 0.467 | | 10.4 | mg/L | | | 99.4 | (65%-120%) | | 05/11/13 01:34 |
| **Conductivity Analysis** | | | | | | | | | | | | |
| Batch 1300876 | | | | | | | | | | | | |
| QC1202873730 325410002 DUP | | | | | | | | | | | | |
| Conductivity | | | 131 | | 130 | umhos/cm | 0.769 | | | (0%-10%) | LXA1 | 05/14/13 11:54 |
| QC1202873728 LCS | | | | | | | | | | | | |
| Conductivity | 1410 | | | | 1450 | umhos/cm | | | 103 | (95%-105%) | | 05/14/13 11:41 |
| **Electrode Analysis** | | | | | | | | | | | | |
| Batch 1300897 | | | | | | | | | | | | |
| QC1202873791 325394002 DUP | | | | | | | | | | | | |
| pH | | H | 8.56 | H | 8.60 | SU | 0.466 | | | (0%-10%) | LYG1 | 05/10/13 08:14 |
| QC1202873792 LCS | | | | | | | | | | | | |
| pH | 7.00 | | | | 7.02 | SU | | | 100 | (99%-101%) | | 05/10/13 08:11 |
| **Ion Chromatography** | | | | | | | | | | | | |
| Batch 1300722 | | | | | | | | | | | | |
| QC1202873340 325394002 DUP | | | | | | | | | | | | |
| Bromide | | J | 0.116 | J | 0.108 | mg/L | 6.43 | ^ | | (+/-0.200) | VH1 | 05/15/13 20:59 |
| Chloride | | | 8.22 | | 8.23 | mg/L | 0.0644 | | | (0%-20%) | | |
| Fluoride | | | 0.199 | | 0.198 | mg/L | 0.503 | ^ | | (+/-0.100) | | |
| Sulfate | | | 13.5 | | 13.5 | mg/L | 0.105 | | | (0%-20%) | | |
| QC1202873342 LCS | | | | | | | | | | | | |
| Bromide | 1.25 | | | | 1.28 | mg/L | | | 103 | (90%-110%) | | 05/15/13 19:57 |

# GEL LABORATORIES LLC

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## QC Summary

**Workorder: 325394**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Ion Chromatography** | | | | | | | | | | | |
| Batch 1300722 | | | | | | | | | | | |
| Chloride | 5.00 | | | | 4.54 | mg/L | | 90.9 | (90%-110%) | VH1 | 05/15/13 19:57 |
| Fluoride | 2.50 | | | | 2.34 | mg/L | | 93.6 | (90%-110%) | | |
| Sulfate | 10.0 | | | | 9.36 | mg/L | | 93.6 | (90%-110%) | | |
| QC1202873339 MB | | | | | | | | | | | |
| Bromide | | | | U | ND | mg/L | | | | | 05/15/13 18:55 |
| Chloride | | | | U | ND | mg/L | | | | | |
| Fluoride | | | | U | ND | mg/L | | | | | |
| Sulfate | | | | U | ND | mg/L | | | | | |
| QC1202873341 325394002 PS | | | | | | | | | | | |
| Bromide | 1.25 | J | 0.116 | | 1.35 | mg/L | | 98.5 | (90%-110%) | | 05/15/13 21:30 |
| Chloride | 5.00 | | 8.22 | | 13.8 | mg/L | | 112* | (90%-110%) | | |
| Fluoride | 2.50 | | 0.199 | | 2.58 | mg/L | | 95.2 | (90%-110%) | | |
| Sulfate | 10.0 | | 13.5 | | 24.1 | mg/L | | 107 | (90%-110%) | | |
| **Nutrient Analysis** | | | | | | | | | | | |
| Batch 1300621 | | | | | | | | | | | |
| QC1202873026 325283002 DUP | | | | | | | | | | | |
| Nitrogen, Ammonia | | | 0.0655 | U | ND | mg/L | N/A ^ | | (+/-0.050) | KLP1 | 05/13/13 15:55 |
| QC1202873027 325283004 DUP | | | | | | | | | | | |
| Nitrogen, Ammonia | | | 0.0587 | J | 0.0431 | mg/L | 30.6 ^ | | (+/-0.050) | | 05/13/13 16:22 |
| QC1202873030 LCS | | | | | | | | | | | |
| Nitrogen, Ammonia | 1.00 | | | | 0.918 | mg/L | | 91.8 | (90%-110%) | | 05/13/13 15:50 |
| QC1202873025 MB | | | | | | | | | | | |
| Nitrogen, Ammonia | | | | U | ND | mg/L | | | | | 05/13/13 15:50 |
| QC1202873028 325283002 MS | | | | | | | | | | | |
| Nitrogen, Ammonia | 1.00 | | 0.0655 | | 0.983 | mg/L | | 98.3 | (90%-110%) | | 05/13/13 15:56 |
| QC1202873029 325283004 MS | | | | | | | | | | | |
| Nitrogen, Ammonia | 1.00 | | 0.0587 | | 1.09 | mg/L | | 103 | (90%-110%) | | 05/13/13 16:23 |

## QC Summary

**Workorder: 325394**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Nutrient Analysis** | | | | | | | | | | | | |
| Batch 1300626 | | | | | | | | | | | | |
| QC1202873040 325283002 DUP | | | | | | | | | | | | |
| Phosphorus, Total as P | | | 0.0705 | | 0.0744 | mg/L | 5.38 | ^ | | (+/-0.050) | KLP1 | 05/14/13 10:51 |
| QC1202873041 325287001 DUP | | | | | | | | | | | | |
| Phosphorus, Total as P | | | 2.83 | | 2.68 | mg/L | 5.63 | | | (0%-31%) | | 05/14/13 12:17 |
| QC1202873044 LCS | | | | | | | | | | | | |
| Phosphorus, Total as P | 1.00 | | | | 1.06 | mg/L | | | 106 | (76%-120%) | | 05/14/13 10:46 |
| QC1202873039 MB | | | | | | | | | | | | |
| Phosphorus, Total as P | | | | U | ND | mg/L | | | | | | 05/14/13 10:46 |
| QC1202873042 325283002 MS | | | | | | | | | | | | |
| Phosphorus, Total as P | 1.00 | | 0.0705 | | 1.08 | mg/L | | | 101 | (62%-139%) | | 05/14/13 10:52 |
| QC1202873043 325287001 MS | | | | | | | | | | | | |
| Phosphorus, Total as P | 1.00 | | 2.83 | | 3.70 | mg/L | | | 86.5 | (62%-139%) | | 05/14/13 12:18 |
| Batch 1300635 | | | | | | | | | | | | |
| QC1202873059 325283001 DUP | | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | U | ND | U | ND | mg/L | N/A | | | | KLP1 | 05/14/13 13:50 |
| QC1202873060 325283003 DUP | | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | | 0.109 | | 0.123 | mg/L | 12.1 | ^ | | (+/-0.100) | | 05/14/13 13:53 |
| QC1202873063 LCS | | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | | | | 0.987 | mg/L | | | 98.7 | (90%-110%) | | 05/14/13 13:48 |
| QC1202873058 MB | | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | | | U | ND | mg/L | | | | | | 05/14/13 13:47 |
| QC1202873061 325283001 MS | | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | U | ND | | 0.991 | mg/L | | | 99.1 | (90%-110%) | | 05/14/13 13:51 |
| QC1202873062 325283003 MS | | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | | 0.109 | | 1.06 | mg/L | | | 95.1 | (90%-110%) | | 05/14/13 13:53 |
| Batch 1301246 | | | | | | | | | | | | |
| QC1202874599 325284002 DUP | | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | | 2.12 | | 2.10 | mg/L | 0.950 | | | (0%-20%) | KLP1 | 06/03/13 14:03 |
| QC1202874605 LCS | | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | 1.00 | | | | 0.979 | mg/L | | | 97.9 | (90%-110%) | | 06/03/13 11:59 |
| QC1202874598 MB | | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | | | U | ND | mg/L | | | | | | 06/03/13 11:58 |
| QC1202874602 325284002 PS | | | | | | | | | | | | |

## QC Summary

**Workorder: 325394**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Nutrient Analysis** | | | | | | | | | | |
| Batch 1301246 | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | 1.00 | 0.423 | | 1.43 | mg/L | | 101 | (90%-110%) | | 06/03/13 14:04 |
| **Solids Analysis** | | | | | | | | | | |
| Batch 1300893 | | | | | | | | | | |
| QC1202873780 325410002 DUP | | | | | | | | | | |
| Total Dissolved Solids | | 114 | | 111 | mg/L | 2.53 | | (0%-10%) | LYG1 | 05/10/13 08:23 |
| QC1202873781 LCS | | | | | | | | | | |
| Total Dissolved Solids | 300 | | | 291 | mg/L | | 97.1 | (95%-105%) | | 05/10/13 08:23 |
| QC1202873779 MB | | | | | | | | | | |
| Total Dissolved Solids | | | U | ND | mg/L | | | | | 05/10/13 08:23 |
| **Titration Analysis** | | | | | | | | | | |
| Batch 1302074 | | | | | | | | | | |
| QC1202876731 325410002 DUP | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | 58.4 | | 57.9 | mg/L | 0.873 | | (0%-20%) | LXA1 | 05/16/13 15:37 |
| Carbonate alkalinity (CaCO3) | U | ND | U | ND | mg/L | N/A | | | | |
| QC1202876728 LCS | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | 50.0 | | | 50.8 | mg/L | | 102 | (90%-110%) | | 05/16/13 12:18 |
| QC1202876732 325410002 MS | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | 50.0 | 58.4 | | 109 | mg/L | | 100 | (80%-120%) | | 05/16/13 15:39 |

**Notes:**

| | |
|---|---|
| ** | Analyte is a surrogate compound |
| < | Result is less than value reported |
| > | Result is greater than value reported |
| A | The TIC is a suspected aldol-condensation product |
| B | The target analyte was detected in the associated blank. |
| C | Analyte has been confirmed by GC/MS analysis |
| D | Results are reported from a diluted aliquot of the sample |
| E | %difference of sample and SD is >10%. Sample concentration must meet flagging criteria |
| E | Concentration of the target analyte exceeds the instrument calibration range |
| E | General Chemistry--Concentration of the target analyte exceeds the instrument calibration range |
| FB | Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies |
| H | Analytical holding time was exceeded |
| J | Value is estimated |

## QC Summary

**Workorder:** **325394**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|

| | |
|---|---|
| JNX | Non Calibrated Compound |
| N | Metals--The Matrix spike sample recovery is not within specified control limits |
| N | Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N | Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N/A | RPD or %Recovery limits do not apply. |
| N1 | See case narrative |
| ND | Analyte concentration is not detected above the detection limit |
| NJ | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| P | Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70% |
| Q | One or more quality control criteria have not been met. Refer to the applicable narrative or DER. |
| R | Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes. |
| R | Sample results are rejected |
| U | Analyte was analyzed for, but not detected above the MDL, MDA, or LOD. |
| UJ | Compound cannot be extracted |
| X | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| Y | Other specific qualifiers were required to properly define the results. Consult case narrative. |
| Y | QC Samples were not spiked with this compound |
| Z | Paint Filter Test--Particulates passed through the filter, however no free liquids were observed. |
| ^ | RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry. |
| d | 5-day BOD--The 2:1 depletion requirement was not met for this sample |
| h | Preparation or preservation holding time was exceeded |

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

# Miscellaneous

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 13-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| LACHAT Flow Injection Analyzer | EPA 350.1 | Liquid | ESHL, |
| **Batch ID:** | **Sample Numbers:** | | |
| 1300621 | See below. | | |

**Potentially affected work order(s)(SDG):** **324810,325209,325269,325273,325283(2013-808),325284(2013-809),325289,325333,325360,325361,325362,325384,325388,325389,325394(2013-813),325410(2013-814)**

**Application Issues:**

Failed RPD for DUP

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed RPD for DUP:<br><br>QC 1202873026DUP | 1. The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample. |

**Originator's Name:**
Kristen Parson 13-MAY-13

**Data Validator/Group Leader:**
Julia Hamilton 14-MAY-13

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 16-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| IC | EPA 300.0 | Liquid | ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1300722 | See Below | | |

**Potentially affected work order(s)(SDG): 325394(2013-813),325410(2013-814)**

**Application Issues:**

Failed Recovery for MS/PS

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed Recovery for MS/PS:<br><br>QC 1202873341PS | 1. The MS/PS mixture contains seven anions of interest. Of those, all requested anions except chloride met normal acceptance criteria for recovery (90 - 110%). This failure is attributed to the matrix of the sample because the successful recovery of the other compounds indicate that the laboratory process was in control. This variance is judged to have no negative impact on the data. The deviation is noted in the Case Narrative and DER, and the data has been reported. |

**Originator's Name:**

Virginia Wininger 16-MAY-13

**Data Validator/Group Leader:**

Mary Sherwood 03-JUN-13

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 23-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| ELECTRODE | EPA 150.1 | Liquid | ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1300897 | See below. | | |

**Potentially affected work order(s)(SDG): 325394(2013-813),325410(2013-814)**

**Application Issues:**

Sample received out of holding

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Sample received out of holding:<br><br>325394 002,005<br><br>325410 002 | 1. Samples were received out of holding. |

**Originator's Name:**

Lisa Gregory 28-MAY-13

**Data Validator/Group Leader:**

Julia Hamilton 04-JUN-13

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

# Chain of Custody/Analysis Request

COC/Lab Request #: 2013-809



**Client Contact:**

**Lab Agreement # :** 126310011

**Project Number :**

**Analysis Turnaround Time:**

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

**Site Name:** Los Alamos National Laboratory

**Rad Screening Info:** Yes, Below Background

**Special Instructions:**

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | WSP-8260B-VOA | WSP-8270C-SVOA | WSP-CL04 | WSP-GENINORG | WSP-GrossA/B | WSP-Met+B+SN+SR+U | WSP-NH3+NO3/NO2+PO4 | WSP-RAD | WSP-TKN+TOC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAMO-13-30575 | May 6 2013 | 13:24 | W | | | | | | | | | 1 |
| CAMO-13-30591 | May 6 2013 | 13:24 | W | | | 1 | 1 | | 1 | 1 | | |
| CAMO-13-30576 | May 6 2013 | 11:59 | W | | | | | | | | | 1 |
| CAMO-13-30592 | May 6 2013 | 11:59 | W | | | 1 | 1 | | 1 | 1 | | |
| CAMO-13-30558 | May 6 2013 | 14:36 | W | 2 | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

Special Instructions:

| | | | |
|---|---|---|---|
| Relinquished by: Melissa Montoya | | Date/Time: 5/7/13 3:00 | Received by: |
| Relinquished by: | | Date/Time: | Received by: |
| Relinquished by: | | Date/Time: | Received by: |

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30558

**WORK ORDER:**

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| **DATE COLLECTED (MM/DD/YYYY):** | | 5/6/2013 | **FIELD MATRIX:** | WG | gK |
| **TIME COLLECTED (HH:MM):** | | 1436 | **MEDIA:** | UA | |
| **PRS ID:** | | gK | **SAMPLE TECH CODE:** | UA | DC |
| **LOCATION ID:** | R-28 | | **FIELD PREP:** | UF | dk |
| **LOCATION TYPE:** | | | **FIELD QC TYPE:** | PEB | |
| **PORT:** | SINGLE COMPLETION | | **SAMPLE USAGE:** | QC | |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-8260B-VOA | 40 ML SEPTUM AMBER GLASS | 2 | HCL | Y | NA |
| | WSP-8270C-SVOA | 1 LITER AMBER GLASS | 1 | ICE 5/6/13 | | |
| | WSP-CL04 | 250 ML POLY | 1 | ICE | | |
| | WSP-GENINORG | 1 LITER POLY | 1 | ICE | | |
| | WSP-GrossA/B | 1 LITER POLY | 1 | NONE | | |
| | WSP-LL-H-3 | 1 LITER POLY | 1 | NONE | | |
| | WSP-Met+B+SN+SR+U | 1 LITER POLY | 1 | HNO3 | | |
| | WSP-NH3+NO3/NO2+PO4 | 500 ML AMBER GLASS | 1 | H2SO4 | | |
| | WSP-RAD | 1 GAL POLY | 1 | HNO3 | | |
| | WSP-TKN+TOC | 500 ML AMBER GLASS | 1 | H2SO4 | | |

Analyses continued on next page

DI from TA-59 Basement Lab 18.2 MΩ-cm

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30558

**WORK ORDER:**

N/A vs 5/6/2013

**SAMPLE COMMENTS:**

**LOCATION COMMENTS:**

**FIELD PARAMETERS:**

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

**COLLECTED BY (PRINT)** W. Shaw

| | | | |
|---|---|---|---|
| **RELINQUISHED BY (Printed Name) (Signature)** William Shaw | **Date/Time** 5/6/13 1505 | **RECEIVED BY (Printed Name) (Signature)** M. Martin | **Date/Time** 5/6/13 1505 |
| **RELINQUISHED BY (Printed Name) (Signature)** | **Date/Time** | **RECEIVED BY (Printed Name) (Signature)** | **Date/Time** |

Report Date 04/30/2013

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30575

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | 05/06/2013 | FIELD MATRIX: | WG | OK |
| TIME COLLECTED (HH:MM): | | 1324 | MEDIA: | UA | ↓ |
| PRS ID: | | OK | SAMPLE TECH CODE: | UA | GSP |
| LOCATION ID: | R-15 | ↓ | FIELD PREP: | UF | OK |
| LOCATION TYPE: | MON | ↓ | FIELD QC TYPE: | REG | ↓ |
| PORT: | SINGLE COMPLETION | | SAMPLE USAGE: | INV | |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-TKN+TOC | 500 ML AMBER GLASS | 1 | H2SO4 | Y | NA |

**SAMPLE COMMENTS:** Sampled within 50' of running diesel generator

**LOCATION COMMENTS:** NA

**FIELD PARAMETERS:**

Dissolved Oxygen 7.00 mg/L  Oxidation-Reduction Potential 229.2 MV  pH 8.20 SU

Specific Conductance 156 uS/cm  Temperature 19.32 deg C  Turbidity 1.2 NTU

**COLLECTED BY (PRINT)** W. Shaw

| RELINQUISHED BY (Printed Name) (Signature) | Date/Time | RECEIVED BY (Printed Name) (Signature) | Date/Time |
|---|---|---|---|
| W. Shaw | 5/6/13 1505 | | 5/6/13 1505 |
| **RELINQUISHED BY (Printed Name) (Signature)** | **Date/Time** | **RECEIVED BY (Printed Name) (Signature)** | **Date/Time** |
| | | | |

Report Date 04/30/2013

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30576

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | 05/06/2013 | FIELD MATRIX: | WG | OK |
| TIME COLLECTED (HH:MM): | | 1159 | MEDIA: | UA | ↓ |
| PRS ID: | | OK | SAMPLE TECH CODE: | UA | GSP |
| LOCATION ID: | R-28 | ↓ | FIELD PREP: | UF | OK |
| LOCATION TYPE: | MON | ↓ | FIELD QC TYPE: | REG | ↓ |
| PORT: | SINGLE COMPLETION | ↓ | SAMPLE USAGE: | INV | ↓ |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-TKN+TOC | 500 ML AMBER GLASS | 1 | H2SO4 | Y | NA |

**SAMPLE COMMENTS:** Sampled within 50' of running diesel generator.

**LOCATION COMMENTS:** NA

**FIELD PARAMETERS:**

Dissolved Oxygen 6.51 mg/L  Oxidation-Reduction Potential 247.3 MV  pH 7.65 SU

Specific Conductance 416 uS/cm  Temperature 20.22 deg C  Turbidity 0.1 NTU

**COLLECTED BY (PRINT)** W. Shaw

| RELINQUISHED BY (Printed Name) (Signature) | Date/Time | RECEIVED BY (Printed Name) (Signature) | Date/Time |
|---|---|---|---|
| William Shaw | 5/6/13 1505 | M. Martin | 5/6/13 1505 |
| RELINQUISHED BY (Printed Name) (Signature) | Date/Time | RECEIVED BY (Printed Name) (Signature) | Date/Time |
| | | | |

Report Date 04/30/2013

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30591

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | 05/06/2013 | FIELD MATRIX: | WG | OK |
| TIME COLLECTED (HH:MM): | | 1324 | MEDIA: | UA | ↓ |
| PRS ID: | | OK | SAMPLE TECH CODE: | UA | GSP |
| LOCATION ID: | R-15 | ↓ | FIELD PREP: | F | OK |
| LOCATION TYPE: | MON | ↓ | FIELD QC TYPE: | REG | ↓ |
| PORT: | SINGLE COMPLETION | ↓ | SAMPLE USAGE: | INV | ↓ |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-CL04 | 250 ML POLY | 1 | ICE | Y | NA |
| ↓ | WSP-GENINORG | 1 LITER POLY | 1 | ICE | ↓ | ↓ |
| ↓ | WSP-Met+B+SN+SR+U | 1 LITER POLY | 1 | HNO3 | ↓ | ↓ |
| ↓ | WSP-NH3+NO3/NO2+PO4 | 500 ML AMBER GLASS | 1 | H2SO4 | ↓ | ↓ |

**SAMPLE COMMENTS:** NA

**LOCATION COMMENTS:** NA

**FIELD PARAMETERS:**

Dissolved Oxygen NA mg/L  Oxidation-Reduction Potential NA MV  pH NA SU

Specific Conductance NA uS/cm  Temperature NA deg C  Turbidity NA NTU

**COLLECTED BY (PRINT)** W. Shaw

| RELINQUISHED BY | Date/Time | RECEIVED BY | Date/Time |
|---|---|---|---|
| (Printed Name) William Shaw<br>(Signature) | 5/6/13 1505 | (Printed Name) M. Martin<br>(Signature) | 5/6/13 1505 |
| RELINQUISHED BY<br>(Printed Name)<br>(Signature) | Date/Time | RECEIVED BY<br>(Printed Name)<br>(Signature) | Date/Time |

Report Date 04/30/2013

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30592

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | 05/06/2013 | FIELD MATRIX: | WG | OK |
| TIME COLLECTED (HH:MM): | | 1159 | MEDIA: | UA | ↓ |
| PRS ID: | | OK | SAMPLE TECH CODE: | UA | GSP |
| LOCATION ID: | R-28 | ↓ | FIELD PREP: | F | OK |
| LOCATION TYPE: | MON | ↓ | FIELD QC TYPE: | REG | ↓ |
| PORT: | SINGLE COMPLETION | ↓ | SAMPLE USAGE: | INV | ↓ |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-CL04 | 250 ML POLY | 1 | ICE | Y | NA |
| ↓ | WSP-GENINORG | 1 LITER POLY | 1 | ICE | ↓ | ↓ |
| ↓ | WSP-Met+B+SN+SR+U | 1 LITER POLY | 1 | HNO3 | ↓ | ↓ |
| ↓ | WSP-NH3+NO3/NO2+PO4 | 500 ML AMBER GLASS | 1 | H2SO4 | ↓ | ↓ |

**SAMPLE COMMENTS:** NA

**LOCATION COMMENTS:** NA

**FIELD PARAMETERS:**

Dissolved Oxygen NA mg/L  Oxidation-Reduction Potential NA MV  pH NA SU

Specific Conductance NA uS/cm  Temperature NA deg C  Turbidity NA NTU

**COLLECTED BY (PRINT)** W. Shaw

| | | | |
|---|---|---|---|
| RELINQUISHED BY (Printed Name) (Signature) | Date/Time 5/6/13 1505 | RECEIVED BY (Printed Name) (Signature) | Date/Time 5/6/13 1505 |
| RELINQUISHED BY (Printed Name) (Signature) | Date/Time | RECEIVED BY (Printed Name) (Signature) | Date/Time |

Report Date 04/30/2013

Data Validation Report

Chain Of Custody No. 2013-809

**1. Distribution Of Samples In EDD.**

| SDG | Analytical Method | Regular Samples | Field Duplicates | Trip Blanks | Field Blanks | Equipment Blanks |
|---|---|---|---|---|---|---|
| 325284 | EPA:120.1 | 2 | | | | |
| 325284 | EPA:150.1 | 2 | | | | |
| 325284 | EPA:160.1 | 2 | | | | |
| 325284 | EPA:245.2 | 2 | | | | |
| 325284 | EPA:300.0 | 2 | | | | |
| 325284 | EPA:310.1 | 2 | | | | |
| 325284 | EPA:350.1 | 2 | | | | |
| 325284 | EPA:351.2 | 2 | | | | |
| 325284 | EPA:353.2 | 2 | | | | |
| 325284 | EPA:365.4 | 2 | | | | |
| 325284 | EPA:900 | | | | | |
| 325284 | EPA:901.1 | | | | | |
| 325284 | EPA:905.0 | | | | | |
| 325284 | HASL-300:AM-241 | | | | | |
| 325284 | HASL-300:ISOPU | | | | | |
| 325284 | HASL-300:ISOU | | | | | |
| 325284 | SM:A2340B | 2 | | | | |
| 325284 | SW-846:6010B | 2 | | | | |
| 325284 | SW-846:6020 | 2 | | | | |
| 325284 | SW-846:6850 | 2 | | | | |
| 325284 | SW-846:8260B | | | | | |
| 325284 | SW-846:8270C | | | | | |
| 325284 | SW-846:9060 | 2 | | | | |

| SDG | Analytical Method | Analysis Lot ID | Prep Lot ID | Regular Samples | Field Duplicates | Trip Blanks | Field Blanks | Equipment Blanks | Method Blanks | Matrix Spikes | Matrix Spike Dups |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 325284 | EPA:120.1 | 1300876 | 1300876 | 2 | | | | | | | |
| 325284 | EPA:150.1 | 1300535 | 1300535 | 2 | | | | | | | |
| 325284 | EPA:160.1 | 1300534 | 1300534 | 2 | | | | | 1 | | |
| 325284 | EPA:245.2 | 1301863 | 1301862 | 2 | | | | | 1 | 2 | |
| 325284 | EPA:300.0 | 1300377 | 1300377 | 2 | | | | | 1 | | |
| 325284 | EPA:310.1 | 1302074 | 1302074 | 2 | | | | | 2 | 1 | |
| 325284 | EPA:350.1 | 1300621 | 1300620 | 2 | | | | | 1 | 2 | |
| 325284 | EPA:351.2 | 1300635 | 1300634 | 2 | | | | | 1 | 2 | |
| 325284 | EPA:353.2 | 1301246 | 1301246 | 2 | | | | | 1 | | |
| 325284 | EPA:365.4 | 1300626 | 1300625 | 2 | | | | | 1 | 2 | |
| 325284 | EPA:900 | 1301385 | 1301385 | | | | | | 1 | 1 | 1 |
| 325284 | EPA:901.1 | 1298376 | 1298376 | | | | | | 1 | | |
| 325284 | EPA:905.0 | 1301365 | 1301365 | | | | | | 1 | 1 | |
| 325284 | HASL-300:AM-241 | 1298061 | 1298061 | | | | | | 1 | | |
| 325284 | HASL-300:ISOPU | 1302191 | 1302191 | | | | | | 1 | | |
| 325284 | HASL-300:ISOU | 1298064 | 1298064 | | | | | | 1 | | |
| 325284 | SM:A2340B | 1305711 | 1305711 | 2 | | | | | | | |
| 325284 | SW-846:6010B | 1301065 | 1301064 | 2 | | | | | 1 | 1 | |
| 325284 | SW-846:6020 | 1301067 | 1301066 | 2 | | | | | 1 | 1 | |
| 325284 | SW-846:6850 | 1301785 | 1301783 | 2 | | | | | 1 | 1 | 1 |
| 325284 | SW-846:8260B | 1302540 | 1302540 | | | | | | 1 | | |

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| Analytical Spikes | Post-Digestion Spikes | Lab Control Samples | Lab Control Sample Dups | Blank Spikes | Blank Spike Dups | Lab Duplicates | Storage Blanks | Preparation Blanks | Reagent Blanks |
|---|---|---|---|---|---|---|---|---|---|
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
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|---|---|---|---|---|---|---|---|---|---|---|---|
| 325284 | SW-846:8270C | 1300969 | 1300968 | | | | | | 1 | 1 | 1 |
| 325284 | SW-846:9060 | 1300890 | 1300890 | 2 | | | | | 1 | | |

**2. Distribution Of Analytes In EDD.**

| Analytical Method | Method Category | Field Sample ID | Lab Sample ID | Sample Purpose | Target Analytes | Surrogates | Spikes | TICS |
|---|---|---|---|---|---|---|---|---|
| EPA:120.1 | GENERAL CHEMISTRY | CAMO-13-30558 | 325284005 | PEB | 1 | 0 | 0 | 0 |
| EPA:120.1 | GENERAL CHEMISTRY | CAMO-13-30591 | 325284002 | REG | 1 | 0 | 0 | 0 |
| EPA:120.1 | GENERAL CHEMISTRY | CAMO-13-30592 | 325284004 | REG | 1 | 0 | 0 | 0 |
| EPA:120.1 | GENERAL CHEMISTRY | CAMO-13-30620 | 1202873730 | DUP | 1 | 0 | 0 | 0 |
| EPA:120.1 | GENERAL CHEMISTRY | LCS | 1202873728 | LCS | 0 | 0 | 1 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | CAMO-13-30558 | 325284005 | PEB | 1 | 0 | 0 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | CAMO-13-30590 | 1202872792 | DUP | 1 | 0 | 0 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | CAMO-13-30591 | 325284002 | REG | 1 | 0 | 0 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | CAMO-13-30592 | 325284004 | REG | 1 | 0 | 0 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | LCS | 1202872793 | LCS | 0 | 0 | 1 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | CAMO-13-30558 | 325284005 | PEB | 1 | 0 | 0 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | CAMO-13-30591 | 325284002 | REG | 1 | 0 | 0 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | CAMO-13-30592 | 325284004 | REG | 1 | 0 | 0 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | CAMO-13-30593 | 1202872790 | DUP | 1 | 0 | 0 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | LCS | 1202872791 | LCS | 0 | 0 | 1 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | MB | 1202872789 | MB | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30558 | 325284005 | PEB | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30588 | 1202876204 | DUP | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30588 | 1202876205 | MS | 0 | 0 | 1 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30590 | 1202876207 | DUP | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30590 | 1202876209 | MS | 0 | 0 | 1 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30591 | 325284002 | REG | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30592 | 325284004 | REG | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | LCS | 1202876203 | LCS | 0 | 0 | 1 | 0 |
| EPA:245.2 | INORGANIC | MB | 1202876202 | MB | 1 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | CAMO-13-30558 | 1202872356 | DUP | 4 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | CAMO-13-30558 | 325284005 | PEB | 4 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | CAMO-13-30591 | 325284002 | REG | 4 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | CAMO-13-30592 | 325284004 | REG | 4 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | LCS | 1202872358 | LCS | 0 | 0 | 4 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | MB | 1202872355 | MB | 4 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CAMO-13-30558 | 325284005 | PEB | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CAMO-13-30591 | 325284002 | REG | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CAMO-13-30592 | 325284004 | REG | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CAMO-13-30620 | 1202876731 | DUP | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CAMO-13-30620 | 1202876732 | MS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | LCS | 1202876728 | LCS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | LCS | 1202877592 | LCS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | MB | 1202876727 | MB | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | MB | 1202877591 | MB | 2 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30558 | 325284005 | PEB | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30590 | 1202873026 | DUP | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30590 | 1202873028 | MS | 0 | 0 | 1 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30591 | 325284002 | REG | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30592 | 325284004 | REG | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30593 | 1202873027 | DUP | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30593 | 1202873029 | MS | 0 | 0 | 1 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | LCS | 1202873030 | LCS | 0 | 0 | 1 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | MB | 1202873025 | MB | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30558 | 325284005 | PEB | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30574 | 1202873059 | DUP | 1 | 0 | 0 | 0 |

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|---|---|---|---|---|---|---|---|---|
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30574 | 1202873061 | MS | 0 | 0 | 1 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30575 | 325284001 | REG | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30576 | 325284003 | REG | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30577 | 1202873060 | DUP | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30577 | 1202873062 | MS | 0 | 0 | 1 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | LCS | 1202873063 | LCS | 0 | 0 | 1 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | MB | 1202873058 | MB | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CAMO-13-30558 | 325284005 | PEB | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CAMO-13-30591 | 1202874599 | DUP | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CAMO-13-30591 | 325284002 | REG | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CAMO-13-30592 | 325284004 | REG | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | LCS | 1202874605 | LCS | 0 | 0 | 1 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | MB | 1202874598 | MB | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CAMO-13-30558 | 325284005 | PEB | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CAMO-13-30590 | 1202873040 | DUP | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CAMO-13-30590 | 1202873042 | MS | 0 | 0 | 1 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CAMO-13-30591 | 325284002 | REG | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CAMO-13-30592 | 325284004 | REG | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | LCS | 1202873044 | LCS | 0 | 0 | 1 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | MB | 1202873039 | MB | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | NP027-13-30514 | 1202873041 | DUP | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | NP027-13-30514 | 1202873043 | MS | 0 | 0 | 1 | 0 |
| EPA:900 | RAD | CAMO-13-30558 | 1202875026 | DUP | 2 | 0 | 0 | 0 |
| EPA:900 | RAD | CAMO-13-30558 | 1202875027 | MS | 0 | 0 | 2 | 0 |
| EPA:900 | RAD | CAMO-13-30558 | 1202875028 | MSD | 0 | 0 | 2 | 0 |
| EPA:900 | RAD | CAMO-13-30558 | 325284005 | PEB | 2 | 0 | 0 | 0 |
| EPA:900 | RAD | LCS | 1202875029 | LCS | 0 | 0 | 2 | 0 |
| EPA:900 | RAD | MB | 1202875025 | MB | 2 | 0 | 0 | 0 |
| EPA:901.1 | RAD | CAMO-13-30558 | 325284005 | PEB | 5 | 0 | 0 | 0 |
| EPA:901.1 | RAD | CAPA-13-29667 | 1202867155 | DUP | 5 | 0 | 0 | 0 |
| EPA:901.1 | RAD | LCS | 1202867156 | LCS | 0 | 0 | 3 | 0 |
| EPA:901.1 | RAD | MB | 1202867154 | MB | 5 | 0 | 0 | 0 |
| EPA:905.0 | RAD | CAMO-13-30558 | 325284005 | PEB | 1 | 0 | 0 | 0 |
| EPA:905.0 | RAD | CAMO-13-30586 | 1202874958 | DUP | 1 | 0 | 0 | 0 |
| EPA:905.0 | RAD | CAMO-13-30586 | 1202874959 | MS | 0 | 0 | 1 | 0 |
| EPA:905.0 | RAD | LCS | 1202874960 | LCS | 0 | 0 | 1 | 0 |
| EPA:905.0 | RAD | MB | 1202874957 | MB | 1 | 0 | 0 | 0 |
| HASL-300:AM-241 | RAD | CAMO-13-30558 | 1202866241 | DUP | 1 | 0 | 0 | 0 |
| HASL-300:AM-241 | RAD | CAMO-13-30558 | 325284005 | PEB | 1 | 0 | 0 | 0 |
| HASL-300:AM-241 | RAD | LCS | 1202866242 | LCS | 0 | 0 | 1 | 0 |
| HASL-300:AM-241 | RAD | MB | 1202866240 | MB | 1 | 0 | 0 | 0 |
| HASL-300:ISOPU | RAD | CAMO-13-30558 | 1202877007 | DUP | 2 | 0 | 0 | 0 |
| HASL-300:ISOPU | RAD | CAMO-13-30558 | 325284005 | PEB | 2 | 0 | 0 | 0 |
| HASL-300:ISOPU | RAD | LCS | 1202877008 | LCS | 0 | 0 | 1 | 0 |
| HASL-300:ISOPU | RAD | MB | 1202877006 | MB | 2 | 0 | 0 | 0 |
| HASL-300:ISOU | RAD | CAMO-13-30558 | 1202866249 | DUP | 3 | 0 | 0 | 0 |
| HASL-300:ISOU | RAD | CAMO-13-30558 | 325284005 | PEB | 3 | 0 | 0 | 0 |
| HASL-300:ISOU | RAD | LCS | 1202866250 | LCS | 0 | 0 | 1 | 0 |
| HASL-300:ISOU | RAD | MB | 1202866248 | MB | 3 | 0 | 0 | 0 |
| SM:A2340B | INORGANIC | CAMO-13-30558 | 325284005 | PEB | 1 | 0 | 0 | 0 |
| SM:A2340B | INORGANIC | CAMO-13-30591 | 325284002 | REG | 1 | 0 | 0 | 0 |
| SM:A2340B | INORGANIC | CAMO-13-30592 | 325284004 | REG | 1 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30558 | 325284005 | PEB | 17 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30589 | 1202874204 | DUP | 17 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30589 | 1202874205 | MS | 0 | 0 | 17 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30591 | 325284002 | REG | 17 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30592 | 325284004 | REG | 17 | 0 | 0 | 0 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| SW-846:6010B | INORGANIC | LCS | 1202874203 | LCS | 0 | 0 | 17 | 0 |
| SW-846:6010B | INORGANIC | MB | 1202874202 | MB | 17 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30558 | 325284005 | PEB | 11 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30589 | 1202874212 | DUP | 11 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30589 | 1202874213 | MS | 0 | 0 | 11 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30591 | 325284002 | REG | 11 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30592 | 325284004 | REG | 11 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | LCS | 1202874211 | LCS | 0 | 0 | 11 | 0 |
| SW-846:6020 | INORGANIC | MB | 1202874210 | MB | 11 | 0 | 0 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | CAMO-13-30558 | 325284005 | PEB | 1 | 0 | 0 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | CAMO-13-30591 | 325284002 | REG | 1 | 0 | 0 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | CAMO-13-30592 | 1202876022 | MS | 0 | 0 | 1 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | CAMO-13-30592 | 1202876023 | MSD | 0 | 0 | 1 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | CAMO-13-30592 | 325284004 | REG | 1 | 0 | 0 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | LCS | 1202876021 | LCS | 0 | 0 | 1 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | MB | 1202876020 | MB | 1 | 0 | 0 | 0 |
| SW-846:8260B | VOC | CAMO-13-30558 | 325284005 | PEB | 80 | 3 | 0 | 0 |
| SW-846:8260B | VOC | LCS | 1202877852 | LCS | 0 | 3 | 70 | 0 |
| SW-846:8260B | VOC | LCS | 1202877853 | LCS | 0 | 3 | 10 | 0 |
| SW-846:8260B | VOC | MB | 1202877849 | MB | 80 | 3 | 0 | 0 |
| SW-846:8270C | SVOC | CAMO-13-30558 | 325284005 | PEB | 80 | 6 | 0 | 0 |
| SW-846:8270C | SVOC | LCS | 1202873989 | LCS | 0 | 6 | 76 | 0 |
| SW-846:8270C | SVOC | MB | 1202873988 | MB | 80 | 6 | 0 | 0 |
| SW-846:8270C | SVOC | WST55-13-32015 | 1202873990 | MS | 0 | 6 | 76 | 0 |
| SW-846:8270C | SVOC | WST55-13-32015 | 1202873991 | MSD | 0 | 6 | 76 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | CAMO-13-30558 | 325284005 | PEB | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | CAMO-13-30575 | 325284001 | REG | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | CAMO-13-30576 | 325284003 | REG | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | CAMO-13-30616 | 1202873772 | DUP | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | LCS | 1202873775 | LCS | 0 | 0 | 1 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | MB | 1202873770 | MB | 1 | 0 | 0 | 0 |

**3. Are any analytes missing?**

No.

**4. Were any holding times exceeded?**

No.

**5. Any contaminants in blanks?**

| Field Sample ID | Lab Sample ID | Type Of Blank | Analytical Method | Sample Matrix | Parameter Name | Lab Result | Lab Qualifier | Units | Lab Detection Limit |
|---|---|---|---|---|---|---|---|---|---|
| MB | 1202874202 | METHOD BLANK | SW-846:6010B | W | Cobalt | 1.31 | J | ug/L | 5 |
| MB | 1202874202 | METHOD BLANK | SW-846:6010B | W | Potassium | 64.3 | J | ug/L | 150 |
| MB | 1202874202 | METHOD BLANK | SW-846:6010B | W | Strontium | 2.05 | J | ug/L | 5 |

**Any samples affected by the presence of contaminants in blanks?**

| Field Sample ID | Blank Field Sample ID | Blank Lab Sample ID | Blank Type | Analytical Method | Parameter Name | Units | Blank Result | Sample Result | Lab Qualifier | Detect Limit | Detected |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAMO-13-30591 | MB | 1202874202 | METHOD BLANK | SW-846:6010B | Cobalt | ug/L | 1.31 | 1.08 | J | 5 | Y |
| CAMO-13-30558 | MB | 1202874202 | METHOD BLANK | SW-846:6010B | Strontium | ug/L | 2.05 | 1.46 | J | 5 | Y |

**6. Any surrogate recoveries outside the control limits?**

No.

**7. Any MS/MSD recoveries or RPDs outside the control limits?**

| Field Sample ID | Matrix Spike ID | Matrix Spike Dup ID | Analytical Method | Parameter Name | Analysis Lot ID | Analysis Date | Sample Matrix | MS % Recvry | MSD % Recvry | Upper Limit | Lower Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAMO-13-30589 | 1202874213 | | SW-846:6020 | Nickel | 1301066 | 6/1/2013 | W | 126 | | 125 | 75 |

**8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?**

| LCS Sample ID | LCSD Sample ID | Analytical Method | Parameter Name | Lab Lot ID | Analysis Date | Sample Matrix | LCS Recovery | LCSD Recovery | Upper Limit | Lower Limit | Lower Reject Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1202873989 | | SW-846:8270C | Atrazine | 1300968 | 5/13/2013 | W | 31 | | 115 | 47 | 10 |
| 1202873989 | | SW-846:8270C | Nitrophenol[4-] | 1300968 | 5/13/2013 | W | 9 | | 77 | 16 | 10 |

**9. Any Field Duplicate RPDs outside the desired limits?**

No.

**10. Any Lab Duplicate RPDs outside the desired limits?**

No.

**11. Any required reporting limits exceeded?**

No.

**12. Additional Validator's Coments.**

None.

**13. Display Flagged Data.**

| Location ID | Chain Of Custody No | Field Sample ID | Sample Purpose | Analysis Type Code | Analytical Suite | Analytical Method | Parameter Name | Lab Qualifier | Validation Qualifier | Validation Reason Codes | Detected |
|---|---|---|---|---|---|---|---|---|---|---|---|
| R-28 | 2013-809 | CAMO-13-30558 | PEB | INIT | RAD | HASL-300:AM-241 | Americium-241 | U | U | R5 | N |
| R-28 | 2013-809 | CAMO-13-30558 | PEB | INIT | SVOC | SW-846:8270C | Atrazine | U | UJ | SV12a | N |
| R-28 | 2013-809 | CAMO-13-30558 | PEB | INIT | RAD | EPA:901.1 | Cesium-137 | U | U | R5 | N |
| R-28 | 2013-809 | CAMO-13-30558 | PEB | INIT | RAD | EPA:901.1 | Cobalt-60 | U | U | R5 | N |
| R-28 | 2013-809 | CAMO-13-30558 | PEB | INIT | RAD | EPA:900 | Gross alpha | U | U | R5 | N |
| R-28 | 2013-809 | CAMO-13-30558 | PEB | INIT | RAD | EPA:900 | Gross beta | U | U | R5 | N |
| R-28 | 2013-809 | CAMO-13-30558 | PEB | INIT | RAD | EPA:901.1 | Neptunium-237 | U | U | R5 | N |
| R-28 | 2013-809 | CAMO-13-30558 | PEB | INIT | SVOC | SW-846:8270C | Nitrophenol[4-] | U | R | SV12 | N |
| R-28 | 2013-809 | CAMO-13-30558 | PEB | INIT | RAD | HASL-300:ISOPU | Plutonium-238 | U | U | R5 | N |
| R-28 | 2013-809 | CAMO-13-30558 | PEB | INIT | RAD | HASL-300:ISOPU | Plutonium-239/240 | U | U | R5 | N |
| R-28 | 2013-809 | CAMO-13-30558 | PEB | INIT | RAD | EPA:901.1 | Potassium-40 | U | U | R5 | N |
| R-28 | 2013-809 | CAMO-13-30558 | PEB | INIT | RAD | EPA:901.1 | Sodium-22 | U | U | R5 | N |
| R-28 | 2013-809 | CAMO-13-30558 | PEB | INIT | INORGANIC | SW-846:6010B | Strontium | J | U | I4 | N |

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| Correction Factor (ND) | Correction Factor (J) | Use Factors |
|---|---|---|
| 5 | | Y |
| 5 | | Y |

| Rejection Limit | RPD | RPD Limit |
|---|---|---|
| 10 | | |

| Upper Reject Limit | RPD | RPD Limit |
|---|---|---|
| | | |
| | | |

| Lab Result | Lab Units | Report Result | Report Units | Report MDA | Report Uncertainty | Lab Matrix | Sample Date | Percent Moisture | Analysis Lot ID | Validation Status Code | Use Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00296 | pCi/L | 0.00296 | pCi/L | 0.0575 | 0.00663 | W | 5/6/2013 | | 1298061 | VAL | Y |
| 10.5 | ug/L | 10.5 | ug/L | | | W | 5/6/2013 | | 1300969 | VAL | Y |
| 0.928 | pCi/L | 0.928 | pCi/L | 4.45 | 1.13 | W | 5/6/2013 | | 1298376 | VAL | Y |
| 0.186 | pCi/L | 0.186 | pCi/L | 5.09 | 1.26 | W | 5/6/2013 | | 1298376 | VAL | Y |
| 0.231 | pCi/L | 0.231 | pCi/L | 2.11 | 0.513 | W | 5/6/2013 | | 1301385 | VAL | Y |
| 0.489 | pCi/L | 0.489 | pCi/L | 2.91 | 0.823 | W | 5/6/2013 | | 1301385 | VAL | Y |
| 2.17 | pCi/L | 2.17 | pCi/L | 9.5 | 2.65 | W | 5/6/2013 | | 1298376 | VAL | Y |
| 10.5 | ug/L | 10.5 | ug/L | | | W | 5/6/2013 | | 1300969 | VAL | Y |
| 0.00977 | pCi/L | 0.00977 | pCi/L | 0.0726 | 0.00977 | W | 5/6/2013 | | 1302191 | VAL | Y |
| -0.00976 | pCi/L | -0.00976 | pCi/L | 0.0875 | 0.00976 | W | 5/6/2013 | | 1302191 | VAL | Y |
| 9.77 | pCi/L | 9.77 | pCi/L | 66 | 16.6 | W | 5/6/2013 | | 1298376 | VAL | Y |
| 0.284 | pCi/L | 0.284 | pCi/L | 4.14 | 1.06 | W | 5/6/2013 | | 1298376 | VAL | Y |
| 1.46 | ug/L | 1.46 | ug/L | | | W | 5/6/2013 | | 1301065 | VAL | Y |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| R-28 | 2013-809 | CAMO-13-30558 | PEB | INIT | RAD | EPA:905.0 | Strontium-90 | U | U | R5 | N |
| R-28 | 2013-809 | CAMO-13-30558 | PEB | INIT | RAD | HASL-300:ISOU | Uranium-234 | U | U | R5 | N |
| R-28 | 2013-809 | CAMO-13-30558 | PEB | INIT | RAD | HASL-300:ISOU | Uranium-235/236 | U | U | R5 | N |
| R-28 | 2013-809 | CAMO-13-30558 | PEB | INIT | RAD | HASL-300:ISOU | Uranium-238 | U | U | R5 | N |
| R-15 | 2013-809 | CAMO-13-30591 | REG | INIT | INORGANIC | SW-846:6010B | Cobalt | J | U | I4 | N |

| **Reason Code** | Description |
|---|---|
| I4 | the sample result is =<5x the concentration of related analyte in the method blank. |
| J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL |
| NQ | The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample. |
| R5 | Analyte is not detected because the amount reported is less than the MDC. |
| SV12 | The LCS percent recovery was <10%. Follow the external laboratory limits located within the associated data package. |
| SV12a | The LCS percent recovery was < the LAL but >10%. Follow the external laboratory limits located within the associated data package. |
| U_LAB | The analytical laboratory qualified the analyte as not detected. |

**14. Useable Result Count.**

| Field Sample ID | Location ID | Sample Purpose | Analytical Method | No. Unuseable Records | Total No. Of Records |
|---|---|---|---|---|---|
| CAMO-13-30558 | R-28 | PEB | EPA:120.1 | 0 | 1 |
| CAMO-13-30558 | R-28 | PEB | EPA:150.1 | 0 | 1 |
| CAMO-13-30558 | R-28 | PEB | EPA:160.1 | 0 | 1 |
| CAMO-13-30558 | R-28 | PEB | EPA:245.2 | 0 | 1 |
| CAMO-13-30558 | R-28 | PEB | EPA:300.0 | 0 | 4 |
| CAMO-13-30558 | R-28 | PEB | EPA:310.1 | 0 | 2 |
| CAMO-13-30558 | R-28 | PEB | EPA:350.1 | 0 | 1 |
| CAMO-13-30558 | R-28 | PEB | EPA:351.2 | 0 | 1 |
| CAMO-13-30558 | R-28 | PEB | EPA:353.2 | 0 | 1 |
| CAMO-13-30558 | R-28 | PEB | EPA:365.4 | 0 | 1 |
| CAMO-13-30558 | R-28 | PEB | EPA:900 | 0 | 2 |
| CAMO-13-30558 | R-28 | PEB | EPA:901.1 | 0 | 5 |
| CAMO-13-30558 | R-28 | PEB | EPA:905.0 | 0 | 1 |
| CAMO-13-30558 | R-28 | PEB | HASL-300:AM-241 | 0 | 1 |
| CAMO-13-30558 | R-28 | PEB | HASL-300:ISOPU | 0 | 2 |
| CAMO-13-30558 | R-28 | PEB | HASL-300:ISOU | 0 | 3 |
| CAMO-13-30558 | R-28 | PEB | SM:A2340B | 0 | 1 |
| CAMO-13-30558 | R-28 | PEB | SW-846:6010B | 0 | 17 |
| CAMO-13-30558 | R-28 | PEB | SW-846:6020 | 0 | 11 |
| CAMO-13-30558 | R-28 | PEB | SW-846:6850 | 0 | 1 |
| CAMO-13-30558 | R-28 | PEB | SW-846:8260B | 0 | 80 |
| CAMO-13-30558 | R-28 | PEB | SW-846:8270C | 0 | 80 |
| CAMO-13-30558 | R-28 | PEB | SW-846:9060 | 0 | 1 |
| CAMO-13-30575 | R-15 | REG | EPA:351.2 | 0 | 1 |
| CAMO-13-30575 | R-15 | REG | SW-846:9060 | 0 | 1 |
| CAMO-13-30576 | R-28 | REG | EPA:351.2 | 0 | 1 |
| CAMO-13-30576 | R-28 | REG | SW-846:9060 | 0 | 1 |
| CAMO-13-30591 | R-15 | REG | EPA:120.1 | 0 | 1 |
| CAMO-13-30591 | R-15 | REG | EPA:150.1 | 0 | 1 |
| CAMO-13-30591 | R-15 | REG | EPA:160.1 | 0 | 1 |
| CAMO-13-30591 | R-15 | REG | EPA:245.2 | 0 | 1 |
| CAMO-13-30591 | R-15 | REG | EPA:300.0 | 0 | 4 |
| CAMO-13-30591 | R-15 | REG | EPA:310.1 | 0 | 2 |
| CAMO-13-30591 | R-15 | REG | EPA:350.1 | 0 | 1 |

Data Validation Report for:

Chain Of Custody No. 2013-809

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.257 | pCi/L | 0.257 | pCi/L | 0.497 | 0.151 | W | 5/6/2013 | | 1301365 | VAL | Y |
| 0.00306 | pCi/L | 0.00306 | pCi/L | 0.0701 | 0.00918 | W | 5/6/2013 | | 1298064 | VAL | Y |
| 0.00756 | pCi/L | 0.00756 | pCi/L | 0.0326 | 0.00756 | W | 5/6/2013 | | 1298064 | VAL | Y |
| -0.00306 | pCi/L | -0.00306 | pCi/L | 0.0424 | 0.00684 | W | 5/6/2013 | | 1298064 | VAL | Y |
| 1.08 | ug/L | 1.08 | ug/L | | | W | 5/6/2013 | | 1301065 | VAL | Y |

| | | | | | |
|---|---|---|---|---|---|
| CAMO-13-30591 | R-15 | REG | EPA:353.2 | 0 | 1 |
| CAMO-13-30591 | R-15 | REG | EPA:365.4 | 0 | 1 |
| CAMO-13-30591 | R-15 | REG | SM:A2340B | 0 | 1 |
| CAMO-13-30591 | R-15 | REG | SW-846:6010B | 0 | 17 |
| CAMO-13-30591 | R-15 | REG | SW-846:6020 | 0 | 11 |
| CAMO-13-30591 | R-15 | REG | SW-846:6850 | 0 | 1 |
| CAMO-13-30592 | R-28 | REG | EPA:120.1 | 0 | 1 |
| CAMO-13-30592 | R-28 | REG | EPA:150.1 | 0 | 1 |
| CAMO-13-30592 | R-28 | REG | EPA:160.1 | 0 | 1 |
| CAMO-13-30592 | R-28 | REG | EPA:245.2 | 0 | 1 |
| CAMO-13-30592 | R-28 | REG | EPA:300.0 | 0 | 4 |
| CAMO-13-30592 | R-28 | REG | EPA:310.1 | 0 | 2 |
| CAMO-13-30592 | R-28 | REG | EPA:350.1 | 0 | 1 |
| CAMO-13-30592 | R-28 | REG | EPA:353.2 | 0 | 1 |
| CAMO-13-30592 | R-28 | REG | EPA:365.4 | 0 | 1 |
| CAMO-13-30592 | R-28 | REG | SM:A2340B | 0 | 1 |
| CAMO-13-30592 | R-28 | REG | SW-846:6010B | 0 | 17 |
| CAMO-13-30592 | R-28 | REG | SW-846:6020 | 0 | 11 |
| CAMO-13-30592 | R-28 | REG | SW-846:6850 | 0 | 1 |

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178
www.gel.com

June 04, 2013

Keith Greene
Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Re: LANL-WQH Water Samples
Work Order: 325284
SDG: 2013-809

Dear Keith Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on May 08, 2013, and analyzed for GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,

Hope Taylor for
Valerie Davis
Project Manager

Purchase Order: 63641-10
Chain of Custody: 2013-809
Enclosures

**ARS International (63641-10)**
**LANL-WQH Water Samples**
**Work Order #: 325284**
**SDG: 2013-809**

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# Case Narrative

**Case Narrative for**
**ARS International (63641-10)**
**LANL-WQH Water Samples**
**Workorder #: 325284**
**SDG # : 2013-809**

**June 04, 2013**

**Laboratory Identification:**

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

**Summary**

**Sample receipt** The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on May 08, 2013 for analysis. Please see attached email for discrepancies. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. The containers for Gross A/B were preserved prior to analysis. Shipping container temperature was within specification (0 - 6C). Shipping container temperatures were checked, documented, and within specifications. There are no additional comments concerning sample receipt.

**Sample Identification** The laboratory received the following samples:

| Laboratory ID | Client ID |
|---|---|
| 325284001 | CAMO-13-30575 |
| 325284002 | CAMO-13-30591 |
| 325284003 | CAMO-13-30576 |
| 325284004 | CAMO-13-30592 |
| 325284005 | CAMO-13-30558 |

**Case Narrative**

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

**Data Package**

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.

Hope Taylor for
Valerie Davis
Project Manager

**List of current GEL Certifications as of 04 June 2013**

| State | Certification |
|---|---|
| Alaska | UST−110 |
| Arkansas | 88−0651 |
| CLIA | 42D0904046 |
| California NELAP | 01151CA |
| Colorado | SC00012 |
| Connecticut | PH−0169 |
| Delaware | SC00012 |
| DoD ELAP A2LA ISO 17025 | 2567.01 |
| Florida NELAP | E87156 |
| Foreign Soils Permit | P330−12−00283, P330−12−00284 |
| Georgia | SC00012 |
| Georgia SDWA | 967 |
| Hawaii | SC00012 |
| Idaho | SC00012 |
| Illinois NELAP | 200029 |
| Indiana | C−SC−01 |
| Kansas NELAP | E−10332 |
| Kentucky | 90129 |
| Louisiana NELAP | 03046 (AI33904) |
| Louisiana SDWA | LA130005 |
| Maryland | 270 |
| Massachusetts | M−SC012 |
| Nevada | SC000122011−1 |
| New Hampshire NELAP | 2054 |
| New Jersey NELAP | SC002 |
| New Mexico | SC00012 |
| New York NELAP | 11501 |
| North Carolina | 233 |
| North Carolina SDWA | 45709 |
| Oklahoma | 9904 |
| Pennsylvania NELAP | 68−00485 |
| Plant Material Permit | PDEP−12−00260 |
| South Carolina Chemistry | 10120001 |
| South Carolina Radiochemi | 10120002 |
| Tennessee | TN 02934 |
| Texas NELAP | T104704235−13−8 |
| Utah NELAP | SC000122013−8 |
| Vermont | VT87156 |
| Virginia NELAP | 460202 |
| Washington | C780−12 |
| Wisconsin | 999887790 |

# Chain of Custody and Supporting Documentation

General Engineering Laboratories, Inc., Charleston, SC.
2040 Savage Rd
Charleston SC 29407

# Chain of Custody/Analysis Request

325284

COC/Lab Request #: 2013-809

Page 1 of 1

Client Contact:

Lab Agreement # : 126310011

Project Number :

Analysis Turnaround Time:
24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | WSP-8260B-VOA | WSP-8270C-SVOA | WSP-CL04 | WSP-GENINORG | WSP-GrossA/B | WSP-Met+B+SN+SR+U | WSP-NH3+NO3/NO2+PO4 | WSP-RAD | WSP-TKN+TOC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAMO-13-30575 | May 6 2013 | 13:24 | W | | | | | | | | | 1 |
| CAMO-13-30591 | May 6 2013 | 13:24 | W | | | 1 | 1 | | 1 | 1 | | |
| CAMO-13-30576 | May 6 2013 | 11:59 | W | | | | | | | | | 1 |
| CAMO-13-30592 | May 6 2013 | 11:59 | W | | | 1 | 1 | | 1 | 1 | | |
| CAMO-13-30558 | May 6 2013 | 14:36 | W | 2 | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

Special Instructions:

Special Instructions:

| | | | | |
|---|---|---|---|---|
| Relinquished by: Melissa Montoya | | Date/Time: 5/7/13 3:00 | Received by: P. Went | 5-8-13 08:55 |
| Relinquished by: | | Date/Time: | Received by: | |
| Relinquished by: | | Date/Time: | Received by: | |

GEL Laboratories LLC

# SAMPLE RECEIPT & REVIEW FORM

| | |
|---|---|
| **Client: LANL** | **SDG/AR/COC/Work Order: 2013-809** |
| **Received By: Patricia Dent** | **Date Received: May 8, 2013** |

| **Suspected Hazard Information** | **Yes** | **No** | *If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation. |
|---|---|---|---|
| COC/Samples marked as radioactive? | | X | Maximum Net Counts Observed* (Observed Counts - Area Background Counts): **0 CPM** |
| Classified Radioactive II or III by RSO? | | X | If yes, Were swipes taken of sample contatiners < action levels? |
| COC/Samples marked containing PCBs? | | X | |
| Package, COC, and/or Samples marked as beryllium or asbestos containing? | | X | If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group. |
| Shipped as a DOT Hazardous? | | X | Hazard Class Shipped: UN#: |
| Samples identified as Foreign Soil? | | X | |

| | **Sample Receipt Criteria** | **Yes** | **NA** | **No** | **Comments/Qualifiers (Required for Non-Conforming Items)** |
|---|---|---|---|---|---|
| 1 | Shipping containers received intact and sealed? | X | | | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 2 | Samples requiring cold preservation within (0 ≤ 6 deg. C)?* | X | | | Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius **2,3,4C** |
| 2a | Daily check performed and passed on IR temperature gun? | X | | | Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable):**61524649** |
| 3 | Chain of custody documents included with shipment? | X | | | |
| 4 | Sample containers intact and sealed? | X | | | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 5 | Samples requiring chemical preservation at proper pH? | | | X | Sample ID's, containers affected and observed Ph **CAMO-13-30558 for Gross A/B** If Preservation added, Lot# **NX 0409-75** |
| 6 | VOA vials free of headspace (defined as < 6mm bubble)? | | X | | Sample ID's and containers affected: |
| 7 | Are Encore containers present? | | | X | (If yes, immediately deliver to Volatiles laboratory) |
| 8 | Samples received within holding time? | X | | | ID's and tests affected: |
| 9 | Sample ID's on COC match ID's on bottles? | X | | | Sample ID's and containers affected: |
| 10 | Date & time on COC match date & time on bottles? | X | | | Sample ID's affected: |
| 11 | Number of containers received match number indicated on COC? | | | X | Sample ID's affected:**CAMO-13-30558 the lab received 1 container for 8270C-SVOA chain indicates 3.** |
| 12 | Are sample containers identifiable as GEL provided? | | | X | **Client** |
| 13 | COC form is properly signed in relinquished/received sections? | X | | | |
| 14 | Carrier and tracking number. | X | | | Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other **5462 9832 9898 2C 5462 9832 9902 3C 5462 9832 9913 4C** |

**Subject:** Sample receipt issues from 05/08/13
**From:** Pat Dent <Pat.Dent@gel.com>
**Date:** 5/8/2013 5:09 PM
**To:** "Keith R. Greene" <kgreene@lanl.gov>
**CC:** "team.davis" <team.davis@gel.com>, LANL@amrad.com

Good afternoon all listed below are today's issues

Container received for Gross A/B was preserved prior to analysis.

RN#2013-809
CAMO-13-30558 the lab received 1 8270C-Contianer chain indicates 3.

Thanks!!

--
Patricia Dent
Project Manager Assistant
GEL Laboratories, LLC
2040 Savage Rd.
Charleston, S.C. 29407
Main: 843-556-8171 Ext 4264
Fax: 843-766-1178
Email: pad@gel.com
Web: www.gel.com

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 07MAY13
ACTWGT: 37.0 LB MAN
CAD: 0014176/CAFE2611

BILL SENDER

VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: WE6L11551000

2c

580C1/9983/18BC

FedEx Express

J111311B6968125

TRK# 0201 5462 9832 9898

WED - 08 MAY 10:30A
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 08/10

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 07MAY13
ACTWGT: 47.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWKO

3c

FedEx Express

J111311066060125

WED - 08 MAY 10:30A
PRIORITY OVERNIGHT

1 of 2

TRK# 0201 5462 9832 9902

## MASTER

XX CHSA

29407
SC-US CHS

Part # 155148-434 RIT2 08/10

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG M237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 07MAY13
ACTWGT: 49.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWKO

4c

58DC1/9983/18BC

FedEx Express

J111311068G0125

2 of 2

MPS# 0263 5462 9832 9913
Mstr# 5462 9832 9902

WED - 08 MAY 10:30A
PRIORITY OVERNIGHT
0201

XX CHSA

29407
SC-US CHS

Part # 156754-434 RIT2 06/10 ©

# Data Review Qualifier Flag Definition Sheet

## Data Review Qualifier Definitions

| Qualifier | Explanation |
|---|---|
| * | A quality control analyte recovery is outside of specified acceptance criteria |
| ** | Analyte is a surrogate compound |
| < | Result is less than value reported |
| > | Result is greater than value reported |
| ^ | RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL |
| A | The TIC is a suspected aldol-condensation product |
| B | Target analyte was detected in the associated blank |
| B | Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL |
| BD | Results are either below the MDC or tracer recovery is low |
| C | Analyte has been confirmed by GC/MS analysis |
| D | Results are reported from a diluted aliquot of the sample |
| d | 5-day BOD-The 2:1 depletion requirement was not met for this sample |
| E | Organics-Concentration of the target analyte exceeds the instrument calibration range |
| E | Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria |
| H | Analytical holding time was exceeded |
| h | Preparation or preservation holding time was exceeded |
| J | Value is estimated |
| N | Metals-The Matrix spike sample recovery is not within specified control limits |
| N | Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N/A | Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more |
| ND | Analyte concentration is not detected above the reporting limit |
| UI | Gamma Spectroscopy-Uncertain identification |
| X | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| Y | QC Samples were not spiked with this compound |
| Z | Paint Filter Test-Particulates passed through the filter, however no free liquids were observed. |

# Volatile Analysis

# Case Narrative

**ChemStation Case Narrative**
**ARS International (ARSL)**
**SDG 2013-809**

## Method/Analysis Information

| | |
|---|---|
| **Procedure:** | **Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer** |
| Analytical Method: | SW846 8260B DOE-AL |
| Analytical Batch Number: | 1302540 |

## Sample Analysis

The following client and quality control samples were analyzed to complete this SDG using the methods referenced in the Analysis Information section:

| Sample ID | Client ID |
|---|---|
| 325284005 | CAMO-13-30558 |
| 1202877849 | Method Blank (MB) |
| 1202877850 | 325410001(CAMO-13-30616) Post Spike (PS) |
| 1202877851 | 325410001(CAMO-13-30616) Post Spike Duplicate (PSD) |
| 1202877852 | Laboratory Control Sample (LCS) |
| 1202877853 | Laboratory Control Sample (LCS) |

NOTE: For volatile organic analyses the matrix spike designations may be indicated as "PS" or "PSD". The "PS" designation (post spike) indicates that the matrix was fortified prior to analysis but after applying any prep factors, such as a dilution. The laboratory considers the MS/MSD and PS/PSD designations interchangeable.

The samples in this SDG were analyzed on an "as received" basis.

## Preparation/Analytical Method Verification

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-038 REV# 19.

Raw data reports are processed and reviewed by the analyst using the Chemstation software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP) section 19.1.2. False positive analytes are designated on the quantitation report with a ’d’ qualifier.

## Calibration Information

A complete list of the initial calibration data files with the correct dates and times of analysis are shown in the Calibration History report located in the Standard Data section of the data package.

The surrogate compounds were calibrated using a minimum five-point calibration curve. The surrogates were added by the auto sampler at a concentration of 50 ug/L or 20 ug/L for low level analyses. GEL Laboratories

LLC will not have surrogate recoveries reported for Dibromofluoromethane. This is due to increased regulations for this analyte and an industry shortage.

**Initial Calibration**
At the request of the client, linear curve fits, for target analytes that did not meet the x-intercept criteria of less than or equal to 3 times the MDL and had %RSDs less than 60%, were set to use the average response factor to quantitate data in this SDG.

**Continuing Calibration Verification Requirements**
All associated calibration verification standard(s) (CCV) met the acceptance criteria.

**Quality Control (QC) Information**

**Blank (MB) Statement**
The blank analyzed with this SDG met the acceptance criteria.

**Surrogate Recoveries**
Surrogate recoveries in all client and quality control samples were within the acceptance limits.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recoveries met the acceptance limits.

**QC Sample Designation**
Sample 325410001 (CAMO-13-30616) was designated for spike analysis.

**Matrix Spike (PS) Recovery Statement**
The spike recoveries were within the required acceptance limits.

**Matrix Spike Duplicate (PSD) Recovery Statement**
The spike duplicate recoveries were within the required acceptance limits.

**Relative Percent Difference (RPD) Statement**
The RPD between the matrix spike pair 1202877850 (CAMO-13-30616) and 1202877851 (CAMO-13-30616) were not all within the acceptance limits. See the Data Exception Report in the miscellaneous section of the deliverable.

**Internal Standard (ISTD) Acceptance**
The internal standard responses in all client and quality control samples met the required acceptance criteria.

**Technical Information**

**Holding Time Specifications**
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection or sample receipt. Those holding times expressed in hours are calculated in the ALPHALIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

**Sample Preservation and Integrity**
All samples met the sample preservation and integrity requirements.

**Sample Dilutions/Methanol Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-extraction/Re-analysis**
QC samples 1202877850 and 1202877851 were re-analyzed to confirm the original data. The original data results were reported.

## Miscellaneous Information

### Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

### Data Exception (DER) Documentation

The following DER was generated for this SDG: 1187759.

### Manual Integrations

Data files associated with the initial calibration, continuing calibration check, and samples did not require manual integrations.

### TIC Comment

Tentatively identified compounds (TIC) may be requested for this sample delivery group/work order. Please note that non-requested target analytes that are reported on the quantitation reports will be present on the Form I. These detected analytes are included in the calibrated method and as a result will be reported on the Sample Data Summary (Form I) or Certificate of Analysis (C of A). TIC data, if requested, are included on the Sample Data Summary (Form I) and are also included with the sample raw data.

### Additional Comments

Additional comments were not required for this SDG.

### Residual Chlorine

Residual Chlorine was not detected in any of the samples in this SDG.

## System Configuration

The Volatile-GC/MS analysis was performed on the following instrument configuration:

| Instrument ID | Instrument | System Configuration | Column ID | Column Description | P & T Trap |
|---|---|---|---|---|---|
| VOA9.I | Agilent 6890/5973 GC/MS w/ OI Eclipse/Archon Autosampler | HP6890/HP5973 | DB-624 | J&W, 60m x 0.25mm x 1.4um | Trap 10 |

## Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-809  GEL Work Order: 325284

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

**  Analyte is a surrogate compound

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL  Indicates that sample is diluted.
RA  Indicates that sample is re-analyzed without re-extraction.
RE  Indicates that sample is re-extracted.

**Review/Validation**

GEL requires all analytical data to be verified by a qualified data reviewer.  In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

**Signature:** Erin Haubert  **Name:** **Erin Haubert**

**Date:** **30 MAY 2013**  **Title:** **Data Validator**

# Sample Data Summary

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-809** | **Date Collected:** | **05/06/2013 14:36** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325284005** | **Date Received:** | **05/08/2013 08:55** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30558** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302540** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/17/2013 11:17** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/17/2013 11:17** | | | | |
| **Data File:** | **051713V9\9M512.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 75-71-8 | Dichlorodifluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-01-4 | Vinyl chloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-83-9 | Bromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-64-1 | Acetone | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | U | 25.0 | ug/L | 8.00 | 25.0 |
| 75-35-4 | 1,1-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-15-0 | Carbon disulfide | U | 5.00 | ug/L | 1.50 | 5.00 |
| 1634-04-4 | tert-Butyl methyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-05-4 | Vinyl acetate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-34-3 | 1,1-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | U | 5.00 | ug/L | 2.00 | 5.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-36-3 | n-Butyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 56-23-5 | Carbon tetrachloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-43-2 | Benzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | U | 5.00 | ug/L | 2.20 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-809** | **Date Collected:** | **05/06/2013 14:36** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325284005** | **Date Received:** | **05/08/2013 08:55** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30558** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302540** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/17/2013 11:17** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/17/2013 11:17** | | | | |
| **Data File:** | **051713V9\9M512.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 142-28-9 | 1,3-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-41-4 | Ethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | U | 2.00 | ug/L | 0.300 | 2.00 |
| 95-47-6 | o-Xylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-42-5 | Styrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-82-8 | Isopropylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-43-4 | 4-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 104-51-8 | n-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.400 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-809** | **Date Collected:** | **05/06/2013 14:36** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325284005** | **Date Received:** | **05/08/2013 08:55** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30558** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302540** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/17/2013 11:17** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/17/2013 11:17** | | | | |
| **Data File:** | **051713V9\9M512.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 50.7 | 50.0 | ug/L | 101 | (78%-124%) |
| Bromofluorobenzene | 58.1 | 50.0 | ug/L | 116 | (80%-120%) |
| Toluene-d8 | 51.6 | 50.0 | ug/L | 103 | (80%-120%) |

**Tentatively Identified Compound Summary**

| CAS No. | Tentatively Identified Compound (TIC) | RT | Estimated | Units | Fit | Qual |
|---|---|---|---|---|---|---|
| | unknown hydrocarbon | 4.211 | 7.47 | ug/L | 0 | J |

# Quality Control Summary

**Volatile**

## Surrogate Recovery Report

**SDG Number: 2013-809**

**Matrix Type: LIQUID**

| Sample ID | Client ID | DCED4 %REC | TOL %REC | BFB %REC |
|---|---|---|---|---|
| 1202877852 | LCS for batch 1302540 | 92 | 97 | 105 |
| 1202877853 | LCS for batch 1302540 | 83 | 91 | 104 |
| 1202877849 | MB for batch 1302540 | 95 | 99 | 109 |
| 325284005 | CAMO-13-30558 | 101 | 103 | 116 |
| 1202877850 | CAMO-13-30616PS | 95 | 101 | 114 |
| 1202877851 | CAMO-13-30616PSD | 94 | 104 | 96 |

| Surrogate | | Acceptance Limits |
|---|---|---|
| DCED4 | = 1,2-Dichloroethane-d4 | (78%-124%) |
| TOL | = Toluene-d8 | (80%-120%) |
| BFB | = Bromofluorobenzene | (80%-120%) |

* Recovery outside Acceptance Limits
\# Column to be used to flag recovery values
D Sample Diluted

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-809**
**Client ID:** **CAMO-13-30616PS**
**Lab Sample ID:** **1202877850**
**Instrument:** **VOA9.I**
**Analyst:** **RXY1**
**Purge Vol:** **5 mL**

**Sample Type:** **Post Spike**
**Matrix:** **W**
**Analysis Date:** **05/17/2013 16:45**
**Prep Batch ID:** **1302540**
**Batch ID:** **1302540**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 75-71-8 | PS | Dichlorodifluoromethane | 50.0 | 0.00 | U | 41.4 | 83 | 36-123 |
| 74-87-3 | PS | Chloromethane | 50.0 | 0.00 | U | 50.4 | 101 | 47-134 |
| 75-01-4 | PS | Vinyl chloride | 50.0 | 0.00 | U | 51.1 | 102 | 49-129 |
| 74-83-9 | PS | Bromomethane | 50.0 | 0.00 | U | 48.2 | 96 | 56-127 |
| 75-00-3 | PS | Chloroethane | 50.0 | 0.00 | U | 44.1 | 88 | 67-122 |
| 75-69-4 | PS | Trichlorofluoromethane | 50.0 | 0.00 | U | 45.0 | 90 | 60-123 |
| 60-29-7 | PS | Ethyl ether | 50.0 | 0.00 | U | 38.5 | 77 | 69-121 |
| 67-64-1 | PS | Acetone | 250 | 0.00 | U | 174 | 70 | 30-143 |
| 75-05-8 | PS | Acetonitrile | 1250 | 0.00 | U | 1030 | 83 | 60-133 |
| 75-35-4 | PS | 1,1-Dichloroethylene | 50.0 | 0.00 | U | 52.2 | 104 | 67-132 |
| 74-88-4 | PS | Iodomethane | 250 | 0.00 | U | 213 | 85 | 69-147 |
| 75-09-2 | PS | Methylene chloride | 50.0 | 0.00 | U | 39.9 | 80 | 56-135 |
| 75-15-0 | PS | Carbon disulfide | 250 | 0.00 | U | 235 | 94 | 65-153 |
| 1634-04-4 | PS | tert-Butyl methyl ether | 50.0 | 0.00 | U | 42.9 | 86 | 73-126 |
| 156-60-5 | PS | trans-1,2-Dichloroethylene | 50.0 | 0.00 | U | 44.1 | 88 | 69-128 |
| 108-05-4 | PS | Vinyl acetate | 250 | 0.00 | U | 236 | 94 | 50-143 |
| 75-34-3 | PS | 1,1-Dichloroethane | 50.0 | 0.00 | U | 49.8 | 100 | 75-124 |
| 78-93-3 | PS | 2-Butanone | 250 | 0.00 | U | 208 | 83 | 30-140 |
| 156-59-2 | PS | cis-1,2-Dichloroethylene | 50.0 | 0.00 | U | 46.6 | 93 | 52-147 |
| 594-20-7 | PS | 2,2-Dichloropropane | 50.0 | 0.00 | U | 47.5 | 95 | 67-143 |
| 67-66-3 | PS | Chloroform | 50.0 | 0.00 | U | 41.9 | 84 | 75-125 |
| 74-97-5 | PS | Bromochloromethane | 50.0 | 0.00 | U | 44.4 | 89 | 80-120 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-809**
**Client ID:** **CAMO-13-30616PS**
**Lab Sample ID:** **1202877850**
**Instrument:** **VOA9.I**
**Analyst:** **RXY1**
**Purge Vol:** **5 mL**

**Sample Type:** **Post Spike**
**Matrix:** **W**
**Analysis Date:** **05/17/2013 16:45**
**Prep Batch ID:** **1302540**
**Batch ID:** **1302540**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 71-55-6 | PS | 1,1,1-Trichloroethane | 50.0 | 0.00 | U | 47.4 | 95 | 69-140 |
| 563-58-6 | PS | 1,1-Dichloropropene | 50.0 | 0.00 | U | 45.6 | 91 | 71-130 |
| 71-36-3 | PS | n-Butyl alcohol | 5000 | 0.00 | U | 5610 | 112 | 53-150 |
| 56-23-5 | PS | Carbon tetrachloride | 50.0 | 0.00 | U | 47.2 | 94 | 69-142 |
| 107-06-2 | PS | 1,2-Dichloroethane | 50.0 | 0.00 | U | 44.5 | 89 | 72-126 |
| 71-43-2 | PS | Benzene | 50.0 | 0.00 | U | 50.8 | 102 | 73-119 |
| 79-01-6 | PS | Trichloroethylene | 50.0 | 0.00 | U | 50.6 | 101 | 54-147 |
| 78-87-5 | PS | 1,2-Dichloropropane | 50.0 | 0.00 | U | 42.5 | 85 | 78-123 |
| 75-27-4 | PS | Bromodichloromethane | 50.0 | 0.00 | U | 47.1 | 94 | 76-131 |
| 74-95-3 | PS | Dibromomethane | 50.0 | 0.00 | U | 46.5 | 93 | 79-120 |
| 108-10-1 | PS | 4-Methyl-2-pentanone | 250 | 0.00 | U | 212 | 85 | 68-136 |
| 10061-01-5 | PS | cis-1,3-Dichloropropylene | 50.0 | 0.00 | U | 41.4 | 83 | 72-134 |
| 108-88-3 | PS | Toluene | 50.0 | 0.00 | U | 41.9 | 84 | 62-126 |
| 10061-02-6 | PS | trans-1,3-Dichloropropylene | 50.0 | 0.00 | U | 44.4 | 89 | 72-133 |
| 79-00-5 | PS | 1,1,2-Trichloroethane | 50.0 | 0.00 | U | 38.1 | 76 | 74-120 |
| 591-78-6 | PS | 2-Hexanone | 250 | 0.00 | U | 237 | 95 | 31-132 |
| 142-28-9 | PS | 1,3-Dichloropropane | 50.0 | 0.00 | U | 47.0 | 94 | 73-121 |
| 127-18-4 | PS | Tetrachloroethylene | 50.0 | 0.00 | U | 47.1 | 94 | 54-139 |
| 124-48-1 | PS | Dibromochloromethane | 50.0 | 0.00 | U | 50.6 | 101 | 74-128 |
| 106-93-4 | PS | 1,2-Dibromoethane | 50.0 | 0.00 | U | 49.4 | 99 | 80-120 |
| 108-90-7 | PS | Chlorobenzene | 50.0 | 0.00 | U | 46.0 | 92 | 73-119 |
| 100-41-4 | PS | Ethylbenzene | 50.0 | 0.00 | U | 46.6 | 93 | 66-125 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-809**
**Client ID:** **CAMO-13-30616PS**
**Lab Sample ID:** **1202877850**
**Instrument:** **VOA9.I**
**Analyst:** **RXY1**
**Purge Vol:** **5 mL**

**Sample Type:** **Post Spike**
**Matrix:** **W**
**Analysis Date:** **05/17/2013 16:45**
**Prep Batch ID:** **1302540**
**Batch ID:** **1302540**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 179601-23-1 | PS | m,p-Xylenes | 100 | 0.00 | U | 95.9 | 96 | 56-134 |
| 95-47-6 | PS | o-Xylene | 50.0 | 0.00 | U | 41.1 | 82 | 68-126 |
| 100-42-5 | PS | Styrene | 50.0 | 0.00 | U | 43.8 | 88 | 57-138 |
| 75-25-2 | PS | Bromoform | 50.0 | 0.00 | U | 53.0 | 106 | 66-129 |
| 79-34-5 | PS | 1,1,2,2-Tetrachloroethane | 50.0 | 0.00 | U | 44.7 | 89 | 44-146 |
| 96-18-4 | PS | 1,2,3-Trichloropropane | 50.0 | 0.00 | U | 48.3 | 97 | 68-129 |
| 108-86-1 | PS | Bromobenzene | 50.0 | 0.00 | U | 46.0 | 92 | 70-122 |
| 103-65-1 | PS | n-Propylbenzene | 50.0 | 0.00 | U | 45.2 | 90 | 61-131 |
| 95-49-8 | PS | 2-Chlorotoluene | 50.0 | 0.00 | U | 46.5 | 93 | 66-126 |
| 98-82-8 | PS | Isopropylbenzene | 50.0 | 0.00 | U | 46.3 | 93 | 65-130 |
| 108-67-8 | PS | 1,3,5-Trimethylbenzene | 50.0 | 0.00 | U | 45.7 | 91 | 58-134 |
| 106-43-4 | PS | 4-Chlorotoluene | 50.0 | 0.00 | U | 43.2 | 86 | 63-125 |
| 98-06-6 | PS | tert-Butylbenzene | 50.0 | 0.00 | U | 51.3 | 103 | 66-129 |
| 95-63-6 | PS | 1,2,4-Trimethylbenzene | 50.0 | 0.00 | U | 51.0 | 102 | 60-131 |
| 135-98-8 | PS | sec-Butylbenzene | 50.0 | 0.00 | U | 46.7 | 93 | 62-130 |
| 99-87-6 | PS | 4-Isopropyltoluene | 50.0 | 0.00 | U | 48.1 | 96 | 62-132 |
| 541-73-1 | PS | 1,3-Dichlorobenzene | 50.0 | 0.00 | U | 49.2 | 98 | 66-121 |
| 106-46-7 | PS | 1,4-Dichlorobenzene | 50.0 | 0.00 | U | 46.2 | 92 | 65-119 |
| 104-51-8 | PS | n-Butylbenzene | 50.0 | 0.00 | U | 54.9 | 110 | 55-134 |
| 96-12-8 | PS | 1,2-Dibromo-3-chloropropane | 50.0 | 0.00 | U | 53.2 | 106 | 58-137 |
| 87-68-3 | PS | Hexachlorobutadiene | 50.0 | 0.00 | U | 44.5 | 89 | 49-139 |
| 91-20-3 | PS | Naphthalene | 50.0 | 0.00 | U | 47.9 | 96 | 46-145 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-809**
**Sample Type:** **Post Spike**
**Client ID:** **CAMO-13-30616PS**
**Matrix:** **W**
**Lab Sample ID:** **1202877850**
**Instrument:** **VOA9.I**
**Analysis Date:** **05/17/2013 16:45**
**Dilution: 1**
**Analyst:** **RXY1**
**Prep Batch ID:** **1302540**
**Purge Vol:** **5 mL**
**Batch ID:** **1302540**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 87-61-6 | PS | 1,2,3-Trichlorobenzene | 50.0 | 0.00 | U | 43.1 | 86 | 54-134 |
| 630-20-6 | PS | 1,1,1,2-Tetrachloroethane | 50.0 | 0.00 | U | 45.2 | 90 | 79-128 |
| 120-82-1 | PS | 1,2,4-Trichlorobenzene | 50.0 | 0.00 | U | 42.5 | 85 | 55-128 |
| 95-50-1 | PS | 1,2-Dichlorobenzene | 50.0 | 0.00 | U | 48.5 | 97 | 68-121 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-809**
**Client ID:** **CAMO-13-30616PSD**
**Lab Sample ID:** **1202877851**
**Instrument:** **VOA9.I**
**Analyst:** **RXY1**
**Purge Vol:** **5 mL**

**Sample Type:** **Post Spike Duplicate**
**Matrix:** **W**
**Analysis Date:** **05/17/2013 17:13**
**Prep Batch ID:** **1302540**
**Batch ID:** **1302540**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 75-71-8 | PSD | Dichlorodifluoromethane | 50.0 | 0.00 | U | 38.1 | 76 | 36-123 | 8 | 0-20 |
| 74-87-3 | PSD | Chloromethane | 50.0 | 0.00 | U | 45.8 | 92 | 47-134 | 10 | 0-20 |
| 75-01-4 | PSD | Vinyl chloride | 50.0 | 0.00 | U | 46.6 | 93 | 49-129 | 9 | 0-20 |
| 74-83-9 | PSD | Bromomethane | 50.0 | 0.00 | U | 42.5 | 85 | 56-127 | 13 | 0-20 |
| 75-00-3 | PSD | Chloroethane | 50.0 | 0.00 | U | 48.2 | 96 | 67-122 | 9 | 0-20 |
| 75-69-4 | PSD | Trichlorofluoromethane | 50.0 | 0.00 | U | 39.9 | 80 | 60-123 | 12 | 0-20 |
| 60-29-7 | PSD | Ethyl ether | 50.0 | 0.00 | U | 41.8 | 84 | 69-121 | 8 | 0-20 |
| 67-64-1 | PSD | Acetone | 250 | 0.00 | U | 129 | 52 | 30-143 | 30 * | 0-20 |
| 75-05-8 | PSD | Acetonitrile | 1250 | 0.00 | U | 937 | 75 | 60-133 | 10 | 0-20 |
| 75-35-4 | PSD | 1,1-Dichloroethylene | 50.0 | 0.00 | U | 40.1 | 80 | 67-132 | 26 * | 0-20 |
| 74-88-4 | PSD | Iodomethane | 250 | 0.00 | U | 187 | 75 | 69-147 | 13 | 0-20 |
| 75-09-2 | PSD | Methylene chloride | 50.0 | 0.00 | U | 37.3 | 75 | 56-135 | 7 | 0-20 |
| 75-15-0 | PSD | Carbon disulfide | 250 | 0.00 | U | 211 | 85 | 65-153 | 11 | 0-20 |
| 1634-04-4 | PSD | tert-Butyl methyl ether | 50.0 | 0.00 | U | 37.6 | 75 | 73-126 | 13 | 0-20 |
| 156-60-5 | PSD | trans-1,2-Dichloroethylene | 50.0 | 0.00 | U | 37.3 | 75 | 69-128 | 17 | 0-20 |
| 108-05-4 | PSD | Vinyl acetate | 250 | 0.00 | U | 186 | 75 | 50-143 | 23 * | 0-20 |
| 75-34-3 | PSD | 1,1-Dichloroethane | 50.0 | 0.00 | U | 45.6 | 91 | 75-124 | 9 | 0-20 |
| 78-93-3 | PSD | 2-Butanone | 250 | 0.00 | U | 197 | 79 | 30-140 | 6 | 0-20 |
| 156-59-2 | PSD | cis-1,2-Dichloroethylene | 50.0 | 0.00 | U | 44.5 | 89 | 52-147 | 5 | 0-20 |
| 594-20-7 | PSD | 2,2-Dichloropropane | 50.0 | 0.00 | U | 43.7 | 87 | 67-143 | 8 | 0-20 |
| 67-66-3 | PSD | Chloroform | 50.0 | 0.00 | U | 43.4 | 87 | 75-125 | 4 | 0-20 |
| 74-97-5 | PSD | Bromochloromethane | 50.0 | 0.00 | U | 44.2 | 88 | 80-120 | 0 | 0-20 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-809**
**Client ID:** **CAMO-13-30616PSD**
**Lab Sample ID:** **1202877851**
**Instrument:** **VOA9.I**
**Analyst:** **RXY1**
**Purge Vol:** **5 mL**

**Sample Type:** **Post Spike Duplicate**
**Matrix:** **W**
**Analysis Date:** **05/17/2013 17:13**
**Prep Batch ID:** **1302540**
**Batch ID:** **1302540**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 71-55-6 | PSD | 1,1,1-Trichloroethane | 50.0 | 0.00 | U | 44.7 | 89 | 69-140 | 6 | 0-20 |
| 563-58-6 | PSD | 1,1-Dichloropropene | 50.0 | 0.00 | U | 47.1 | 94 | 71-130 | 3 | 0-20 |
| 71-36-3 | PSD | n-Butyl alcohol | 5000 | 0.00 | U | 5950 | 119 | 53-150 | 6 | 0-20 |
| 56-23-5 | PSD | Carbon tetrachloride | 50.0 | 0.00 | U | 46.0 | 92 | 69-142 | 3 | 0-20 |
| 107-06-2 | PSD | 1,2-Dichloroethane | 50.0 | 0.00 | U | 40.0 | 80 | 72-126 | 11 | 0-20 |
| 71-43-2 | PSD | Benzene | 50.0 | 0.00 | U | 46.4 | 93 | 73-119 | 9 | 0-20 |
| 79-01-6 | PSD | Trichloroethylene | 50.0 | 0.00 | U | 46.0 | 92 | 54-147 | 10 | 0-20 |
| 78-87-5 | PSD | 1,2-Dichloropropane | 50.0 | 0.00 | U | 45.7 | 91 | 78-123 | 7 | 0-20 |
| 75-27-4 | PSD | Bromodichloromethane | 50.0 | 0.00 | U | 45.0 | 90 | 76-131 | 5 | 0-20 |
| 74-95-3 | PSD | Dibromomethane | 50.0 | 0.00 | U | 43.9 | 88 | 79-120 | 6 | 0-20 |
| 108-10-1 | PSD | 4-Methyl-2-pentanone | 250 | 0.00 | U | 237 | 95 | 68-136 | 11 | 0-20 |
| 10061-01-5 | PSD | cis-1,3-Dichloropropylene | 50.0 | 0.00 | U | 47.3 | 95 | 72-134 | 14 | 0-20 |
| 108-88-3 | PSD | Toluene | 50.0 | 0.00 | U | 45.0 | 90 | 62-126 | 7 | 0-20 |
| 10061-02-6 | PSD | trans-1,3-Dichloropropylene | 50.0 | 0.00 | U | 44.3 | 89 | 72-133 | 0 | 0-20 |
| 79-00-5 | PSD | 1,1,2-Trichloroethane | 50.0 | 0.00 | U | 45.9 | 92 | 74-120 | 19 | 0-20 |
| 591-78-6 | PSD | 2-Hexanone | 250 | 0.00 | U | 213 | 85 | 31-132 | 11 | 0-20 |
| 142-28-9 | PSD | 1,3-Dichloropropane | 50.0 | 0.00 | U | 43.3 | 87 | 73-121 | 8 | 0-20 |
| 127-18-4 | PSD | Tetrachloroethylene | 50.0 | 0.00 | U | 44.0 | 88 | 54-139 | 7 | 0-20 |
| 124-48-1 | PSD | Dibromochloromethane | 50.0 | 0.00 | U | 48.3 | 97 | 74-128 | 5 | 0-20 |
| 106-93-4 | PSD | 1,2-Dibromoethane | 50.0 | 0.00 | U | 46.8 | 94 | 80-120 | 5 | 0-20 |
| 108-90-7 | PSD | Chlorobenzene | 50.0 | 0.00 | U | 43.8 | 88 | 73-119 | 5 | 0-20 |
| 100-41-4 | PSD | Ethylbenzene | 50.0 | 0.00 | U | 43.4 | 87 | 66-125 | 7 | 0-20 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-809**
**Client ID:** **CAMO-13-30616PSD**
**Lab Sample ID:** **1202877851**
**Instrument:** **VOA9.I**
**Analyst:** **RXY1**
**Purge Vol:** **5 mL**

**Sample Type:** **Post Spike Duplicate**
**Matrix:** **W**
**Analysis Date:** **05/17/2013 17:13**
**Prep Batch ID:** **1302540**
**Batch ID:** **1302540**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 179601-23-1 | PSD | m,p-Xylenes | 100 | 0.00 | U | 88.1 | 88 | 56-134 | 9 | 0-20 |
| 95-47-6 | PSD | o-Xylene | 50.0 | 0.00 | U | 39.3 | 79 | 68-126 | 4 | 0-20 |
| 100-42-5 | PSD | Styrene | 50.0 | 0.00 | U | 40.8 | 82 | 57-138 | 7 | 0-20 |
| 75-25-2 | PSD | Bromoform | 50.0 | 0.00 | U | 48.6 | 97 | 66-129 | 9 | 0-20 |
| 79-34-5 | PSD | 1,1,2,2-Tetrachloroethane | 50.0 | 0.00 | U | 43.6 | 87 | 44-146 | 3 | 0-20 |
| 96-18-4 | PSD | 1,2,3-Trichloropropane | 50.0 | 0.00 | U | 45.5 | 91 | 68-129 | 6 | 0-20 |
| 108-86-1 | PSD | Bromobenzene | 50.0 | 0.00 | U | 46.5 | 93 | 70-122 | 1 | 0-20 |
| 103-65-1 | PSD | n-Propylbenzene | 50.0 | 0.00 | U | 46.7 | 93 | 61-131 | 3 | 0-20 |
| 95-49-8 | PSD | 2-Chlorotoluene | 50.0 | 0.00 | U | 46.5 | 93 | 66-126 | 0 | 0-20 |
| 98-82-8 | PSD | Isopropylbenzene | 50.0 | 0.00 | U | 42.4 | 85 | 65-130 | 9 | 0-20 |
| 108-67-8 | PSD | 1,3,5-Trimethylbenzene | 50.0 | 0.00 | U | 45.6 | 91 | 58-134 | 0 | 0-20 |
| 106-43-4 | PSD | 4-Chlorotoluene | 50.0 | 0.00 | U | 45.0 | 90 | 63-125 | 4 | 0-20 |
| 98-06-6 | PSD | tert-Butylbenzene | 50.0 | 0.00 | U | 45.8 | 92 | 66-129 | 11 | 0-20 |
| 95-63-6 | PSD | 1,2,4-Trimethylbenzene | 50.0 | 0.00 | U | 44.7 | 89 | 60-131 | 13 | 0-20 |
| 135-98-8 | PSD | sec-Butylbenzene | 50.0 | 0.00 | U | 47.9 | 96 | 62-130 | 3 | 0-20 |
| 99-87-6 | PSD | 4-Isopropyltoluene | 50.0 | 0.00 | U | 45.4 | 91 | 62-132 | 6 | 0-20 |
| 541-73-1 | PSD | 1,3-Dichlorobenzene | 50.0 | 0.00 | U | 42.8 | 86 | 66-121 | 14 | 0-20 |
| 106-46-7 | PSD | 1,4-Dichlorobenzene | 50.0 | 0.00 | U | 44.2 | 88 | 65-119 | 5 | 0-20 |
| 104-51-8 | PSD | n-Butylbenzene | 50.0 | 0.00 | U | 48.3 | 97 | 55-134 | 13 | 0-20 |
| 96-12-8 | PSD | 1,2-Dibromo-3-chloropropane | 50.0 | 0.00 | U | 48.8 | 98 | 58-137 | 9 | 0-20 |
| 87-68-3 | PSD | Hexachlorobutadiene | 50.0 | 0.00 | U | 41.8 | 84 | 49-139 | 6 | 0-20 |
| 91-20-3 | PSD | Naphthalene | 50.0 | 0.00 | U | 43.9 | 88 | 46-145 | 9 | 0-20 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-809**
**Sample Type:** **Post Spike Duplicate**
**Client ID:** **CAMO-13-30616PSD**
**Matrix:** **W**
**Lab Sample ID:** **1202877851**
**Instrument:** **VOA9.I**
**Analysis Date:** **05/17/2013 17:13**
**Dilution: 1**
**Analyst:** **RXY1**
**Prep Batch ID:** **1302540**
**Purge Vol:** **5 mL**
**Batch ID:** **1302540**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 87-61-6 | PSD | 1,2,3-Trichlorobenzene | 50.0 | 0.00 | U | 39.0 | 78 | 54-134 | 10 | 0-20 |
| 630-20-6 | PSD | 1,1,1,2-Tetrachloroethane | 50.0 | 0.00 | U | 42.8 | 86 | 79-128 | 6 | 0-20 |
| 120-82-1 | PSD | 1,2,4-Trichlorobenzene | 50.0 | 0.00 | U | 41.3 | 83 | 55-128 | 3 | 0-20 |
| 95-50-1 | PSD | 1,2-Dichlorobenzene | 50.0 | 0.00 | U | 43.2 | 86 | 68-121 | 12 | 0-20 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-809**
**Client ID:** **LCS for batch 1302540**
**Lab Sample ID:** **1202877852**
**Instrument:** **VOA9.I**
**Analyst:** **RXY1**
**Purge Vol:** **5 mL**

**Sample Type:** **Laboratory Control Sample**
**Matrix:** **WATER**
**Analysis Date:** **05/17/2013 07:40**
**Prep Batch ID:** **1302540**
**Batch ID:** **1302540**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 75-71-8 | LCS | Dichlorodifluoromethane | 50.0 | 0.0 | 49.4 | 99 | 39-124 |
| 74-87-3 | LCS | Chloromethane | 50.0 | 0.0 | 56.9 | 114 | 57-126 |
| 75-01-4 | LCS | Vinyl chloride | 50.0 | 0.0 | 56.3 | 113 | 62-121 |
| 74-83-9 | LCS | Bromomethane | 50.0 | 0.0 | 51.3 | 103 | 68-120 |
| 75-00-3 | LCS | Chloroethane | 50.0 | 0.0 | 51.6 | 103 | 73-120 |
| 75-69-4 | LCS | Trichlorofluoromethane | 50.0 | 0.0 | 50.5 | 101 | 65-123 |
| 60-29-7 | LCS | Ethyl ether | 50.0 | 0.0 | 43.0 | 86 | 74-120 |
| 67-64-1 | LCS | Acetone | 250 | 0.0 | 185 | 74 | 36-163 |
| 75-05-8 | LCS | Acetonitrile | 1250 | 0.0 | 1130 | 91 | 64-127 |
| 75-35-4 | LCS | 1,1-Dichloroethylene | 50.0 | 0.0 | 51.9 | 104 | 76-127 |
| 74-88-4 | LCS | Iodomethane | 250 | 0.0 | 217 | 87 | 80-134 |
| 75-09-2 | LCS | Methylene chloride | 50.0 | 0.0 | 45.8 | 92 | 72-121 |
| 75-15-0 | LCS | Carbon disulfide | 250 | 0.0 | 265 | 106 | 80-143 |
| 1634-04-4 | LCS | tert-Butyl methyl ether | 50.0 | 0.0 | 44.3 | 89 | 76-123 |
| 156-60-5 | LCS | trans-1,2-Dichloroethylene | 50.0 | 0.0 | 50.5 | 101 | 77-123 |
| 108-05-4 | LCS | Vinyl acetate | 250 | 0.0 | 236 | 94 | 75-144 |
| 75-34-3 | LCS | 1,1-Dichloroethane | 50.0 | 0.0 | 50.4 | 101 | 79-120 |
| 78-93-3 | LCS | 2-Butanone | 250 | 0.0 | 251 | 101 | 46-158 |
| 156-59-2 | LCS | cis-1,2-Dichloroethylene | 50.0 | 0.0 | 51.8 | 104 | 80-122 |
| 594-20-7 | LCS | 2,2-Dichloropropane | 50.0 | 0.0 | 52.4 | 105 | 76-145 |
| 67-66-3 | LCS | Chloroform | 50.0 | 0.0 | 49.1 | 98 | 80-120 |
| 74-97-5 | LCS | Bromochloromethane | 50.0 | 0.0 | 46.8 | 94 | 83-120 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-809**
**Client ID:** **LCS for batch 1302540**
**Lab Sample ID:** **1202877852**
**Instrument:** **VOA9.I**
**Analyst:** **RXY1**
**Purge Vol:** **5 mL**

**Sample Type:** **Laboratory Control Sample**
**Matrix:** **WATER**
**Analysis Date:** **05/17/2013 07:40**
**Prep Batch ID:** **1302540**
**Batch ID:** **1302540**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 71-55-6 | LCS | 1,1,1-Trichloroethane | 50.0 | 0.0 | 49.3 | 99 | 80-133 |
| 563-58-6 | LCS | 1,1-Dichloropropene | 50.0 | 0.0 | 51.9 | 104 | 80-127 |
| 71-36-3 | LCS | n-Butyl alcohol | 5000 | 0.0 | 5380 | 108 | 66-138 |
| 56-23-5 | LCS | Carbon tetrachloride | 50.0 | 0.0 | 51.1 | 102 | 77-139 |
| 107-06-2 | LCS | 1,2-Dichloroethane | 50.0 | 0.0 | 45.1 | 90 | 75-121 |
| 71-43-2 | LCS | Benzene | 50.0 | 0.0 | 52.8 | 106 | 79-120 |
| 79-01-6 | LCS | Trichloroethylene | 50.0 | 0.0 | 51.5 | 103 | 80-121 |
| 78-87-5 | LCS | 1,2-Dichloropropane | 50.0 | 0.0 | 48.8 | 98 | 80-120 |
| 75-27-4 | LCS | Bromodichloromethane | 50.0 | 0.0 | 49.9 | 100 | 80-127 |
| 74-95-3 | LCS | Dibromomethane | 50.0 | 0.0 | 46.7 | 93 | 80-120 |
| 108-10-1 | LCS | 4-Methyl-2-pentanone | 250 | 0.0 | 224 | 90 | 76-131 |
| 10061-01-5 | LCS | cis-1,3-Dichloropropylene | 50.0 | 0.0 | 50.9 | 102 | 80-127 |
| 108-88-3 | LCS | Toluene | 50.0 | 0.0 | 49.2 | 98 | 77-120 |
| 10061-02-6 | LCS | trans-1,3-Dichloropropylene | 50.0 | 0.0 | 47.6 | 95 | 80-128 |
| 79-00-5 | LCS | 1,1,2-Trichloroethane | 50.0 | 0.0 | 49.7 | 99 | 79-120 |
| 591-78-6 | LCS | 2-Hexanone | 250 | 0.0 | 270 | 108 | 53-158 |
| 142-28-9 | LCS | 1,3-Dichloropropane | 50.0 | 0.0 | 46.9 | 94 | 77-120 |
| 127-18-4 | LCS | Tetrachloroethylene | 50.0 | 0.0 | 49.5 | 99 | 77-125 |
| 124-48-1 | LCS | Dibromochloromethane | 50.0 | 0.0 | 50.5 | 101 | 77-126 |
| 106-93-4 | LCS | 1,2-Dibromoethane | 50.0 | 0.0 | 46.7 | 93 | 80-120 |
| 108-90-7 | LCS | Chlorobenzene | 50.0 | 0.0 | 47.1 | 94 | 80-120 |
| 100-41-4 | LCS | Ethylbenzene | 50.0 | 0.0 | 48.0 | 96 | 78-120 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-809**
**Client ID:** **LCS for batch 1302540**
**Lab Sample ID:** **1202877852**
**Instrument:** **VOA9.I**
**Analyst:** **RXY1**
**Purge Vol:** **5 mL**

**Sample Type:** **Laboratory Control Sample**
**Matrix:** **WATER**
**Analysis Date:** **05/17/2013 07:40**
**Prep Batch ID:** **1302540**
**Batch ID:** **1302540**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 179601-23-1 | LCS | m,p-Xylenes | 100 | 0.0 | 97.4 | 97 | 79-120 |
| 95-47-6 | LCS | o-Xylene | 50.0 | 0.0 | 49.8 | 100 | 80-120 |
| 100-42-5 | LCS | Styrene | 50.0 | 0.0 | 52.8 | 106 | 80-121 |
| 75-25-2 | LCS | Bromoform | 50.0 | 0.0 | 56.2 | 112 | 72-125 |
| 79-34-5 | LCS | 1,1,2,2-Tetrachloroethane | 50.0 | 0.0 | 48.4 | 97 | 73-120 |
| 96-18-4 | LCS | 1,2,3-Trichloropropane | 50.0 | 0.0 | 44.4 | 89 | 74-121 |
| 108-86-1 | LCS | Bromobenzene | 50.0 | 0.0 | 46.9 | 94 | 79-120 |
| 103-65-1 | LCS | n-Propylbenzene | 50.0 | 0.0 | 49.7 | 99 | 75-125 |
| 95-49-8 | LCS | 2-Chlorotoluene | 50.0 | 0.0 | 47.8 | 96 | 77-121 |
| 98-82-8 | LCS | Isopropylbenzene | 50.0 | 0.0 | 53.4 | 107 | 76-125 |
| 108-67-8 | LCS | 1,3,5-Trimethylbenzene | 50.0 | 0.0 | 49.1 | 98 | 77-123 |
| 106-43-4 | LCS | 4-Chlorotoluene | 50.0 | 0.0 | 53.5 | 107 | 75-120 |
| 98-06-6 | LCS | tert-Butylbenzene | 50.0 | 0.0 | 48.8 | 98 | 79-123 |
| 95-63-6 | LCS | 1,2,4-Trimethylbenzene | 50.0 | 0.0 | 50.8 | 102 | 77-121 |
| 135-98-8 | LCS | sec-Butylbenzene | 50.0 | 0.0 | 53.5 | 107 | 76-124 |
| 99-87-6 | LCS | 4-Isopropyltoluene | 50.0 | 0.0 | 51.0 | 102 | 79-125 |
| 541-73-1 | LCS | 1,3-Dichlorobenzene | 50.0 | 0.0 | 48.7 | 97 | 78-120 |
| 106-46-7 | LCS | 1,4-Dichlorobenzene | 50.0 | 0.0 | 47.6 | 95 | 77-120 |
| 104-51-8 | LCS | n-Butylbenzene | 50.0 | 0.0 | 55.0 | 110 | 75-127 |
| 96-12-8 | LCS | 1,2-Dibromo-3-chloropropane | 50.0 | 0.0 | 48.2 | 96 | 69-128 |
| 87-68-3 | LCS | Hexachlorobutadiene | 50.0 | 0.0 | 42.0 | 84 | 75-128 |
| 91-20-3 | LCS | Naphthalene | 50.0 | 0.0 | 41.0 | 82 | 71-125 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-809**
**Sample Type:** **Laboratory Control Sample**
**Client ID:** **LCS for batch 1302540**
**Matrix:** **WATER**
**Lab Sample ID:** **1202877852**
**Instrument:** **VOA9.I**
**Analysis Date:** **05/17/2013 07:40**
**Dilution: 1**
**Analyst:** **RXY1**
**Prep Batch ID:** **1302540**
**Purge Vol:** **5 mL**
**Batch ID:** **1302540**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 87-61-6 | LCS | 1,2,3-Trichlorobenzene | 50.0 | 0.0 | 39.8 | 80 | 73-125 |
| 630-20-6 | LCS | 1,1,1,2-Tetrachloroethane | 50.0 | 0.0 | 45.9 | 92 | 80-124 |
| 120-82-1 | LCS | 1,2,4-Trichlorobenzene | 50.0 | 0.0 | 41.9 | 84 | 75-123 |
| 95-50-1 | LCS | 1,2-Dichlorobenzene | 50.0 | 0.0 | 46.0 | 92 | 79-120 |

**Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-809**
**Client ID:** **LCS for batch 1302540**
**Lab Sample ID:** **1202877853**
**Instrument:** **VOA9.I**
**Analyst:** **RXY1**
**Purge Vol:** **5 mL**

**Sample Type:** **Laboratory Control Sample**
**Matrix:** **WATER**
**Analysis Date:** **05/17/2013 09:01**
**Prep Batch ID:** **1302540**
**Batch ID:** **1302540**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 107-02-8 | LCS | Acrolein | 250 | 0.0 | 208 | 83 | 28-152 |
| 76-13-1 | LCS | Trichlorotrifluoroethane | 250 | 0.0 | 238 | 95 | 65-157 |
| 107-05-1 | LCS | Allyl chloride | 250 | 0.0 | 229 | 92 | 60-135 |
| 107-13-1 | LCS | Acrylonitrile | 250 | 0.0 | 218 | 87 | 64-131 |
| 126-99-8 | LCS | 2-Chloro-1,3-butadiene | 50.0 | 0.0 | 39.9 | 80 | 45-159 |
| 107-12-0 | LCS | Propionitrile | 250 | 0.0 | 218 | 87 | 67-135 |
| 126-98-7 | LCS | Methacrylonitrile | 250 | 0.0 | 221 | 88 | 64-132 |
| 78-83-1 | LCS | Isobutyl alcohol | 2500 | 0.0 | 2480 | 99 | 60-136 |
| 80-62-6 | LCS | Methyl methacrylate | 250 | 0.0 | 214 | 86 | 66-129 |
| 97-63-2 | LCS | Ethyl methacrylate | 250 | 0.0 | 226 | 90 | 66-132 |

# Method Blank Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-809** | **Client:** | **ARSL001** | **Matrix:** | **WATER** |
| **Client ID:** | **MB for batch 1302540** | **Instrument ID:** | **VOA9.I** | **Data File:** | **051713V9\9M509B3.D** |
| **Lab Sample ID:** | **1202877849** | **Prep Date:** | **05/17/2013 09:56** | **Analyzed:** | **05/17/13 09:56** |
| **Column:** | **DB-624** | | | | |

**This method blank applies to the following samples and quality control samples:**

| | Client Sample ID | Lab Sample ID | File ID | Date Analyzed | Time Analyzed |
|---|---|---|---|---|---|
| 01 | LCS for batch 1302540 | 1202877852 | 051713V9\9M504L3.D | 05/17/13 | 0740 |
| 02 | LCS for batch 1302540 | 1202877853 | 051713V9\9M507L3.D | 05/17/13 | 0901 |
| 03 | CAMO-13-30558 | 325284005 | 051713V9\9M512.D | 05/17/13 | 1117 |
| 04 | CAMO-13-30616PS | 1202877850 | 051713V9\9M524.D | 05/17/13 | 1645 |
| 05 | CAMO-13-30616PSD | 1202877851 | 051713V9\9M525.D | 05/17/13 | 1713 |

# Quality Control Data

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-809** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202877849** | | | | |
| **Client Sample:** | **QC for batch 1302540** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **MB for batch 1302540** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302540** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/17/2013 09:56** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/17/2013 09:56** | | | | |
| **Data File:** | **051713V9\9M509B3.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 75-71-8 | Dichlorodifluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-01-4 | Vinyl chloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-83-9 | Bromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-64-1 | Acetone | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | U | 25.0 | ug/L | 8.00 | 25.0 |
| 75-35-4 | 1,1-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-15-0 | Carbon disulfide | U | 5.00 | ug/L | 1.50 | 5.00 |
| 1634-04-4 | tert-Butyl methyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-05-4 | Vinyl acetate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-34-3 | 1,1-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | U | 5.00 | ug/L | 2.00 | 5.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-36-3 | n-Butyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 56-23-5 | Carbon tetrachloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-43-2 | Benzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | U | 5.00 | ug/L | 2.20 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-809** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202877849** | | | | |
| **Client Sample:** | **QC for batch 1302540** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **MB for batch 1302540** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302540** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/17/2013 09:56** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/17/2013 09:56** | | | | |
| **Data File:** | **051713V9\9M509B3.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 142-28-9 | 1,3-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-41-4 | Ethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | U | 2.00 | ug/L | 0.300 | 2.00 |
| 95-47-6 | o-Xylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-42-5 | Styrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-82-8 | Isopropylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-43-4 | 4-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 104-51-8 | n-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.400 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-809** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202877849** | | | | |
| **Client Sample:** | **QC for batch 1302540** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **MB for batch 1302540** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302540** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/17/2013 09:56** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/17/2013 09:56** | | | | |
| **Data File:** | **051713V9\9M509B3.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 47.7 | 50.0 | ug/L | 95.3 | (78%-124%) |
| Bromofluorobenzene | 54.6 | 50.0 | ug/L | 109 | (80%-120%) |
| Toluene-d8 | 49.6 | 50.0 | ug/L | 99.3 | (80%-120%) |

**Tentatively Identified Compound Summary**

| CAS No. | Tentatively Identified Compound (TIC) | RT | Estimated | Units | Fit | Qual |
|---|---|---|---|---|---|---|
| | unknown hydrocarbon | 4.197 | 6.69 | ug/L | 0 | J |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-809** | **Date Collected:** | **05/07/2013 12:58** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202877850** | **Date Received:** | **05/09/2013 08:50** | | |
| **Client Sample:** | **QC for batch 1302540** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **CAMO-13-30616PS** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302540** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/17/2013 16:45** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/17/2013 16:45** | | | | |
| **Data File:** | **051713V9\9M524.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 75-71-8 | Dichlorodifluoromethane | | 41.4 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | | 50.4 | ug/L | 0.300 | 1.00 |
| 75-01-4 | Vinyl chloride | | 51.1 | ug/L | 0.300 | 1.00 |
| 74-83-9 | Bromomethane | | 48.2 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | | 44.1 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | | 45.0 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | | 38.5 | ug/L | 0.300 | 1.00 |
| 67-64-1 | Acetone | | 174 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | | 1030 | ug/L | 8.00 | 25.0 |
| 75-35-4 | 1,1-Dichloroethylene | | 52.2 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | | 213 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | | 39.9 | ug/L | 3.00 | 10.0 |
| 75-15-0 | Carbon disulfide | | 235 | ug/L | 1.50 | 5.00 |
| 1634-04-4 | tert-Butyl methyl ether | | 42.9 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | | 44.1 | ug/L | 0.300 | 1.00 |
| 108-05-4 | Vinyl acetate | | 236 | ug/L | 1.50 | 5.00 |
| 75-34-3 | 1,1-Dichloroethane | | 49.8 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | | 208 | ug/L | 2.00 | 5.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | | 46.6 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | | 47.5 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | | 41.9 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | | 44.4 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | | 47.4 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | | 45.6 | ug/L | 0.300 | 1.00 |
| 71-36-3 | n-Butyl alcohol | | 5610 | ug/L | 15.0 | 50.0 |
| 56-23-5 | Carbon tetrachloride | | 47.2 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | | 44.5 | ug/L | 0.300 | 1.00 |
| 71-43-2 | Benzene | | 50.8 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | | 50.6 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | | 42.5 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | | 47.1 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | | 46.5 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | | 212 | ug/L | 1.50 | 5.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | | 41.4 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | | 41.9 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | | 44.4 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | | 38.1 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | | 237 | ug/L | 2.20 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-809** | **Date Collected:** | **05/07/2013 12:58** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202877850** | **Date Received:** | **05/09/2013 08:50** | | |
| **Client Sample:** | **QC for batch 1302540** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **CAMO-13-30616PS** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302540** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/17/2013 16:45** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/17/2013 16:45** | | | | |
| **Data File:** | **051713V9\9M524.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 142-28-9 | 1,3-Dichloropropane | | 47.0 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | | 47.1 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | | 50.6 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | | 49.4 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | | 46.0 | ug/L | 0.300 | 1.00 |
| 100-41-4 | Ethylbenzene | | 46.6 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | | 95.9 | ug/L | 0.300 | 2.00 |
| 95-47-6 | o-Xylene | | 41.1 | ug/L | 0.300 | 1.00 |
| 100-42-5 | Styrene | | 43.8 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | | 53.0 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | | 44.7 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | | 48.3 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | | 46.0 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | | 45.2 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | | 46.5 | ug/L | 0.300 | 1.00 |
| 98-82-8 | Isopropylbenzene | | 46.3 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | | 45.7 | ug/L | 0.300 | 1.00 |
| 106-43-4 | 4-Chlorotoluene | | 43.2 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | | 51.3 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | | 51.0 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | | 46.7 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | | 48.1 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | | 49.2 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | | 46.2 | ug/L | 0.300 | 1.00 |
| 104-51-8 | n-Butylbenzene | | 54.9 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | | 53.2 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | | 44.5 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | | 47.9 | ug/L | 0.400 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | | 43.1 | ug/L | 0.300 | 1.00 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-809** | **Date Collected:** | **05/07/2013 12:58** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202877850** | **Date Received:** | **05/09/2013 08:50** | | |
| **Client Sample:** | **QC for batch 1302540** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **CAMO-13-30616PS** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302540** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/17/2013 16:45** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/17/2013 16:45** | | | | |
| **Data File:** | **051713V9\9M524.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | | 45.2 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | | 42.5 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | | 48.5 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 47.5 | 50.0 | ug/L | 95.0 | (78%-124%) |
| Bromofluorobenzene | 57.1 | 50.0 | ug/L | 114 | (80%-120%) |
| Toluene-d8 | 50.3 | 50.0 | ug/L | 101 | (80%-120%) |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-809** | **Date Collected:** | **05/07/2013 12:58** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202877851** | **Date Received:** | **05/09/2013 08:50** | | |
| **Client Sample:** | **QC for batch 1302540** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **CAMO-13-30616PSD** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302540** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/17/2013 17:13** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/17/2013 17:13** | | | | |
| **Data File:** | **051713V9\9M525.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 75-71-8 | Dichlorodifluoromethane | | 38.1 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | | 45.8 | ug/L | 0.300 | 1.00 |
| 75-01-4 | Vinyl chloride | | 46.6 | ug/L | 0.300 | 1.00 |
| 74-83-9 | Bromomethane | | 42.5 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | | 48.2 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | | 39.9 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | | 41.8 | ug/L | 0.300 | 1.00 |
| 67-64-1 | Acetone | | 129 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | | 937 | ug/L | 8.00 | 25.0 |
| 75-35-4 | 1,1-Dichloroethylene | | 40.1 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | | 187 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | | 37.3 | ug/L | 3.00 | 10.0 |
| 75-15-0 | Carbon disulfide | | 211 | ug/L | 1.50 | 5.00 |
| 1634-04-4 | tert-Butyl methyl ether | | 37.6 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | | 37.3 | ug/L | 0.300 | 1.00 |
| 108-05-4 | Vinyl acetate | | 186 | ug/L | 1.50 | 5.00 |
| 75-34-3 | 1,1-Dichloroethane | | 45.6 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | | 197 | ug/L | 2.00 | 5.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | | 44.5 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | | 43.7 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | | 43.4 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | | 44.2 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | | 44.7 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | | 47.1 | ug/L | 0.300 | 1.00 |
| 71-36-3 | n-Butyl alcohol | | 5950 | ug/L | 15.0 | 50.0 |
| 56-23-5 | Carbon tetrachloride | | 46.0 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | | 40.0 | ug/L | 0.300 | 1.00 |
| 71-43-2 | Benzene | | 46.4 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | | 46.0 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | | 45.7 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | | 45.0 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | | 43.9 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | | 237 | ug/L | 1.50 | 5.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | | 47.3 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | | 45.0 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | | 44.3 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | | 45.9 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | | 213 | ug/L | 2.20 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-809** | **Date Collected:** | **05/07/2013 12:58** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202877851** | **Date Received:** | **05/09/2013 08:50** | | |
| **Client Sample:** | **QC for batch 1302540** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **CAMO-13-30616PSD** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302540** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/17/2013 17:13** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/17/2013 17:13** | | | | |
| **Data File:** | **051713V9\9M525.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 142-28-9 | 1,3-Dichloropropane | | 43.3 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | | 44.0 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | | 48.3 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | | 46.8 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | | 43.8 | ug/L | 0.300 | 1.00 |
| 100-41-4 | Ethylbenzene | | 43.4 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | | 88.1 | ug/L | 0.300 | 2.00 |
| 95-47-6 | o-Xylene | | 39.3 | ug/L | 0.300 | 1.00 |
| 100-42-5 | Styrene | | 40.8 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | | 48.6 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | | 43.6 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | | 45.5 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | | 46.5 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | | 46.7 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | | 46.5 | ug/L | 0.300 | 1.00 |
| 98-82-8 | Isopropylbenzene | | 42.4 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | | 45.6 | ug/L | 0.300 | 1.00 |
| 106-43-4 | 4-Chlorotoluene | | 45.0 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | | 45.8 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | | 44.7 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | | 47.9 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | | 45.4 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | | 42.8 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | | 44.2 | ug/L | 0.300 | 1.00 |
| 104-51-8 | n-Butylbenzene | | 48.3 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | | 48.8 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | | 41.8 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | | 43.9 | ug/L | 0.400 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | | 39.0 | ug/L | 0.300 | 1.00 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-809** | **Date Collected:** | **05/07/2013 12:58** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202877851** | **Date Received:** | **05/09/2013 08:50** | | |
| **Client Sample:** | **QC for batch 1302540** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **CAMO-13-30616PSD** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302540** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/17/2013 17:13** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/17/2013 17:13** | | | | |
| **Data File:** | **051713V9\9M525.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | | 42.8 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | | 41.3 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | | 43.2 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 46.9 | 50.0 | ug/L | 93.9 | (78%-124%) |
| Bromofluorobenzene | 48.1 | 50.0 | ug/L | 96.3 | (80%-120%) |
| Toluene-d8 | 52.1 | 50.0 | ug/L | 104 | (80%-120%) |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-809** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202877852** | | | | |
| **Client Sample:** | **QC for batch 1302540** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1302540** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302540** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/17/2013 07:40** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/17/2013 07:40** | | | | |
| **Data File:** | **051713V9\9M504L3.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 75-71-8 | Dichlorodifluoromethane | | 49.4 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | | 56.9 | ug/L | 0.300 | 1.00 |
| 75-01-4 | Vinyl chloride | | 56.3 | ug/L | 0.300 | 1.00 |
| 74-83-9 | Bromomethane | | 51.3 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | | 51.6 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | | 50.5 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | | 43.0 | ug/L | 0.300 | 1.00 |
| 67-64-1 | Acetone | | 185 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | | 1130 | ug/L | 8.00 | 25.0 |
| 75-35-4 | 1,1-Dichloroethylene | | 51.9 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | | 217 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | | 45.8 | ug/L | 3.00 | 10.0 |
| 75-15-0 | Carbon disulfide | | 265 | ug/L | 1.50 | 5.00 |
| 1634-04-4 | tert-Butyl methyl ether | | 44.3 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | | 50.5 | ug/L | 0.300 | 1.00 |
| 108-05-4 | Vinyl acetate | | 236 | ug/L | 1.50 | 5.00 |
| 75-34-3 | 1,1-Dichloroethane | | 50.4 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | | 251 | ug/L | 2.00 | 5.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | | 51.8 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | | 52.4 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | | 49.1 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | | 46.8 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | | 49.3 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | | 51.9 | ug/L | 0.300 | 1.00 |
| 71-36-3 | n-Butyl alcohol | | 5380 | ug/L | 15.0 | 50.0 |
| 56-23-5 | Carbon tetrachloride | | 51.1 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | | 45.1 | ug/L | 0.300 | 1.00 |
| 71-43-2 | Benzene | | 52.8 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | | 51.5 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | | 48.8 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | | 49.9 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | | 46.7 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | | 224 | ug/L | 1.50 | 5.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | | 50.9 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | | 49.2 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | | 47.6 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | | 49.7 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | | 270 | ug/L | 2.20 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-809** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202877852** | | | | |
| **Client Sample:** | **QC for batch 1302540** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1302540** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302540** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/17/2013 07:40** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/17/2013 07:40** | | | | |
| **Data File:** | **051713V9\9M504L3.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 142-28-9 | 1,3-Dichloropropane | | 46.9 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | | 49.5 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | | 50.5 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | | 46.7 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | | 47.1 | ug/L | 0.300 | 1.00 |
| 100-41-4 | Ethylbenzene | | 48.0 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | | 97.4 | ug/L | 0.300 | 2.00 |
| 95-47-6 | o-Xylene | | 49.8 | ug/L | 0.300 | 1.00 |
| 100-42-5 | Styrene | | 52.8 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | | 56.2 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | | 48.4 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | | 44.4 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | | 46.9 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | | 49.7 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | | 47.8 | ug/L | 0.300 | 1.00 |
| 98-82-8 | Isopropylbenzene | | 53.4 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | | 49.1 | ug/L | 0.300 | 1.00 |
| 106-43-4 | 4-Chlorotoluene | | 53.5 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | | 48.8 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | | 50.8 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | | 53.5 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | | 51.0 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | | 48.7 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | | 47.6 | ug/L | 0.300 | 1.00 |
| 104-51-8 | n-Butylbenzene | | 55.0 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | | 48.2 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | | 42.0 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | | 41.0 | ug/L | 0.400 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | | 39.8 | ug/L | 0.300 | 1.00 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-809** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202877852** | | | | |
| **Client Sample:** | **QC for batch 1302540** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1302540** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302540** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/17/2013 07:40** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/17/2013 07:40** | | | | |
| **Data File:** | **051713V9\9M504L3.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | | 45.9 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | | 41.9 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | | 46.0 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 46.2 | 50.0 | ug/L | 92.5 | (78%-124%) |
| Bromofluorobenzene | 52.4 | 50.0 | ug/L | 105 | (80%-120%) |
| Toluene-d8 | 48.4 | 50.0 | ug/L | 96.9 | (80%-120%) |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-809** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202877853** | | | | |
| **Client Sample:** | **QC for batch 1302540** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1302540** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302540** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/17/2013 09:01** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/17/2013 09:01** | | | | |
| **Data File:** | **051713V9\9M507L3.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 75-71-8 | Dichlorodifluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-01-4 | Vinyl chloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-83-9 | Bromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-64-1 | Acetone | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-05-8 | Acetonitrile | U | 25.0 | ug/L | 8.00 | 25.0 |
| 75-35-4 | 1,1-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | U | 10.0 | ug/L | 3.00 | 10.0 |
| 75-15-0 | Carbon disulfide | U | 5.00 | ug/L | 1.50 | 5.00 |
| 1634-04-4 | tert-Butyl methyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-05-4 | Vinyl acetate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-34-3 | 1,1-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | U | 5.00 | ug/L | 2.00 | 5.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-36-3 | n-Butyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 56-23-5 | Carbon tetrachloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-43-2 | Benzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | U | 5.00 | ug/L | 2.20 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-809** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202877853** | | | | |
| **Client Sample:** | **QC for batch 1302540** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1302540** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302540** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/17/2013 09:01** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/17/2013 09:01** | | | | |
| **Data File:** | **051713V9\9M507L3.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 142-28-9 | 1,3-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-41-4 | Ethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | U | 2.00 | ug/L | 0.300 | 2.00 |
| 95-47-6 | o-Xylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 100-42-5 | Styrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-82-8 | Isopropylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-43-4 | 4-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 104-51-8 | n-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.400 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-02-8 | Acrolein | | 208 | ug/L | 1.50 | 5.00 |
| 76-13-1 | Trichlorotrifluoroethane | | 238 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | | 229 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | | 218 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | | 39.9 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | | 218 | ug/L | 1.50 | 5.00 |
| 126-98-7 | Methacrylonitrile | | 221 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | | 2480 | ug/L | 15.0 | 50.0 |
| 80-62-6 | Methyl methacrylate | | 214 | ug/L | 1.50 | 5.00 |

# Volatile
## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-809** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202877853** | | | | |
| **Client Sample:** | **QC for batch 1302540** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1302540** | **Method:** | **SW846 8260B DOE-AL** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1302540** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **05/17/2013 09:01** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **05/17/2013 09:01** | | | | |
| **Data File:** | **051713V9\9M507L3.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 97-63-2 | Ethyl methacrylate | | 226 | ug/L | 1.50 | 5.00 |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 41.4 | 50.0 | ug/L | 82.7 | (78%-124%) |
| Bromofluorobenzene | 51.9 | 50.0 | ug/L | 104 | (80%-120%) |
| Toluene-d8 | 45.6 | 50.0 | ug/L | 91.2 | (80%-120%) |

# Miscellaneous

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 21-MAY-13 | Federal | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| VOA GC/MS | SW846 8260B DOE-AL | Liquid | ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1302540 | 325204001, 325285001, 1202877850, 1202877851 | | |

**Potentially affected work order(s)(SDG): 325204(2013-805),325284(2013-809),325285(2013-810),325394(2013-813),325410(2013-814)**

**Application Issues:**

Failed Recovery for Surrogate or Tracer

Failed RPD for MS/MSD, or PS/PSD

Sample received out of holding

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Sample 325204001 was received out of holding. | 1. The sample was analyzed "as received" and the data results were reported. |
| 2. Sample 325285001 did not meet the acceptable surrogate recovery criteria. | 2. The sample matrix for 325285001 was very "foamy"; therefore, this resulted in matrix interference which caused the biased high surrogate recoveries. Re-analysis confirmed the poor recoveries. The data results were narrated and reported. |
| 3. The MS 1202877850 and MSD 1202877851 had unacceptable %RPD values. | 3. Re-analysis confirmed the poor recoveries. The data results were narrated and reported. |

**Originator's Name:**

Ramona Yarbrough 29-MAY-13

**Data Validator/Group Leader:**

Erin Haubert 30-MAY-13

# Semi-Volatile Analysis

# Case Narrative

**Semi-Volatile Case Narrative**
**ARS International (ARSL)**
**SDG 2013-809**

## Method/Analysis Information

| | |
|---|---|
| **Procedure:** | **Analysis of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry** |
| Analytical Method: | SW846 8270C |
| Prep Method: | SW846 3510C |
| Analytical Batch Number: | 1300969 |
| Prep Batch Number: | 1300968 |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 8270C:

| Sample ID | Client ID |
|---|---|
| 325284005 | CAMO-13-30558 |
| 1202873988 | Method Blank (MB) |
| 1202873989 | Laboratory Control Sample (LCS) |
| 1202873990 | 325285001(WST55-13-32015) Matrix Spike (MS) |
| 1202873991 | 325285001(WST55-13-32015) Matrix Spike Duplicate (MSD) |

The samples in this SDG were analyzed on an "as received" basis.

## Preparation/Analytical Method Verification

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-009 REV# 30.

Raw data reports are processed and reviewed by the analyst using the data analysis software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP).

## Calibration Information

A complete list of the initial calibration data files are shown in the Calibration History report located in the Standard Data section of the data package. The various calibration mixes may not be calibrated using all of the calibration levels. In addition, not all of the mixes are calibrated using the same levels.

Diphenylamine has now superseded N-Nitroso-diphenylamine on Quantitation Reports, Initial Calibration Reports, Calibration Check Standard Reports, etc. Previous versions of EPA Methodologies referenced N-Nitroso-diphenylamine. However, as stated in EPA Methodology, "N-Nitroso-diphenylamine decomposes in the gas chromatographic inlet and cannot be separated from Diphenylamine." Studies of these two compounds at

GEL, both independent of each other and together, showed that they not only co-elute, but also have similar mass spectra. N-Nitroso-diphenylamine and Diphenylamine will be reported as Diphenylamine on all reports and forms.

**Initial Calibration**
All initial calibration requirements have been met for this sample delivery group (SDG) in this batch. A second source initial calibration verification (ICV) was included in the standard section directly behind the initial calibration.

**CCV Requirements**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG in this batch met the acceptance criteria.

**Surrogate Recoveries**
Samples 1202873990 (WST55-13-32015) and 1202873991 (WST55-13-32015) failed surrogate recovery limits. Please see the QC Summary/Spike Recovery Report for specific failures. The samples were analyzed at a dilution due to the presence of non-target analytes. As a result, some surrogates were diluted out of the acceptance criteria and the data results have been reported.

**Laboratory Control Sample (LCS) Recovery**
The LCS(1202873989) did not meet spike recovery limits for 4-Nitrophenol at 9% (limits: 16%-77%) and Atrazine at 31% (limits: 47%-115%). The 4-Nitrophenol and Atrazine failures represent less than 5% of the total requested spike analyte list. That satisfied the acceptance criteria for the client and the data results have been reported.

**QC Sample Designation**
Sample 325285001 (WST55-13-32015) was selected for analysis as the matrix spike and matrix spike duplicate.

**Matrix Spike (MS) Recovery Statement**
The MS, 1202873990 (WST55-13-32015), failed multiple spike recovery limits. Please see the QC Summary/Spike Recovery Report for specific failures. The samples were analyzed at a dilution due to the presence of non-target analytes. As a result, some spike analytes were diluted out of the acceptance criteria and the data results have been reported.

**Matrix Spike Duplicate (MSD) Recovery Statement**
The MSD, 1202873991 (WST55-13-32015), failed multiple spike recovery limits. Please see the QC Summary/Spike Recovery Report for specific failures. The samples were analyzed at a dilution due to the presence of non-target analytes. As a result, some spike analytes were diluted out of the acceptance criteria and the data results have been reported.

**MS/MSD Relative Percent Difference (RPD) Statement**
The RPD values between the MS and MSD met the acceptance limits.

**Internal Standard (ISTD) Acceptance**
Samples 1202873990 (WST55-13-32015) and 1202873991 (WST55-13-32015) failed ISTD acceptance criteria. As the MS and MSD displayed similar responses as the parent sample, the failures were attributed to sample matrix interference and the data results have been reported.

**Technical Information:**

**Holding Time Specifications**

All samples in this SDG in this batch met the specified holding time. GEL assigns holding times based on the associated methodology that assigns the date and time from sample collection or sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

**Preparation/Analytical Method Verification**
All procedures were performed as stated in the SOP. All reported compound mass spectra met the detection specifications in the method.

**Sample Dilutions**
Samples 1202873990 (WST55-13-32015) and 1202873991 (WST55-13-32015) were diluted due to the presence of non-target analytes. The data from the dilutions have been reported.

**Sample Re-extraction/Re-analysis**
Re-extractions or re-analyses were not required in this SDG in this analytical batch unless confirmations or dilutions were required.

**Miscellaneous Information:**

**Data Exception (DER) Documentation**
Data exception report 1185859 was generated for the samples in this batch for this SDG.

**Manual Integrations**
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations. Manual integrations, if any, are included with the raw data.

**TIC Comment**
Tentatively identified compounds (TIC) may be requested for samples 1202873988 (MB) and 325284005 (CAMO-13-30558) in this delivery group/work order. Please note that non-requested calibrated analytes detected in a client sample may be reported on the Form 1/Certificate of Analysis as TICs. TIC data, if requested, are included on the Sample Data Summary (Form 1) and are also included with the sample raw data.

**Additional Comments**
The additional comments field is used to address special issues associated with each analysis, clarify method/contractual issues pertaining to the analysis, and to list any report documents generated as a result of sample analysis or review. The following additional comments were required:

Due to rounding differences in the calculation, the data reported in the Surrogate Recovery Report may differ slightly from the raw data. Due to software issue, the raw data may not correctly display the updated SPC limits. Please see Sample Data Summary Report and Surrogate Recovery Report for the correct surrogate acceptance limits.

**Electronic Package Comment**

The following package was generated using an electronic data processing program referred to as "virtual packaging". In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from "traditional" packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative of each electronic package will indicate the reviewer name associated with the generation of the data and package. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**System Configuration**

The Semi-Volatile-GC/MS analysis was performed on the following instrument configuration:

| Instrument ID | Instrument | System Configuration | Column ID | Column Description |
|---|---|---|---|---|
| MSD4.I | Agilent 7890A/5975C GC/MS w/ 7683 Autosampler | HP6890/HP5973 | DB-5MS | 25m x 0.2mm, 0.33um (5% Phenylmethylpolysiloxane) |

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-809  GEL Work Order: 325284

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

**  Analyte is a surrogate compound

J  Value is estimated

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL  Indicates that sample is diluted.
RA  Indicates that sample is re-analyzed without re-extraction.
RE  Indicates that sample is re-extracted.

**Review/Validation**

GEL requires all analytical data to be verified by a qualified data reviewer.  In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

**Signature:** Barbara Bailey  **Name: Barbara Bailey**

**Date: 03 JUN 2013**  **Title: Data Validator**

# Sample Data Summary

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-809** | **Date Collected:** | **05/06/2013 14:36** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325284005** | **Date Received:** | **05/08/2013 08:55** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30558** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 19:50** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **950 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1317.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 62-75-9 | N-Methyl-N-nitrosomethylamine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 110-86-1 | Pyridine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 62-53-3 | Aniline | U | 10.5 | ug/L | 3.16 | 10.5 |
| 108-95-2 | Phenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 111-44-4 | bis(2-Chloroethyl) ether | U | 10.5 | ug/L | 3.16 | 10.5 |
| 95-57-8 | 2-Chlorophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 39638-32-9 | bis(2-Chloroisopropyl)ether | U | 10.5 | ug/L | 3.16 | 10.5 |
| 100-51-6 | Benzyl alcohol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 95-48-7 | o-Cresol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 65794-96-9 | m,p-Cresols | U | 10.5 | ug/L | 3.16 | 10.5 |
| 621-64-7 | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | U | 10.5 | ug/L | 3.16 | 10.5 |
| 67-72-1 | Hexachloroethane | U | 10.5 | ug/L | 3.16 | 10.5 |
| 98-95-3 | Nitrobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 78-59-1 | Isophorone | U | 10.5 | ug/L | 3.16 | 10.5 |
| 88-75-5 | 2-Nitrophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 105-67-9 | 2,4-Dimethylphenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 111-91-1 | bis(2-Chloroethoxy)methane | U | 10.5 | ug/L | 3.16 | 10.5 |
| 120-83-2 | 2,4-Dichlorophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 65-85-0 | Benzoic acid | U | 21.1 | ug/L | 6.32 | 21.1 |
| 106-47-8 | 4-Chloroaniline | U | 10.5 | ug/L | 3.47 | 10.5 |
| 87-68-3 | Hexachlorobutadiene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 59-50-7 | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | U | 10.5 | ug/L | 3.16 | 10.5 |
| 91-57-6 | 2-Methylnaphthalene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 91-20-3 | Naphthalene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 90-12-0 | 1-Methylnaphthalene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 77-47-4 | Hexachlorocyclopentadiene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 88-06-2 | 2,4,6-Trichlorophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 95-95-4 | 2,4,5-Trichlorophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 91-58-7 | 2-Chloronaphthalene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 88-74-4 | 2-Nitroaniline<br>*o-Nitroaniline* | U | 10.5 | ug/L | 3.16 | 10.5 |
| 99-09-2 | 3-Nitroaniline<br>*m-Nitroaniline* | U | 10.5 | ug/L | 3.16 | 10.5 |
| 131-11-3 | Dimethylphthalate | U | 10.5 | ug/L | 3.16 | 10.5 |
| 606-20-2 | 2,6-Dinitrotoluene | U | 10.5 | ug/L | 3.16 | 10.5 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-809** | **Date Collected:** | **05/06/2013 14:36** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325284005** | **Date Received:** | **05/08/2013 08:55** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30558** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 19:50** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **950 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1317.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 121-14-2 | 2,4-Dinitrotoluene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 208-96-8 | Acenaphthylene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 83-32-9 | Acenaphthene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 51-28-5 | 2,4-Dinitrophenol | U | 21.1 | ug/L | 5.26 | 21.1 |
| 132-64-9 | Dibenzofuran | U | 10.5 | ug/L | 3.16 | 10.5 |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 84-66-2 | Diethylphthalate | U | 10.5 | ug/L | 3.16 | 10.5 |
| 100-02-7 | 4-Nitrophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 86-73-7 | Fluorene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 7005-72-3 | 4-Chlorophenylphenylether | U | 10.5 | ug/L | 3.16 | 10.5 |
| 100-01-6 | 4-Nitroaniline | U | 10.5 | ug/L | 3.16 | 10.5 |
| | *p-Nitroaniline* | | | | | |
| 534-52-1 | 2-Methyl-4,6-dinitrophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 122-39-4 | Diphenylamine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 122-66-7 | Azobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| | *1,2-Diphenylhydrazine* | | | | | |
| 101-55-3 | 4-Bromophenylphenylether | U | 10.5 | ug/L | 3.16 | 10.5 |
| 118-74-1 | Hexachlorobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 87-86-5 | Pentachlorophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 88-85-7 | Dinoseb | U | 10.5 | ug/L | 3.16 | 10.5 |
| 85-01-8 | Phenanthrene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 120-12-7 | Anthracene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 84-74-2 | Di-n-butylphthalate | U | 10.5 | ug/L | 3.16 | 10.5 |
| 206-44-0 | Fluoranthene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 129-00-0 | Pyrene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 85-68-7 | Butylbenzylphthalate | U | 10.5 | ug/L | 3.16 | 10.5 |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | U | 10.5 | ug/L | 3.16 | 10.5 |
| 56-55-3 | Benzo(a)anthracene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 218-01-9 | Chrysene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 117-84-0 | Di-n-octylphthalate | U | 10.5 | ug/L | 3.16 | 10.5 |
| 205-99-2 | Benzo(b)fluoranthene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 207-08-9 | Benzo(k)fluoranthene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 50-32-8 | Benzo(a)pyrene | U | 1.05 | ug/L | 0.463 | 1.05 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 53-70-3 | Dibenzo(a,h)anthracene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 191-24-2 | Benzo(ghi)perylene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 123-91-1 | 1,4-Dioxane | U | 10.5 | ug/L | 3.16 | 10.5 |
| 55-18-5 | N-Nitrosodiethylamine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 930-55-2 | N-Nitrosopyrrolidine | U | 10.5 | ug/L | 3.16 | 10.5 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-809** | **Date Collected:** | **05/06/2013 14:36** | **Matrix:** | **W** |
| **Lab Sample ID:** | **325284005** | **Date Received:** | **05/08/2013 08:55** | | |
| | | **Client:** | **ARSL001** | **Project:** | **ESHL00210** |
| **Client ID:** | **CAMO-13-30558** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 19:50** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **950 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1317.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 924-16-3 | N-Nitrosodi-n-butylamine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 608-93-5 | Pentachlorobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 1912-24-9 | Atrazine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 92-87-5 | Benzidine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 91-94-1 | 3,3'-Dichlorobenzidine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 2,4,6-Tribromophenol | 64.6 | 105 | ug/L | 61.4 | (26%-129%) |
| 2-Fluorobiphenyl | 28.8 | 52.6 | ug/L | 54.7 | (32%-102%) |
| 2-Fluorophenol | 47.3 | 105 | ug/L | 45.0 | (10%-78%) |
| Nitrobenzene-d5 | 35.1 | 52.6 | ug/L | 66.7 | (36%-125%) |
| Phenol-d5 | 28.7 | 105 | ug/L | 27.3 | (10%-104%) |
| p-Terphenyl-d14 | 54.6 | 52.6 | ug/L | 104 | (34%-135%) |

**Tentatively Identified Compound Summary**

| CAS No. | Tentatively Identified Compound (TIC) | RT | Estimated | Units | Fit | Qual |
|---|---|---|---|---|---|---|
| | unknown | 2.022 | 31.5 | ug/L | 0 | J |
| | unknown | 23.834 | 5.42 | ug/L | 0 | J |

# Quality Control Summary

**Semi-Volatile**

## Surrogate Recovery Report

**SDG Number: 2013-809**

**Matrix Type: LIQUID**

| Sample ID | Client ID | 2FP %REC | | PHL %REC | | NBZ %REC | | FBP %REC | | TBP %REC | | TPH %REC | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1202873988 | MB for batch 1300968 | 44 | | 26 | | 67 | | 38 | | 61 | | 104 | |
| 1202873989 | LCS for batch 1300968 | 38 | | 25 | | 61 | | 51 | | 66 | | 75 | |
| 325284005 | CAMO-13-30558 | 45 | | 27 | | 67 | | 55 | | 61 | | 104 | |
| 1202873990 | WST55-13-32015MS | 0 * | D | 0 * | D | 32 * | D | 34 | D | 0 * | D | 60 | D |
| 1202873991 | WST55-13-32015MSD | 0 * | D | 0 * | D | 30 * | D | 30 * | D | 0 * | D | 51 | D |

| Surrogate | | | Acceptance Limits |
|---|---|---|---|
| 2FP | = | 2-Fluorophenol | (10%-78%) |
| PHL | = | Phenol-d5 | (10%-104%) |
| NBZ | = | Nitrobenzene-d5 | (36%-125%) |
| FBP | = | 2-Fluorobiphenyl | (32%-102%) |
| TBP | = | 2,4,6-Tribromophenol | (26%-129%) |
| TPH | = | p-Terphenyl-d14 | (34%-135%) |

* Recovery outside Acceptance Limits

\# Column to be used to flag recovery values

D Sample Diluted

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-809**
**Client ID:** **LCS for batch 1300968**
**Lab Sample ID:** **1202873989**
**Instrument:** **MSD4.I**
**Analyst:** **JMB3**
**Inj. Vol:** **1 uL**

**Sample Type:** **Laboratory Control Sample**
**Matrix:** **WATER**
**Analysis Date:** **05/13/2013 19:20**
**Prep Batch ID:** **1300968**
**Batch ID:** **1300969**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 62-75-9 | LCS | N-Methyl-N-nitrosomethylam | 50.0 | 0.0 | 17.7 | 35 | 18-75 |
| 110-86-1 | LCS | Pyridine | 50.0 | 0.0 | 25.5 | 51 | 11-88 |
| 62-53-3 | LCS | Aniline | 50.0 | 0.0 | 35.3 | 71 | 35-107 |
| 108-95-2 | LCS | Phenol | 50.0 | 0.0 | 12.2 | 24 | 13-77 |
| 111-44-4 | LCS | bis(2-Chloroethyl) ether | 50.0 | 0.0 | 27.8 | 56 | 35-111 |
| 95-57-8 | LCS | 2-Chlorophenol | 50.0 | 0.0 | 30.3 | 61 | 39-99 |
| 541-73-1 | LCS | 1,3-Dichlorobenzene | 50.0 | 0.0 | 26.9 | 54 | 25-100 |
| 106-46-7 | LCS | 1,4-Dichlorobenzene | 50.0 | 0.0 | 25.7 | 51 | 24-88 |
| 95-50-1 | LCS | 1,2-Dichlorobenzene | 50.0 | 0.0 | 25.8 | 52 | 27-87 |
| 39638-32-9 | LCS | bis(2-Chloroisopropyl)ether | 50.0 | 0.0 | 30.8 | 62 | 23-120 |
| 100-51-6 | LCS | Benzyl alcohol | 50.0 | 0.0 | 28.8 | 58 | 33-90 |
| 95-48-7 | LCS | o-Cresol | 50.0 | 0.0 | 27.2 | 54 | 32-90 |
| 65794-96-9 | LCS | m,p-Cresols | 50.0 | 0.0 | 29.8 | 60 | 28-100 |
| 621-64-7 | LCS | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | 50.0 | 0.0 | 35.9 | 72 | 39-113 |
| 67-72-1 | LCS | Hexachloroethane | 50.0 | 0.0 | 26.0 | 52 | 20-85 |
| 98-95-3 | LCS | Nitrobenzene | 50.0 | 0.0 | 30.2 | 60 | 41-119 |
| 78-59-1 | LCS | Isophorone | 50.0 | 0.0 | 33.9 | 68 | 49-133 |
| 88-75-5 | LCS | 2-Nitrophenol | 50.0 | 0.0 | 29.8 | 60 | 42-111 |
| 105-67-9 | LCS | 2,4-Dimethylphenol | 50.0 | 0.0 | 34.9 | 70 | 43-99 |
| 111-91-1 | LCS | bis(2-Chloroethoxy)methane | 50.0 | 0.0 | 34.6 | 69 | 44-109 |
| 120-83-2 | LCS | 2,4-Dichlorophenol | 50.0 | 0.0 | 32.1 | 64 | 45-106 |
| 65-85-0 | LCS | Benzoic acid | 100 | 0.0 | 21.4 | 21 | 10-81 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-809**
**Client ID:** **LCS for batch 1300968**
**Lab Sample ID:** **1202873989**
**Instrument:** **MSD4.I**
**Analyst:** **JMB3**
**Inj. Vol:** **1 uL**

**Sample Type:** **Laboratory Control Sample**
**Matrix:** **WATER**
**Analysis Date:** **05/13/2013 19:20**
**Prep Batch ID:** **1300968**
**Batch ID:** **1300969**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 106-47-8 | LCS | 4-Chloroaniline | 50.0 | 0.0 | 40.1 | 80 | 50-122 |
| 87-68-3 | LCS | Hexachlorobutadiene | 50.0 | 0.0 | 25.9 | 52 | 19-92 |
| 59-50-7 | LCS | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | 50.0 | 0.0 | 32.5 | 65 | 46-111 |
| 91-57-6 | LCS | 2-Methylnaphthalene | 50.0 | 0.0 | 25.8 | 52 | 33-102 |
| 91-20-3 | LCS | Naphthalene | 50.0 | 0.0 | 28.5 | 57 | 31-98 |
| 90-12-0 | LCS | 1-Methylnaphthalene | 50.0 | 0.0 | 25.2 | 50 | 35-106 |
| 77-47-4 | LCS | Hexachlorocyclopentadiene | 50.0 | 0.0 | 15.5 | 31 | 15-72 |
| 88-06-2 | LCS | 2,4,6-Trichlorophenol | 50.0 | 0.0 | 30.2 | 60 | 41-109 |
| 95-95-4 | LCS | 2,4,5-Trichlorophenol | 50.0 | 0.0 | 34.1 | 68 | 41-111 |
| 91-58-7 | LCS | 2-Chloronaphthalene | 50.0 | 0.0 | 27.6 | 55 | 36-98 |
| 88-74-4 | LCS | 2-Nitroaniline<br>*o-Nitroaniline* | 50.0 | 0.0 | 39.4 | 79 | 44-117 |
| 99-09-2 | LCS | 3-Nitroaniline<br>*m-Nitroaniline* | 50.0 | 0.0 | 37.3 | 75 | 45-124 |
| 131-11-3 | LCS | Dimethylphthalate | 50.0 | 0.0 | 35.1 | 70 | 53-112 |
| 606-20-2 | LCS | 2,6-Dinitrotoluene | 50.0 | 0.0 | 34.7 | 69 | 52-117 |
| 121-14-2 | LCS | 2,4-Dinitrotoluene | 50.0 | 0.0 | 38.9 | 78 | 45-124 |
| 208-96-8 | LCS | Acenaphthylene | 50.0 | 0.0 | 28.0 | 56 | 37-107 |
| 83-32-9 | LCS | Acenaphthene | 50.0 | 0.0 | 25.3 | 51 | 40-104 |
| 51-28-5 | LCS | 2,4-Dinitrophenol | 50.0 | 0.0 | 13.9 | 28 | 19-110 |
| 132-64-9 | LCS | Dibenzofuran | 50.0 | 0.0 | 31.4 | 63 | 45-107 |
| 58-90-2 | LCS | 2,3,4,6-Tetrachlorophenol | 50.0 | 0.0 | 37.3 | 75 | 45-120 |
| 84-66-2 | LCS | Diethylphthalate | 50.0 | 0.0 | 38.4 | 77 | 51-116 |
| 100-02-7 | LCS | 4-Nitrophenol | 50.0 | 0.0 | 4.72 | 9 * | 16-77 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-809**
**Client ID:** **LCS for batch 1300968**
**Lab Sample ID:** **1202873989**
**Instrument:** **MSD4.I**
**Analyst:** **JMB3**
**Inj. Vol:** **1 uL**

**Sample Type:** **Laboratory Control Sample**
**Matrix:** **WATER**
**Analysis Date:** **05/13/2013 19:20**
**Prep Batch ID:** **1300968**
**Batch ID:** **1300969**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 86-73-7 | LCS | Fluorene | 50.0 | 0.0 | 33.2 | 66 | 43-110 |
| 7005-72-3 | LCS | 4-Chlorophenylphenylether | 50.0 | 0.0 | 32.1 | 64 | 40-114 |
| 100-01-6 | LCS | 4-Nitroaniline<br>*p-Nitroaniline* | 50.0 | 0.0 | 44.9 | 90 | 38-133 |
| 534-52-1 | LCS | 2-Methyl-4,6-dinitrophenol | 50.0 | 0.0 | 36.3 | 73 | 34-114 |
| 122-39-4 | LCS | Diphenylamine | 50.0 | 0.0 | 40.9 | 82 | 47-111 |
| 122-66-7 | LCS | Azobenzene<br>*1,2-Diphenylhydrazine* | 50.0 | 0.0 | 36.4 | 73 | 40-112 |
| 101-55-3 | LCS | 4-Bromophenylphenylether | 50.0 | 0.0 | 32.7 | 65 | 41-113 |
| 118-74-1 | LCS | Hexachlorobenzene | 50.0 | 0.0 | 33.5 | 67 | 43-116 |
| 87-86-5 | LCS | Pentachlorophenol | 50.0 | 0.0 | 21.4 | 43 | 27-102 |
| 85-01-8 | LCS | Phenanthrene | 50.0 | 0.0 | 32.0 | 64 | 47-111 |
| 120-12-7 | LCS | Anthracene | 50.0 | 0.0 | 35.0 | 70 | 46-110 |
| 84-74-2 | LCS | Di-n-butylphthalate | 50.0 | 0.0 | 34.9 | 70 | 49-116 |
| 206-44-0 | LCS | Fluoranthene | 50.0 | 0.0 | 33.4 | 67 | 45-118 |
| 129-00-0 | LCS | Pyrene | 50.0 | 0.0 | 29.6 | 59 | 38-127 |
| 85-68-7 | LCS | Butylbenzylphthalate | 50.0 | 0.0 | 29.6 | 59 | 40-122 |
| 117-81-7 | LCS | bis(2-Ethylhexyl)phthalate | 50.0 | 0.0 | 30.0 | 60 | 37-124 |
| 56-55-3 | LCS | Benzo(a)anthracene | 50.0 | 0.0 | 32.4 | 65 | 49-111 |
| 218-01-9 | LCS | Chrysene | 50.0 | 0.0 | 32.6 | 65 | 44-117 |
| 117-84-0 | LCS | Di-n-octylphthalate | 50.0 | 0.0 | 25.4 | 51 | 33-122 |
| 205-99-2 | LCS | Benzo(b)fluoranthene | 50.0 | 0.0 | 33.8 | 68 | 47-117 |
| 207-08-9 | LCS | Benzo(k)fluoranthene | 50.0 | 0.0 | 36.4 | 73 | 46-119 |
| 50-32-8 | LCS | Benzo(a)pyrene | 50.0 | 0.0 | 31.1 | 62 | 47-110 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-809**
**Client ID:** **LCS for batch 1300968**
**Lab Sample ID:** **1202873989**
**Instrument:** **MSD4.I**
**Analyst:** **JMB3**
**Inj. Vol:** **1 uL**

**Sample Type:** **Laboratory Control Sample**
**Matrix:** **WATER**
**Analysis Date:** **05/13/2013 19:20**
**Prep Batch ID:** **1300968**
**Batch ID:** **1300969**
**Dilution: 1**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| 193-39-5 | LCS | Indeno(1,2,3-cd)pyrene | 50.0 | 0.0 | 28.0 | 56 | 37-125 |
| 53-70-3 | LCS | Dibenzo(a,h)anthracene | 50.0 | 0.0 | 30.4 | 61 | 36-125 |
| 191-24-2 | LCS | Benzo(ghi)perylene | 50.0 | 0.0 | 29.4 | 59 | 33-126 |
| 123-91-1 | LCS | 1,4-Dioxane | 50.0 | 0.0 | 19.4 | 39 | 26-73 |
| 930-55-2 | LCS | N-Nitrosopyrrolidine | 50.0 | 0.0 | 33.9 | 68 | 42-106 |
| 95-94-3 | LCS | 1,2,4,5-Tetrachlorobenzene | 50.0 | 0.0 | 24.0 | 48 | 36-95 |
| 1912-24-9 | LCS | Atrazine | 50.0 | 0.0 | 15.6 | 31 * | 47-115 |
| 92-87-5 | LCS | Benzidine | 100 | 0.0 | 80.6 | 81 | 10-124 |
| 91-94-1 | LCS | 3,3'-Dichlorobenzidine | 50.0 | 0.0 | 31.6 | 63 | 31-113 |
| 120-82-1 | LCS | 1,2,4-Trichlorobenzene | 50.0 | 0.0 | 26.3 | 53 | 26-92 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-809** **Sample Type:** **Matrix Spike**

**Client ID:** **WST55-13-32015MS** **Matrix:** **W**

**Lab Sample ID:** **1202873990**

**Instrument:** **MSD4.I** **Analysis Date:** **05/14/2013 00:47** **Dilution: 20**

**Analyst:** **JMB3** **Prep Batch ID:** **1300968**

**Inj. Vol:** **1 uL** **Batch ID:** **1300969**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 62-75-9 | MS | N-Methyl-N-nitrosomethylam | 116 | 0.00 | U | 0.00 | 0 * | 21-88 |
| 110-86-1 | MS | Pyridine | 116 | 0.00 | U | 0.00 | 0 * | 14-94 |
| 62-53-3 | MS | Aniline | 116 | 0.00 | U | 0.00 | 0 * | 24-109 |
| 108-95-2 | MS | Phenol | 116 | 0.00 | U | 0.00 | 0 * | 10-88 |
| 111-44-4 | MS | bis(2-Chloroethyl) ether | 116 | 0.00 | U | 0.00 | 0 * | 25-114 |
| 95-57-8 | MS | 2-Chlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 31-103 |
| 541-73-1 | MS | 1,3-Dichlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 18-83 |
| 106-46-7 | MS | 1,4-Dichlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 20-86 |
| 95-50-1 | MS | 1,2-Dichlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 21-85 |
| 39638-32-9 | MS | bis(2-Chloroisopropyl)ether | 116 | 0.00 | U | 0.00 | 0 * | 16-121 |
| 100-51-6 | MS | Benzyl alcohol | 116 | 0.00 | U | 0.00 | 0 * | 31-100 |
| 95-48-7 | MS | o-Cresol | 116 | 0.00 | U | 0.00 | 0 * | 26-97 |
| 65794-96-9 | MS | m,p-Cresols | 116 | 0.00 | U | 0.00 | 0 * | 24-110 |
| 621-64-7 | MS | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | 116 | 0.00 | U | 0.00 | 0 * | 29-116 |
| 67-72-1 | MS | Hexachloroethane | 116 | 0.00 | U | 0.00 | 0 * | 17-82 |
| 98-95-3 | MS | Nitrobenzene | 116 | 0.00 | U | 0.00 | 0 * | 32-126 |
| 78-59-1 | MS | Isophorone | 116 | 0.00 | U | 0.00 | 0 * | 36-139 |
| 88-75-5 | MS | 2-Nitrophenol | 116 | 0.00 | U | 0.00 | 0 * | 29-117 |
| 105-67-9 | MS | 2,4-Dimethylphenol | 116 | 0.00 | U | 0.00 | 0 * | 28-107 |
| 111-91-1 | MS | bis(2-Chloroethoxy)methane | 116 | 0.00 | U | 0.00 | 0 * | 34-112 |
| 120-83-2 | MS | 2,4-Dichlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 34-111 |
| 65-85-0 | MS | Benzoic acid | 233 | 0.00 | U | 0.00 | 0 * | 10-105 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-809** **Sample Type:** **Matrix Spike**

**Client ID:** **WST55-13-32015MS** **Matrix:** **W**

**Lab Sample ID:** **1202873990**

**Instrument:** **MSD4.I** **Analysis Date:** **05/14/2013 00:47** **Dilution: 20**

**Analyst:** **JMB3** **Prep Batch ID:** **1300968**

**Inj. Vol:** **1 uL** **Batch ID:** **1300969**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 106-47-8 | MS | 4-Chloroaniline | 116 | 0.00 | U | 0.00 | 0 * | 28-123 |
| 87-68-3 | MS | Hexachlorobutadiene | 116 | 0.00 | U | 0.00 | 0 * | 11-97 |
| 59-50-7 | MS | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | 116 | 0.00 | U | 0.00 | 0 * | 31-119 |
| 91-57-6 | MS | 2-Methylnaphthalene | 116 | 0.00 | U | 47.9 | 41 | 26-103 |
| 91-20-3 | MS | Naphthalene | 116 | 0.00 | U | 41.9 | 36 | 25-100 |
| 90-12-0 | MS | 1-Methylnaphthalene | 116 | 0.00 | U | 46.5 | 40 | 27-107 |
| 77-47-4 | MS | Hexachlorocyclopentadiene | 116 | 0.00 | U | 0.00 | 0 * | 14-73 |
| 88-06-2 | MS | 2,4,6-Trichlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 31-113 |
| 95-95-4 | MS | 2,4,5-Trichlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 30-117 |
| 91-58-7 | MS | 2-Chloronaphthalene | 116 | 0.00 | U | 43.7 | 38 | 30-97 |
| 88-74-4 | MS | 2-Nitroaniline<br>*o-Nitroaniline* | 116 | 0.00 | U | 0.00 | 0 * | 28-122 |
| 99-09-2 | MS | 3-Nitroaniline<br>*m-Nitroaniline* | 116 | 0.00 | U | 0.00 | 0 * | 29-125 |
| 131-11-3 | MS | Dimethylphthalate | 116 | 0.00 | U | 0.00 | 0 * | 41-116 |
| 606-20-2 | MS | 2,6-Dinitrotoluene | 116 | 0.00 | U | 0.00 | 0 * | 40-123 |
| 121-14-2 | MS | 2,4-Dinitrotoluene | 116 | 0.00 | U | 0.00 | 0 * | 34-126 |
| 208-96-8 | MS | Acenaphthylene | 116 | 0.00 | U | 43.7 | 38 | 33-104 |
| 83-32-9 | MS | Acenaphthene | 116 | 0.00 | U | 44.2 | 38 | 31-103 |
| 51-28-5 | MS | 2,4-Dinitrophenol | 116 | 0.00 | U | 0.00 | 0 * | 17-110 |
| 132-64-9 | MS | Dibenzofuran | 116 | 0.00 | U | 0.00 | 0 * | 36-107 |
| 58-90-2 | MS | 2,3,4,6-Tetrachlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 29-126 |
| 84-66-2 | MS | Diethylphthalate | 116 | 0.00 | U | 0.00 | 0 * | 41-117 |
| 100-02-7 | MS | 4-Nitrophenol | 116 | 0.00 | U | 0.00 | 0 * | 16-71 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-809** **Sample Type:** **Matrix Spike**

**Client ID:** **WST55-13-32015MS** **Matrix:** **W**

**Lab Sample ID:** **1202873990**

**Instrument:** **MSD4.I** **Analysis Date:** **05/14/2013 00:47** **Dilution: 20**

**Analyst:** **JMB3** **Prep Batch ID:** **1300968**

**Inj. Vol:** **1 uL** **Batch ID:** **1300969**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 86-73-7 | MS | Fluorene | 116 | 0.00 | U | 43.7 | 38 | 32-111 |
| 7005-72-3 | MS | 4-Chlorophenylphenylether | 116 | 0.00 | U | 0.00 | 0 * | 30-112 |
| 100-01-6 | MS | 4-Nitroaniline<br>*p-Nitroaniline* | 116 | 0.00 | U | 0.00 | 0 * | 25-133 |
| 534-52-1 | MS | 2-Methyl-4,6-dinitrophenol | 116 | 0.00 | U | 0.00 | 0 * | 22-118 |
| 122-39-4 | MS | Diphenylamine | 116 | 0.00 | U | 0.00 | 0 * | 34-111 |
| 122-66-7 | MS | Azobenzene<br>*1,2-Diphenylhydrazine* | 116 | 0.00 | U | 0.00 | 0 * | 30-112 |
| 101-55-3 | MS | 4-Bromophenylphenylether | 116 | 0.00 | U | 0.00 | 0 * | 32-111 |
| 118-74-1 | MS | Hexachlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 33-115 |
| 87-86-5 | MS | Pentachlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 19-112 |
| 85-01-8 | MS | Phenanthrene | 116 | 0.00 | U | 44.2 | 38 | 34-112 |
| 120-12-7 | MS | Anthracene | 116 | 0.00 | U | 42.3 | 36 | 33-108 |
| 84-74-2 | MS | Di-n-butylphthalate | 116 | 0.00 | U | 0.00 | 0 * | 35-118 |
| 206-44-0 | MS | Fluoranthene | 116 | 0.00 | U | 39.5 | 34 | 31-118 |
| 129-00-0 | MS | Pyrene | 116 | 0.00 | U | 53.0 | 46 | 27-126 |
| 85-68-7 | MS | Butylbenzylphthalate | 116 | 0.00 | U | 0.00 | 0 * | 29-121 |
| 117-81-7 | MS | bis(2-Ethylhexyl)phthalate | 116 | 0.00 | U | 0.00 | 0 * | 29-120 |
| 56-55-3 | MS | Benzo(a)anthracene | 116 | 0.00 | U | 42.3 | 36 | 35-112 |
| 218-01-9 | MS | Chrysene | 116 | 0.00 | U | 41.9 | 36 | 32-116 |
| 117-84-0 | MS | Di-n-octylphthalate | 116 | 0.00 | U | 0.00 | 0 * | 25-118 |
| 205-99-2 | MS | Benzo(b)fluoranthene | 116 | 0.00 | U | 50.7 | 44 | 34-116 |
| 207-08-9 | MS | Benzo(k)fluoranthene | 116 | 0.00 | U | 52.1 | 45 | 34-119 |
| 50-32-8 | MS | Benzo(a)pyrene | 116 | 0.00 | U | 36.7 | 32 * | 34-110 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-809**
**Client ID:** **WST55-13-32015MS**
**Lab Sample ID:** **1202873990**
**Instrument:** **MSD4.I**
**Analyst:** **JMB3**
**Inj. Vol:** **1 uL**

**Sample Type:** **Matrix Spike**
**Matrix:** **W**
**Analysis Date:** **05/14/2013 00:47**
**Prep Batch ID:** **1300968**
**Batch ID:** **1300969**
**Dilution: 20**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|
| 193-39-5 | MS | Indeno(1,2,3-cd)pyrene | 116 | 0.00 | U | 23.7 | 20 * | 25-122 |
| 53-70-3 | MS | Dibenzo(a,h)anthracene | 116 | 0.00 | U | 23.7 | 20 * | 24-123 |
| 191-24-2 | MS | Benzo(ghi)perylene | 116 | 0.00 | U | 24.7 | 21 * | 22-122 |
| 123-91-1 | MS | 1,4-Dioxane | 116 | 0.00 | U | 0.00 | 0 * | 26-88 |
| 930-55-2 | MS | N-Nitrosopyrrolidine | 116 | 0.00 | U | 0.00 | 0 * | 42-110 |
| 95-94-3 | MS | 1,2,4,5-Tetrachlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 29-96 |
| 1912-24-9 | MS | Atrazine | 116 | 0.00 | U | 0.00 | 0 * | 33-121 |
| 92-87-5 | MS | Benzidine | 233 | 0.00 | U | 0.00 | 0 * | 10-117 |
| 91-94-1 | MS | 3,3'-Dichlorobenzidine | 116 | 0.00 | U | 0.00 | 0 * | 22-111 |
| 120-82-1 | MS | 1,2,4-Trichlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 20-90 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-809** **Sample Type:** **Matrix Spike Duplicate**

**Client ID:** **WST55-13-32015MSD** **Matrix:** **W**

**Lab Sample ID:** **1202873991**

**Instrument:** **MSD4.I** **Analysis Date:** **05/14/2013 01:17** **Dilution: 20**

**Analyst:** **JMB3** **Prep Batch ID:** **1300968**

**Inj. Vol:** **1 uL** **Batch ID:** **1300969**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 62-75-9 | MSD | N-Methyl-N-nitrosomethylam | 116 | 0.00 | U | 0.00 | 0 * | 21-88 | 0 | 0-30 |
| 110-86-1 | MSD | Pyridine | 116 | 0.00 | U | 0.00 | 0 * | 14-94 | 0 | 0-30 |
| 62-53-3 | MSD | Aniline | 116 | 0.00 | U | 0.00 | 0 * | 24-109 | 0 | 0-30 |
| 108-95-2 | MSD | Phenol | 116 | 0.00 | U | 0.00 | 0 * | 10-88 | 0 | 0-30 |
| 111-44-4 | MSD | bis(2-Chloroethyl) ether | 116 | 0.00 | U | 0.00 | 0 * | 25-114 | 0 | 0-30 |
| 95-57-8 | MSD | 2-Chlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 31-103 | 0 | 0-30 |
| 541-73-1 | MSD | 1,3-Dichlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 18-83 | 0 | 0-30 |
| 106-46-7 | MSD | 1,4-Dichlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 20-86 | 0 | 0-30 |
| 95-50-1 | MSD | 1,2-Dichlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 21-85 | 0 | 0-30 |
| 39638-32-9 | MSD | bis(2-Chloroisopropyl)ether | 116 | 0.00 | U | 0.00 | 0 * | 16-121 | 0 | 0-30 |
| 100-51-6 | MSD | Benzyl alcohol | 116 | 0.00 | U | 0.00 | 0 * | 31-100 | 0 | 0-30 |
| 95-48-7 | MSD | o-Cresol | 116 | 0.00 | U | 0.00 | 0 * | 26-97 | 0 | 0-30 |
| 65794-96-9 | MSD | m,p-Cresols | 116 | 0.00 | U | 0.00 | 0 * | 24-110 | 0 | 0-30 |
| 621-64-7 | MSD | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | 116 | 0.00 | U | 0.00 | 0 * | 29-116 | 0 | 0-30 |
| 67-72-1 | MSD | Hexachloroethane | 116 | 0.00 | U | 0.00 | 0 * | 17-82 | 0 | 0-30 |
| 98-95-3 | MSD | Nitrobenzene | 116 | 0.00 | U | 0.00 | 0 * | 32-126 | 0 | 0-30 |
| 78-59-1 | MSD | Isophorone | 116 | 0.00 | U | 0.00 | 0 * | 36-139 | 0 | 0-30 |
| 88-75-5 | MSD | 2-Nitrophenol | 116 | 0.00 | U | 0.00 | 0 * | 29-117 | 0 | 0-30 |
| 105-67-9 | MSD | 2,4-Dimethylphenol | 116 | 0.00 | U | 0.00 | 0 * | 28-107 | 0 | 0-30 |
| 111-91-1 | MSD | bis(2-Chloroethoxy)methane | 116 | 0.00 | U | 0.00 | 0 * | 34-112 | 0 | 0-30 |
| 120-83-2 | MSD | 2,4-Dichlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 34-111 | 0 | 0-30 |
| 65-85-0 | MSD | Benzoic acid | 233 | 0.00 | U | 0.00 | 0 * | 10-105 | 0 | 0-30 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-809**
**Client ID:** **WST55-13-32015MSD**
**Lab Sample ID:** **1202873991**
**Instrument:** **MSD4.I**
**Analyst:** **JMB3**
**Inj. Vol:** **1 uL**

**Sample Type:** **Matrix Spike Duplicate**
**Matrix:** **W**
**Analysis Date:** **05/14/2013 01:17**
**Prep Batch ID:** **1300968**
**Batch ID:** **1300969**
**Dilution:** **20**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 106-47-8 | MSD | 4-Chloroaniline | 116 | 0.00 | U | 0.00 | 0 * | 28-123 | 0 | 0-30 |
| 87-68-3 | MSD | Hexachlorobutadiene | 116 | 0.00 | U | 0.00 | 0 * | 11-97 | 0 | 0-30 |
| 59-50-7 | MSD | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | 116 | 0.00 | U | 0.00 | 0 * | 31-119 | 0 | 0-30 |
| 91-57-6 | MSD | 2-Methylnaphthalene | 116 | 0.00 | U | 45.1 | 39 | 26-103 | 6 | 0-30 |
| 91-20-3 | MSD | Naphthalene | 116 | 0.00 | U | 40.9 | 35 | 25-100 | 2 | 0-30 |
| 90-12-0 | MSD | 1-Methylnaphthalene | 116 | 0.00 | U | 41.9 | 36 | 27-107 | 11 | 0-30 |
| 77-47-4 | MSD | Hexachlorocyclopentadiene | 116 | 0.00 | U | 0.00 | 0 * | 14-73 | 0 | 0-30 |
| 88-06-2 | MSD | 2,4,6-Trichlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 31-113 | 0 | 0-30 |
| 95-95-4 | MSD | 2,4,5-Trichlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 30-117 | 0 | 0-30 |
| 91-58-7 | MSD | 2-Chloronaphthalene | 116 | 0.00 | U | 42.3 | 36 | 30-97 | 3 | 0-30 |
| 88-74-4 | MSD | 2-Nitroaniline<br>*o-Nitroaniline* | 116 | 0.00 | U | 0.00 | 0 * | 28-122 | 0 | 0-30 |
| 99-09-2 | MSD | 3-Nitroaniline<br>*m-Nitroaniline* | 116 | 0.00 | U | 0.00 | 0 * | 29-125 | 0 | 0-30 |
| 131-11-3 | MSD | Dimethylphthalate | 116 | 0.00 | U | 0.00 | 0 * | 41-116 | 0 | 0-30 |
| 606-20-2 | MSD | 2,6-Dinitrotoluene | 116 | 0.00 | U | 0.00 | 0 * | 40-123 | 0 | 0-30 |
| 121-14-2 | MSD | 2,4-Dinitrotoluene | 116 | 0.00 | U | 0.00 | 0 * | 34-126 | 0 | 0-30 |
| 208-96-8 | MSD | Acenaphthylene | 116 | 0.00 | U | 44.2 | 38 | 33-104 | 1 | 0-30 |
| 83-32-9 | MSD | Acenaphthene | 116 | 0.00 | U | 42.3 | 36 | 31-103 | 4 | 0-30 |
| 51-28-5 | MSD | 2,4-Dinitrophenol | 116 | 0.00 | U | 0.00 | 0 * | 17-110 | 0 | 0-30 |
| 132-64-9 | MSD | Dibenzofuran | 116 | 0.00 | U | 0.00 | 0 * | 36-107 | 0 | 0-30 |
| 58-90-2 | MSD | 2,3,4,6-Tetrachlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 29-126 | 0 | 0-30 |
| 84-66-2 | MSD | Diethylphthalate | 116 | 0.00 | U | 0.00 | 0 * | 41-117 | 0 | 0-30 |
| 100-02-7 | MSD | 4-Nitrophenol | 116 | 0.00 | U | 0.00 | 0 * | 16-71 | 0 | 0-30 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-809** **Sample Type:** **Matrix Spike Duplicate**

**Client ID:** **WST55-13-32015MSD** **Matrix:** **W**

**Lab Sample ID:** **1202873991**

**Instrument:** **MSD4.I** **Analysis Date:** **05/14/2013 01:17** **Dilution: 20**

**Analyst:** **JMB3** **Prep Batch ID:** **1300968**

**Inj. Vol:** **1 uL** **Batch ID:** **1300969**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 86-73-7 | MSD | Fluorene | 116 | 0.00 | U | 41.9 | 36 | 32-111 | 4 | 0-30 |
| 7005-72-3 | MSD | 4-Chlorophenylphenylether | 116 | 0.00 | U | 0.00 | 0 * | 30-112 | 0 | 0-30 |
| 100-01-6 | MSD | 4-Nitroaniline<br>*p-Nitroaniline* | 116 | 0.00 | U | 0.00 | 0 * | 25-133 | 0 | 0-30 |
| 534-52-1 | MSD | 2-Methyl-4,6-dinitrophenol | 116 | 0.00 | U | 0.00 | 0 * | 22-118 | 0 | 0-30 |
| 122-39-4 | MSD | Diphenylamine | 116 | 0.00 | U | 0.00 | 0 * | 34-111 | 0 | 0-30 |
| 122-66-7 | MSD | Azobenzene<br>*1,2-Diphenylhydrazine* | 116 | 0.00 | U | 0.00 | 0 * | 30-112 | 0 | 0-30 |
| 101-55-3 | MSD | 4-Bromophenylphenylether | 116 | 0.00 | U | 0.00 | 0 * | 32-111 | 0 | 0-30 |
| 118-74-1 | MSD | Hexachlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 33-115 | 0 | 0-30 |
| 87-86-5 | MSD | Pentachlorophenol | 116 | 0.00 | U | 0.00 | 0 * | 19-112 | 0 | 0-30 |
| 85-01-8 | MSD | Phenanthrene | 116 | 0.00 | U | 42.3 | 36 | 34-112 | 4 | 0-30 |
| 120-12-7 | MSD | Anthracene | 116 | 0.00 | U | 41.4 | 36 | 33-108 | 2 | 0-30 |
| 84-74-2 | MSD | Di-n-butylphthalate | 116 | 0.00 | U | 0.00 | 0 * | 35-118 | 0 | 0-30 |
| 206-44-0 | MSD | Fluoranthene | 116 | 0.00 | U | 40.9 | 35 | 31-118 | 3 | 0-30 |
| 129-00-0 | MSD | Pyrene | 116 | 0.00 | U | 44.7 | 38 | 27-126 | 17 | 0-30 |
| 85-68-7 | MSD | Butylbenzylphthalate | 116 | 0.00 | U | 0.00 | 0 * | 29-121 | 0 | 0-30 |
| 117-81-7 | MSD | bis(2-Ethylhexyl)phthalate | 116 | 0.00 | U | 0.00 | 0 * | 29-120 | 0 | 0-30 |
| 56-55-3 | MSD | Benzo(a)anthracene | 116 | 0.00 | U | 41.9 | 36 | 35-112 | 1 | 0-30 |
| 218-01-9 | MSD | Chrysene | 116 | 0.00 | U | 39.5 | 34 | 32-116 | 6 | 0-30 |
| 117-84-0 | MSD | Di-n-octylphthalate | 116 | 0.00 | U | 0.00 | 0 * | 25-118 | 0 | 0-30 |
| 205-99-2 | MSD | Benzo(b)fluoranthene | 116 | 0.00 | U | 45.1 | 39 | 34-116 | 12 | 0-30 |
| 207-08-9 | MSD | Benzo(k)fluoranthene | 116 | 0.00 | U | 59.1 | 51 | 34-119 | 13 | 0-30 |
| 50-32-8 | MSD | Benzo(a)pyrene | 116 | 0.00 | U | 39.1 | 34 | 34-110 | 6 | 0-30 |

**Semi-Volatile**

**Quality Control Summary**
**Spike Recovery Report**

**SDG Number:** **2013-809**
**Client ID:** **WST55-13-32015MSD**
**Lab Sample ID:** **1202873991**
**Instrument:** **MSD4.I**
**Analyst:** **JMB3**
**Inj. Vol:** **1 uL**

**Sample Type:** **Matrix Spike Duplicate**
**Matrix:** **W**
**Analysis Date:** **05/14/2013 01:17**
**Prep Batch ID:** **1300968**
**Batch ID:** **1300969**
**Dilution: 20**

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 193-39-5 | MSD | Indeno(1,2,3-cd)pyrene | 116 | 0.00 | U | 30.2 | 26 | 25-122 | 24 | 0-30 |
| 53-70-3 | MSD | Dibenzo(a,h)anthracene | 116 | 0.00 | U | 25.1 | 22 * | 24-123 | 6 | 0-30 |
| 191-24-2 | MSD | Benzo(ghi)perylene | 116 | 0.00 | U | 27.4 | 24 | 22-122 | 11 | 0-30 |
| 123-91-1 | MSD | 1,4-Dioxane | 116 | 0.00 | U | 0.00 | 0 * | 26-88 | 0 | 0-30 |
| 930-55-2 | MSD | N-Nitrosopyrrolidine | 116 | 0.00 | U | 0.00 | 0 * | 42-110 | 0 | 0-30 |
| 95-94-3 | MSD | 1,2,4,5-Tetrachlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 29-96 | 0 | 0-30 |
| 1912-24-9 | MSD | Atrazine | 116 | 0.00 | U | 0.00 | 0 * | 33-121 | 0 | 0-30 |
| 92-87-5 | MSD | Benzidine | 233 | 0.00 | U | 0.00 | 0 * | 10-117 | 0 | 0-30 |
| 91-94-1 | MSD | 3,3'-Dichlorobenzidine | 116 | 0.00 | U | 0.00 | 0 * | 22-111 | 0 | 0-30 |
| 120-82-1 | MSD | 1,2,4-Trichlorobenzene | 116 | 0.00 | U | 0.00 | 0 * | 20-90 | 0 | 0-30 |

# Method Blank Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-809** | **Client:** | **ARSL001** | **Matrix:** | **WATER** |
| **Client ID:** | **MB for batch 1300968** | **Instrument ID:** | **MSD4.I** | **Data File:** | **s051313a.B\s4e1315.D** |
| **Lab Sample ID:** | **1202873988** | **Prep Date:** | **05/13/2013 10:10** | **Analyzed:** | **05/13/13 18:50** |
| **Column:** | **DB-5ms** | | | | |

**This method blank applies to the following samples and quality control samples:**

| Client Sample ID | Lab Sample ID | File ID | Date Analyzed | Time Analyzed |
|---|---|---|---|---|
| 01 LCS for batch 1300968 | 1202873989 | s051313a.B\s4e1316.D | 05/13/13 | 1920 |
| 02 CAMO-13-30558 | 325284005 | s051313a.B\s4e1317.D | 05/13/13 | 1950 |
| 03 WST55-13-32015MS | 1202873990 | s051313a.B\s4e1327.D | 05/14/13 | 0047 |
| 04 WST55-13-32015MSD | 1202873991 | s051313a.B\s4e1328.D | 05/14/13 | 0117 |

# Quality Control Data

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-809** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202873988** | | | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **MB for batch 1300968** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 18:50** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **1000 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1315.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 62-75-9 | N-Methyl-N-nitrosomethylamine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 110-86-1 | Pyridine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 62-53-3 | Aniline | U | 10.0 | ug/L | 3.00 | 10.0 |
| 108-95-2 | Phenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 111-44-4 | bis(2-Chloroethyl) ether | U | 10.0 | ug/L | 3.00 | 10.0 |
| 95-57-8 | 2-Chlorophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 39638-32-9 | bis(2-Chloroisopropyl)ether | U | 10.0 | ug/L | 3.00 | 10.0 |
| 100-51-6 | Benzyl alcohol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 95-48-7 | o-Cresol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 65794-96-9 | m,p-Cresols | U | 10.0 | ug/L | 3.00 | 10.0 |
| 621-64-7 | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | U | 10.0 | ug/L | 3.00 | 10.0 |
| 67-72-1 | Hexachloroethane | U | 10.0 | ug/L | 3.00 | 10.0 |
| 98-95-3 | Nitrobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 78-59-1 | Isophorone | U | 10.0 | ug/L | 3.00 | 10.0 |
| 88-75-5 | 2-Nitrophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 105-67-9 | 2,4-Dimethylphenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 111-91-1 | bis(2-Chloroethoxy)methane | U | 10.0 | ug/L | 3.00 | 10.0 |
| 120-83-2 | 2,4-Dichlorophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 65-85-0 | Benzoic acid | U | 20.0 | ug/L | 6.00 | 20.0 |
| 106-47-8 | 4-Chloroaniline | U | 10.0 | ug/L | 3.30 | 10.0 |
| 87-68-3 | Hexachlorobutadiene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 59-50-7 | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | U | 10.0 | ug/L | 3.00 | 10.0 |
| 91-57-6 | 2-Methylnaphthalene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 90-12-0 | 1-Methylnaphthalene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 77-47-4 | Hexachlorocyclopentadiene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 88-06-2 | 2,4,6-Trichlorophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 95-95-4 | 2,4,5-Trichlorophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 91-58-7 | 2-Chloronaphthalene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 88-74-4 | 2-Nitroaniline<br>*o-Nitroaniline* | U | 10.0 | ug/L | 3.00 | 10.0 |
| 99-09-2 | 3-Nitroaniline<br>*m-Nitroaniline* | U | 10.0 | ug/L | 3.00 | 10.0 |
| 131-11-3 | Dimethylphthalate | U | 10.0 | ug/L | 3.00 | 10.0 |
| 606-20-2 | 2,6-Dinitrotoluene | U | 10.0 | ug/L | 3.00 | 10.0 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-809** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202873988** | | | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **MB for batch 1300968** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 18:50** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **1000 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1315.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 121-14-2 | 2,4-Dinitrotoluene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 208-96-8 | Acenaphthylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 83-32-9 | Acenaphthene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 51-28-5 | 2,4-Dinitrophenol | U | 20.0 | ug/L | 5.00 | 20.0 |
| 132-64-9 | Dibenzofuran | U | 10.0 | ug/L | 3.00 | 10.0 |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 84-66-2 | Diethylphthalate | U | 10.0 | ug/L | 3.00 | 10.0 |
| 100-02-7 | 4-Nitrophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 86-73-7 | Fluorene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 7005-72-3 | 4-Chlorophenylphenylether | U | 10.0 | ug/L | 3.00 | 10.0 |
| 100-01-6 | 4-Nitroaniline | U | 10.0 | ug/L | 3.00 | 10.0 |
| | *p-Nitroaniline* | | | | | |
| 534-52-1 | 2-Methyl-4,6-dinitrophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 122-39-4 | Diphenylamine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 122-66-7 | Azobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| | *1,2-Diphenylhydrazine* | | | | | |
| 101-55-3 | 4-Bromophenylphenylether | U | 10.0 | ug/L | 3.00 | 10.0 |
| 118-74-1 | Hexachlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 87-86-5 | Pentachlorophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 88-85-7 | Dinoseb | U | 10.0 | ug/L | 3.00 | 10.0 |
| 85-01-8 | Phenanthrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 120-12-7 | Anthracene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 84-74-2 | Di-n-butylphthalate | U | 10.0 | ug/L | 3.00 | 10.0 |
| 206-44-0 | Fluoranthene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 129-00-0 | Pyrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 85-68-7 | Butylbenzylphthalate | U | 10.0 | ug/L | 3.00 | 10.0 |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | U | 10.0 | ug/L | 3.00 | 10.0 |
| 56-55-3 | Benzo(a)anthracene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 218-01-9 | Chrysene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 117-84-0 | Di-n-octylphthalate | U | 10.0 | ug/L | 3.00 | 10.0 |
| 205-99-2 | Benzo(b)fluoranthene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 207-08-9 | Benzo(k)fluoranthene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 50-32-8 | Benzo(a)pyrene | U | 1.00 | ug/L | 0.440 | 1.00 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 53-70-3 | Dibenzo(a,h)anthracene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 191-24-2 | Benzo(ghi)perylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 123-91-1 | 1,4-Dioxane | U | 10.0 | ug/L | 3.00 | 10.0 |
| 55-18-5 | N-Nitrosodiethylamine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 930-55-2 | N-Nitrosopyrrolidine | U | 10.0 | ug/L | 3.00 | 10.0 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-809** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202873988** | | | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **MB for batch 1300968** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 18:50** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **1000 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1315.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 924-16-3 | N-Nitrosodi-n-butylamine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 608-93-5 | Pentachlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 1912-24-9 | Atrazine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 92-87-5 | Benzidine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 91-94-1 | 3,3'-Dichlorobenzidine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 2,4,6-Tribromophenol | 61.2 | 100 | ug/L | 61.2 | (26%-129%) |
| 2-Fluorobiphenyl | 18.8 | 50.0 | ug/L | 37.7 | (32%-102%) |
| 2-Fluorophenol | 44.0 | 100 | ug/L | 44.0 | (10%-78%) |
| Nitrobenzene-d5 | 33.3 | 50.0 | ug/L | 66.6 | (36%-125%) |
| Phenol-d5 | 26.5 | 100 | ug/L | 26.5 | (10%-104%) |
| p-Terphenyl-d14 | 51.9 | 50.0 | ug/L | 104 | (34%-135%) |

**Tentatively Identified Compound Summary**

| CAS No. | Tentatively Identified Compound (TIC) | RT | Estimated | Units | Fit | Qual |
|---|---|---|---|---|---|---|
| | unknown | 2.028 | 30.2 | ug/L | 0 | J |
| | unknown | 23.7 | 5.44 | ug/L | 0 | J |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-809** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202873989** | | | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1300968** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 19:20** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **1000 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1316.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 62-75-9 | N-Methyl-N-nitrosomethylamine | | 17.7 | ug/L | 3.00 | 10.0 |
| 110-86-1 | Pyridine | | 25.5 | ug/L | 3.00 | 10.0 |
| 62-53-3 | Aniline | | 35.3 | ug/L | 3.00 | 10.0 |
| 108-95-2 | Phenol | | 12.2 | ug/L | 3.00 | 10.0 |
| 111-44-4 | bis(2-Chloroethyl) ether | | 27.8 | ug/L | 3.00 | 10.0 |
| 95-57-8 | 2-Chlorophenol | | 30.3 | ug/L | 3.00 | 10.0 |
| 541-73-1 | 1,3-Dichlorobenzene | | 26.9 | ug/L | 3.00 | 10.0 |
| 106-46-7 | 1,4-Dichlorobenzene | | 25.7 | ug/L | 3.00 | 10.0 |
| 95-50-1 | 1,2-Dichlorobenzene | | 25.8 | ug/L | 3.00 | 10.0 |
| 39638-32-9 | bis(2-Chloroisopropyl)ether | | 30.8 | ug/L | 3.00 | 10.0 |
| 100-51-6 | Benzyl alcohol | | 28.8 | ug/L | 3.00 | 10.0 |
| 95-48-7 | o-Cresol | | 27.2 | ug/L | 3.00 | 10.0 |
| 65794-96-9 | m,p-Cresols | | 29.8 | ug/L | 3.00 | 10.0 |
| 621-64-7 | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | | 35.9 | ug/L | 3.00 | 10.0 |
| 67-72-1 | Hexachloroethane | | 26.0 | ug/L | 3.00 | 10.0 |
| 98-95-3 | Nitrobenzene | | 30.2 | ug/L | 3.00 | 10.0 |
| 78-59-1 | Isophorone | | 33.9 | ug/L | 3.00 | 10.0 |
| 88-75-5 | 2-Nitrophenol | | 29.8 | ug/L | 3.00 | 10.0 |
| 105-67-9 | 2,4-Dimethylphenol | | 34.9 | ug/L | 3.00 | 10.0 |
| 111-91-1 | bis(2-Chloroethoxy)methane | | 34.6 | ug/L | 3.00 | 10.0 |
| 120-83-2 | 2,4-Dichlorophenol | | 32.1 | ug/L | 3.00 | 10.0 |
| 65-85-0 | Benzoic acid | | 21.4 | ug/L | 6.00 | 20.0 |
| 106-47-8 | 4-Chloroaniline | | 40.1 | ug/L | 3.30 | 10.0 |
| 87-68-3 | Hexachlorobutadiene | | 25.9 | ug/L | 3.00 | 10.0 |
| 59-50-7 | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | | 32.5 | ug/L | 3.00 | 10.0 |
| 91-57-6 | 2-Methylnaphthalene | | 25.8 | ug/L | 0.300 | 1.00 |
| 91-20-3 | Naphthalene | | 28.5 | ug/L | 0.300 | 1.00 |
| 90-12-0 | 1-Methylnaphthalene | | 25.2 | ug/L | 0.300 | 1.00 |
| 77-47-4 | Hexachlorocyclopentadiene | | 15.5 | ug/L | 3.00 | 10.0 |
| 88-06-2 | 2,4,6-Trichlorophenol | | 30.2 | ug/L | 3.00 | 10.0 |
| 95-95-4 | 2,4,5-Trichlorophenol | | 34.1 | ug/L | 3.00 | 10.0 |
| 91-58-7 | 2-Chloronaphthalene | | 27.6 | ug/L | 0.300 | 1.00 |
| 88-74-4 | 2-Nitroaniline<br>*o-Nitroaniline* | | 39.4 | ug/L | 3.00 | 10.0 |
| 99-09-2 | 3-Nitroaniline<br>*m-Nitroaniline* | | 37.3 | ug/L | 3.00 | 10.0 |
| 131-11-3 | Dimethylphthalate | | 35.1 | ug/L | 3.00 | 10.0 |
| 606-20-2 | 2,6-Dinitrotoluene | | 34.7 | ug/L | 3.00 | 10.0 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-809** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202873989** | | | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1300968** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 19:20** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **1000 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1316.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 121-14-2 | 2,4-Dinitrotoluene | | 38.9 | ug/L | 3.00 | 10.0 |
| 208-96-8 | Acenaphthylene | | 28.0 | ug/L | 0.300 | 1.00 |
| 83-32-9 | Acenaphthene | | 25.3 | ug/L | 0.300 | 1.00 |
| 51-28-5 | 2,4-Dinitrophenol | J | 13.9 | ug/L | 5.00 | 20.0 |
| 132-64-9 | Dibenzofuran | | 31.4 | ug/L | 3.00 | 10.0 |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | | 37.3 | ug/L | 3.00 | 10.0 |
| 84-66-2 | Diethylphthalate | | 38.4 | ug/L | 3.00 | 10.0 |
| 100-02-7 | 4-Nitrophenol | J | 4.72 | ug/L | 3.00 | 10.0 |
| 86-73-7 | Fluorene | | 33.2 | ug/L | 0.300 | 1.00 |
| 7005-72-3 | 4-Chlorophenylphenylether | | 32.1 | ug/L | 3.00 | 10.0 |
| 100-01-6 | 4-Nitroaniline | | 44.9 | ug/L | 3.00 | 10.0 |
| | *p-Nitroaniline* | | | | | |
| 534-52-1 | 2-Methyl-4,6-dinitrophenol | | 36.3 | ug/L | 3.00 | 10.0 |
| 122-39-4 | Diphenylamine | | 40.9 | ug/L | 3.00 | 10.0 |
| 122-66-7 | Azobenzene | | 36.4 | ug/L | 3.00 | 10.0 |
| | *1,2-Diphenylhydrazine* | | | | | |
| 101-55-3 | 4-Bromophenylphenylether | | 32.7 | ug/L | 3.00 | 10.0 |
| 118-74-1 | Hexachlorobenzene | | 33.5 | ug/L | 3.00 | 10.0 |
| 87-86-5 | Pentachlorophenol | | 21.4 | ug/L | 3.00 | 10.0 |
| 88-85-7 | Dinoseb | U | 10.0 | ug/L | 3.00 | 10.0 |
| 85-01-8 | Phenanthrene | | 32.0 | ug/L | 0.300 | 1.00 |
| 120-12-7 | Anthracene | | 35.0 | ug/L | 0.300 | 1.00 |
| 84-74-2 | Di-n-butylphthalate | | 34.9 | ug/L | 3.00 | 10.0 |
| 206-44-0 | Fluoranthene | | 33.4 | ug/L | 0.300 | 1.00 |
| 129-00-0 | Pyrene | | 29.6 | ug/L | 0.300 | 1.00 |
| 85-68-7 | Butylbenzylphthalate | | 29.6 | ug/L | 3.00 | 10.0 |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | | 30.0 | ug/L | 3.00 | 10.0 |
| 56-55-3 | Benzo(a)anthracene | | 32.4 | ug/L | 0.300 | 1.00 |
| 218-01-9 | Chrysene | | 32.6 | ug/L | 0.300 | 1.00 |
| 117-84-0 | Di-n-octylphthalate | | 25.4 | ug/L | 3.00 | 10.0 |
| 205-99-2 | Benzo(b)fluoranthene | | 33.8 | ug/L | 0.300 | 1.00 |
| 207-08-9 | Benzo(k)fluoranthene | | 36.4 | ug/L | 0.300 | 1.00 |
| 50-32-8 | Benzo(a)pyrene | | 31.1 | ug/L | 0.440 | 1.00 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | | 28.0 | ug/L | 0.300 | 1.00 |
| 53-70-3 | Dibenzo(a,h)anthracene | | 30.4 | ug/L | 0.300 | 1.00 |
| 191-24-2 | Benzo(ghi)perylene | | 29.4 | ug/L | 0.300 | 1.00 |
| 123-91-1 | 1,4-Dioxane | | 19.4 | ug/L | 3.00 | 10.0 |
| 55-18-5 | N-Nitrosodiethylamine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 930-55-2 | N-Nitrosopyrrolidine | | 33.9 | ug/L | 3.00 | 10.0 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-809** | | | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **1202873989** | | | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **LCS for batch 1300968** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **1** |
| **Run Date:** | **05/13/2013 19:20** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **1000 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1316.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 924-16-3 | N-Nitrosodi-n-butylamine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | | 24.0 | ug/L | 3.00 | 10.0 |
| 608-93-5 | Pentachlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 1912-24-9 | Atrazine | | 15.6 | ug/L | 3.00 | 10.0 |
| 92-87-5 | Benzidine | | 80.6 | ug/L | 3.00 | 10.0 |
| 91-94-1 | 3,3'-Dichlorobenzidine | | 31.6 | ug/L | 3.00 | 10.0 |
| 120-82-1 | 1,2,4-Trichlorobenzene | | 26.3 | ug/L | 3.00 | 10.0 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 2,4,6-Tribromophenol | 65.7 | 100 | ug/L | 65.7 | (26%-129%) |
| 2-Fluorobiphenyl | 25.5 | 50.0 | ug/L | 51.0 | (32%-102%) |
| 2-Fluorophenol | 37.6 | 100 | ug/L | 37.6 | (10%-78%) |
| Nitrobenzene-d5 | 30.3 | 50.0 | ug/L | 60.7 | (36%-125%) |
| Phenol-d5 | 24.8 | 100 | ug/L | 24.8 | (10%-104%) |
| p-Terphenyl-d14 | 37.5 | 50.0 | ug/L | 74.9 | (34%-135%) |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-809** | **Date Collected:** | **05/07/2013 09:30** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202873990** | **Date Received:** | **05/08/2013 08:55** | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **WST55-13-32015MS** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **20** |
| **Run Date:** | **05/14/2013 00:47** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **430 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1327.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 62-75-9 | N-Methyl-N-nitrosomethylamine | U | 465 | ug/L | 140 | 465 |
| 110-86-1 | Pyridine | U | 465 | ug/L | 140 | 465 |
| 62-53-3 | Aniline | U | 465 | ug/L | 140 | 465 |
| 108-95-2 | Phenol | U | 465 | ug/L | 140 | 465 |
| 111-44-4 | bis(2-Chloroethyl) ether | U | 465 | ug/L | 140 | 465 |
| 95-57-8 | 2-Chlorophenol | U | 465 | ug/L | 140 | 465 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 465 | ug/L | 140 | 465 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 465 | ug/L | 140 | 465 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 465 | ug/L | 140 | 465 |
| 39638-32-9 | bis(2-Chloroisopropyl)ether | U | 465 | ug/L | 140 | 465 |
| 100-51-6 | Benzyl alcohol | U | 465 | ug/L | 140 | 465 |
| 95-48-7 | o-Cresol | U | 465 | ug/L | 140 | 465 |
| 65794-96-9 | m,p-Cresols | U | 465 | ug/L | 140 | 465 |
| 621-64-7 | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | U | 465 | ug/L | 140 | 465 |
| 67-72-1 | Hexachloroethane | U | 465 | ug/L | 140 | 465 |
| 98-95-3 | Nitrobenzene | U | 465 | ug/L | 140 | 465 |
| 78-59-1 | Isophorone | U | 465 | ug/L | 140 | 465 |
| 88-75-5 | 2-Nitrophenol | U | 465 | ug/L | 140 | 465 |
| 105-67-9 | 2,4-Dimethylphenol | U | 465 | ug/L | 140 | 465 |
| 111-91-1 | bis(2-Chloroethoxy)methane | U | 465 | ug/L | 140 | 465 |
| 120-83-2 | 2,4-Dichlorophenol | U | 465 | ug/L | 140 | 465 |
| 65-85-0 | Benzoic acid | U | 930 | ug/L | 279 | 930 |
| 106-47-8 | 4-Chloroaniline | U | 465 | ug/L | 153 | 465 |
| 87-68-3 | Hexachlorobutadiene | U | 465 | ug/L | 140 | 465 |
| 59-50-7 | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | U | 465 | ug/L | 140 | 465 |
| 91-57-6 | 2-Methylnaphthalene | | 47.9 | ug/L | 14.0 | 46.5 |
| 91-20-3 | Naphthalene | J | 41.9 | ug/L | 14.0 | 46.5 |
| 90-12-0 | 1-Methylnaphthalene | | 46.5 | ug/L | 14.0 | 46.5 |
| 77-47-4 | Hexachlorocyclopentadiene | U | 465 | ug/L | 140 | 465 |
| 88-06-2 | 2,4,6-Trichlorophenol | U | 465 | ug/L | 140 | 465 |
| 95-95-4 | 2,4,5-Trichlorophenol | U | 465 | ug/L | 140 | 465 |
| 91-58-7 | 2-Chloronaphthalene | J | 43.7 | ug/L | 14.0 | 46.5 |
| 88-74-4 | 2-Nitroaniline<br>*o-Nitroaniline* | U | 465 | ug/L | 140 | 465 |
| 99-09-2 | 3-Nitroaniline<br>*m-Nitroaniline* | U | 465 | ug/L | 140 | 465 |
| 131-11-3 | Dimethylphthalate | U | 465 | ug/L | 140 | 465 |
| 606-20-2 | 2,6-Dinitrotoluene | U | 465 | ug/L | 140 | 465 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-809** | **Date Collected:** | **05/07/2013 09:30** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202873990** | **Date Received:** | **05/08/2013 08:55** | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **WST55-13-32015MS** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **20** |
| **Run Date:** | **05/14/2013 00:47** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **430 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1327.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 121-14-2 | 2,4-Dinitrotoluene | U | 465 | ug/L | 140 | 465 |
| 208-96-8 | Acenaphthylene | J | 43.7 | ug/L | 14.0 | 46.5 |
| 83-32-9 | Acenaphthene | J | 44.2 | ug/L | 14.0 | 46.5 |
| 51-28-5 | 2,4-Dinitrophenol | U | 930 | ug/L | 233 | 930 |
| 132-64-9 | Dibenzofuran | U | 465 | ug/L | 140 | 465 |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | U | 465 | ug/L | 140 | 465 |
| 84-66-2 | Diethylphthalate | U | 465 | ug/L | 140 | 465 |
| 100-02-7 | 4-Nitrophenol | U | 465 | ug/L | 140 | 465 |
| 86-73-7 | Fluorene | J | 43.7 | ug/L | 14.0 | 46.5 |
| 7005-72-3 | 4-Chlorophenylphenylether | U | 465 | ug/L | 140 | 465 |
| 100-01-6 | 4-Nitroaniline | U | 465 | ug/L | 140 | 465 |
| | *p-Nitroaniline* | | | | | |
| 534-52-1 | 2-Methyl-4,6-dinitrophenol | U | 465 | ug/L | 140 | 465 |
| 122-39-4 | Diphenylamine | U | 465 | ug/L | 140 | 465 |
| 122-66-7 | Azobenzene | U | 465 | ug/L | 140 | 465 |
| | *1,2-Diphenylhydrazine* | | | | | |
| 101-55-3 | 4-Bromophenylphenylether | U | 465 | ug/L | 140 | 465 |
| 118-74-1 | Hexachlorobenzene | U | 465 | ug/L | 140 | 465 |
| 87-86-5 | Pentachlorophenol | U | 465 | ug/L | 140 | 465 |
| 88-85-7 | Dinoseb | U | 465 | ug/L | 140 | 465 |
| 85-01-8 | Phenanthrene | J | 44.2 | ug/L | 14.0 | 46.5 |
| 120-12-7 | Anthracene | J | 42.3 | ug/L | 14.0 | 46.5 |
| 84-74-2 | Di-n-butylphthalate | U | 465 | ug/L | 140 | 465 |
| 206-44-0 | Fluoranthene | J | 39.5 | ug/L | 14.0 | 46.5 |
| 129-00-0 | Pyrene | | 53.0 | ug/L | 14.0 | 46.5 |
| 85-68-7 | Butylbenzylphthalate | U | 465 | ug/L | 140 | 465 |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | U | 465 | ug/L | 140 | 465 |
| 56-55-3 | Benzo(a)anthracene | J | 42.3 | ug/L | 14.0 | 46.5 |
| 218-01-9 | Chrysene | J | 41.9 | ug/L | 14.0 | 46.5 |
| 117-84-0 | Di-n-octylphthalate | U | 465 | ug/L | 140 | 465 |
| 205-99-2 | Benzo(b)fluoranthene | | 50.7 | ug/L | 14.0 | 46.5 |
| 207-08-9 | Benzo(k)fluoranthene | | 52.1 | ug/L | 14.0 | 46.5 |
| 50-32-8 | Benzo(a)pyrene | J | 36.7 | ug/L | 20.5 | 46.5 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | J | 23.7 | ug/L | 14.0 | 46.5 |
| 53-70-3 | Dibenzo(a,h)anthracene | J | 23.7 | ug/L | 14.0 | 46.5 |
| 191-24-2 | Benzo(ghi)perylene | J | 24.7 | ug/L | 14.0 | 46.5 |
| 123-91-1 | 1,4-Dioxane | U | 465 | ug/L | 140 | 465 |
| 55-18-5 | N-Nitrosodiethylamine | U | 465 | ug/L | 140 | 465 |
| 930-55-2 | N-Nitrosopyrrolidine | U | 465 | ug/L | 140 | 465 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-809** | **Date Collected:** | **05/07/2013 09:30** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202873990** | **Date Received:** | **05/08/2013 08:55** | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **WST55-13-32015MS** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **20** |
| **Run Date:** | **05/14/2013 00:47** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **430 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1327.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 924-16-3 | N-Nitrosodi-n-butylamine | U | 465 | ug/L | 140 | 465 |
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | U | 465 | ug/L | 140 | 465 |
| 608-93-5 | Pentachlorobenzene | U | 465 | ug/L | 140 | 465 |
| 1912-24-9 | Atrazine | U | 465 | ug/L | 140 | 465 |
| 92-87-5 | Benzidine | U | 465 | ug/L | 140 | 465 |
| 91-94-1 | 3,3'-Dichlorobenzidine | U | 465 | ug/L | 140 | 465 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 465 | ug/L | 140 | 465 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | | Acceptable Limits |
|---|---|---|---|---|---|---|
| 2,4,6-Tribromophenol | 0.00 | 233 | ug/L | 0.00 | * | (26%-129%) |
| 2-Fluorobiphenyl | 39.5 | 116 | ug/L | 34.0 | | (32%-102%) |
| 2-Fluorophenol | 0.00 | 233 | ug/L | 0.00 | * | (10%-78%) |
| Nitrobenzene-d5 | 37.7 | 116 | ug/L | 32.4 | * | (36%-125%) |
| Phenol-d5 | 0.00 | 233 | ug/L | 0.00 | * | (10%-104%) |
| p-Terphenyl-d14 | 69.3 | 116 | ug/L | 59.6 | | (34%-135%) |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-809** | **Date Collected:** | **05/07/2013 09:30** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202873991** | **Date Received:** | **05/08/2013 08:55** | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **WST55-13-32015MSD** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **20** |
| **Run Date:** | **05/14/2013 01:17** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **430 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1328.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 62-75-9 | N-Methyl-N-nitrosomethylamine | U | 465 | ug/L | 140 | 465 |
| 110-86-1 | Pyridine | U | 465 | ug/L | 140 | 465 |
| 62-53-3 | Aniline | U | 465 | ug/L | 140 | 465 |
| 108-95-2 | Phenol | U | 465 | ug/L | 140 | 465 |
| 111-44-4 | bis(2-Chloroethyl) ether | U | 465 | ug/L | 140 | 465 |
| 95-57-8 | 2-Chlorophenol | U | 465 | ug/L | 140 | 465 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 465 | ug/L | 140 | 465 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 465 | ug/L | 140 | 465 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 465 | ug/L | 140 | 465 |
| 39638-32-9 | bis(2-Chloroisopropyl)ether | U | 465 | ug/L | 140 | 465 |
| 100-51-6 | Benzyl alcohol | U | 465 | ug/L | 140 | 465 |
| 95-48-7 | o-Cresol | U | 465 | ug/L | 140 | 465 |
| 65794-96-9 | m,p-Cresols | U | 465 | ug/L | 140 | 465 |
| 621-64-7 | N-Nitrosodi--n-propylamine<br>*N-Nitrosodipropylamine* | U | 465 | ug/L | 140 | 465 |
| 67-72-1 | Hexachloroethane | U | 465 | ug/L | 140 | 465 |
| 98-95-3 | Nitrobenzene | U | 465 | ug/L | 140 | 465 |
| 78-59-1 | Isophorone | U | 465 | ug/L | 140 | 465 |
| 88-75-5 | 2-Nitrophenol | U | 465 | ug/L | 140 | 465 |
| 105-67-9 | 2,4-Dimethylphenol | U | 465 | ug/L | 140 | 465 |
| 111-91-1 | bis(2-Chloroethoxy)methane | U | 465 | ug/L | 140 | 465 |
| 120-83-2 | 2,4-Dichlorophenol | U | 465 | ug/L | 140 | 465 |
| 65-85-0 | Benzoic acid | U | 930 | ug/L | 279 | 930 |
| 106-47-8 | 4-Chloroaniline | U | 465 | ug/L | 153 | 465 |
| 87-68-3 | Hexachlorobutadiene | U | 465 | ug/L | 140 | 465 |
| 59-50-7 | Parachlorometa cresol<br>*4-Chloro-3-methylphenol* | U | 465 | ug/L | 140 | 465 |
| 91-57-6 | 2-Methylnaphthalene | J | 45.1 | ug/L | 14.0 | 46.5 |
| 91-20-3 | Naphthalene | J | 40.9 | ug/L | 14.0 | 46.5 |
| 90-12-0 | 1-Methylnaphthalene | J | 41.9 | ug/L | 14.0 | 46.5 |
| 77-47-4 | Hexachlorocyclopentadiene | U | 465 | ug/L | 140 | 465 |
| 88-06-2 | 2,4,6-Trichlorophenol | U | 465 | ug/L | 140 | 465 |
| 95-95-4 | 2,4,5-Trichlorophenol | U | 465 | ug/L | 140 | 465 |
| 91-58-7 | 2-Chloronaphthalene | J | 42.3 | ug/L | 14.0 | 46.5 |
| 88-74-4 | 2-Nitroaniline<br>*o-Nitroaniline* | U | 465 | ug/L | 140 | 465 |
| 99-09-2 | 3-Nitroaniline<br>*m-Nitroaniline* | U | 465 | ug/L | 140 | 465 |
| 131-11-3 | Dimethylphthalate | U | 465 | ug/L | 140 | 465 |
| 606-20-2 | 2,6-Dinitrotoluene | U | 465 | ug/L | 140 | 465 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-809** | **Date Collected:** | **05/07/2013 09:30** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202873991** | **Date Received:** | **05/08/2013 08:55** | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **WST55-13-32015MSD** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **20** |
| **Run Date:** | **05/14/2013 01:17** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **430 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1328.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 121-14-2 | 2,4-Dinitrotoluene | U | 465 | ug/L | 140 | 465 |
| 208-96-8 | Acenaphthylene | J | 44.2 | ug/L | 14.0 | 46.5 |
| 83-32-9 | Acenaphthene | J | 42.3 | ug/L | 14.0 | 46.5 |
| 51-28-5 | 2,4-Dinitrophenol | U | 930 | ug/L | 233 | 930 |
| 132-64-9 | Dibenzofuran | U | 465 | ug/L | 140 | 465 |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | U | 465 | ug/L | 140 | 465 |
| 84-66-2 | Diethylphthalate | U | 465 | ug/L | 140 | 465 |
| 100-02-7 | 4-Nitrophenol | U | 465 | ug/L | 140 | 465 |
| 86-73-7 | Fluorene | J | 41.9 | ug/L | 14.0 | 46.5 |
| 7005-72-3 | 4-Chlorophenylphenylether | U | 465 | ug/L | 140 | 465 |
| 100-01-6 | 4-Nitroaniline | U | 465 | ug/L | 140 | 465 |
| | *p-Nitroaniline* | | | | | |
| 534-52-1 | 2-Methyl-4,6-dinitrophenol | U | 465 | ug/L | 140 | 465 |
| 122-39-4 | Diphenylamine | U | 465 | ug/L | 140 | 465 |
| 122-66-7 | Azobenzene | U | 465 | ug/L | 140 | 465 |
| | *1,2-Diphenylhydrazine* | | | | | |
| 101-55-3 | 4-Bromophenylphenylether | U | 465 | ug/L | 140 | 465 |
| 118-74-1 | Hexachlorobenzene | U | 465 | ug/L | 140 | 465 |
| 87-86-5 | Pentachlorophenol | U | 465 | ug/L | 140 | 465 |
| 88-85-7 | Dinoseb | U | 465 | ug/L | 140 | 465 |
| 85-01-8 | Phenanthrene | J | 42.3 | ug/L | 14.0 | 46.5 |
| 120-12-7 | Anthracene | J | 41.4 | ug/L | 14.0 | 46.5 |
| 84-74-2 | Di-n-butylphthalate | U | 465 | ug/L | 140 | 465 |
| 206-44-0 | Fluoranthene | J | 40.9 | ug/L | 14.0 | 46.5 |
| 129-00-0 | Pyrene | J | 44.7 | ug/L | 14.0 | 46.5 |
| 85-68-7 | Butylbenzylphthalate | U | 465 | ug/L | 140 | 465 |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | U | 465 | ug/L | 140 | 465 |
| 56-55-3 | Benzo(a)anthracene | J | 41.9 | ug/L | 14.0 | 46.5 |
| 218-01-9 | Chrysene | J | 39.5 | ug/L | 14.0 | 46.5 |
| 117-84-0 | Di-n-octylphthalate | U | 465 | ug/L | 140 | 465 |
| 205-99-2 | Benzo(b)fluoranthene | J | 45.1 | ug/L | 14.0 | 46.5 |
| 207-08-9 | Benzo(k)fluoranthene | | 59.1 | ug/L | 14.0 | 46.5 |
| 50-32-8 | Benzo(a)pyrene | J | 39.1 | ug/L | 20.5 | 46.5 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | J | 30.2 | ug/L | 14.0 | 46.5 |
| 53-70-3 | Dibenzo(a,h)anthracene | J | 25.1 | ug/L | 14.0 | 46.5 |
| 191-24-2 | Benzo(ghi)perylene | J | 27.4 | ug/L | 14.0 | 46.5 |
| 123-91-1 | 1,4-Dioxane | U | 465 | ug/L | 140 | 465 |
| 55-18-5 | N-Nitrosodiethylamine | U | 465 | ug/L | 140 | 465 |
| 930-55-2 | N-Nitrosopyrrolidine | U | 465 | ug/L | 140 | 465 |

# Semi-Volatile
# Certificate of Analysis
# Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **2013-809** | **Date Collected:** | **05/07/2013 09:30** | **Matrix:** | **W** |
| **Lab Sample ID:** | **1202873991** | **Date Received:** | **05/08/2013 08:55** | | |
| **Client Sample:** | **QC for batch 1300968** | **Client:** | **ARSL001** | **Project:** | **QC** |
| **Client ID:** | **WST55-13-32015MSD** | **Method:** | **SW846 8270C** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1300969** | **Inst:** | **MSD4.I** | **Dilution:** | **20** |
| **Run Date:** | **05/14/2013 01:17** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **05/13/2013 10:10** | **Aliquot:** | **430 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **s051313a.B\s4e1328.D** | **Column:** | **DB-5ms** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 924-16-3 | N-Nitrosodi-n-butylamine | U | 465 | ug/L | 140 | 465 |
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | U | 465 | ug/L | 140 | 465 |
| 608-93-5 | Pentachlorobenzene | U | 465 | ug/L | 140 | 465 |
| 1912-24-9 | Atrazine | U | 465 | ug/L | 140 | 465 |
| 92-87-5 | Benzidine | U | 465 | ug/L | 140 | 465 |
| 91-94-1 | 3,3'-Dichlorobenzidine | U | 465 | ug/L | 140 | 465 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 465 | ug/L | 140 | 465 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | | Acceptable Limits |
|---|---|---|---|---|---|---|
| 2,4,6-Tribromophenol | 0.00 | 233 | ug/L | 0.00 | * | (26%-129%) |
| 2-Fluorobiphenyl | 35.3 | 116 | ug/L | 30.4 | * | (32%-102%) |
| 2-Fluorophenol | 0.00 | 233 | ug/L | 0.00 | * | (10%-78%) |
| Nitrobenzene-d5 | 35.3 | 116 | ug/L | 30.4 | * | (36%-125%) |
| Phenol-d5 | 0.00 | 233 | ug/L | 0.00 | * | (10%-104%) |
| p-Terphenyl-d14 | 59.5 | 116 | ug/L | 51.2 | | (34%-135%) |

# Miscellaneous

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 14-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| SEMIVOA GC/MS | SW846 8270C | Liquid | ARSL (ESHL) |
| **Batch ID:** | **Sample Numbers:** | | |
| 1300969 | See Below | | |

**Potentially affected work order(s)(SDG):** **325284(2013-809),325285(2013-810),325394(2013-813),325410(2013-814),325479(2013-822),325480(2013-823)**

**Application Issues:**

Failed Recovery for MS/PS

Failed Recovery for LCS/LCSD

Failed Yield for Surrogates

Failed Recovery for MSD/PSD

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Sample 325285001, the MS(1202873990), and MSD(1202873991) failed surrogate recovery limits. Please see the QC Summary/Spike Recovery Report for specific failures. | 1. The samples were analyzed at a dilution due to the presence of non-target analytes. As a result, some surrogates were diluted out of the acceptance criteria and the data results have been reported. |
| 2. The LCS(1202873989) did not meet spike recovery limits for 4-Nitrophenol at 9% (limits: 16%-77%) and Atrazine at 31% (limits: 47%-115%). | 2. The 4-Nitrophenol and Atrazine failures represent less than 5% of the total requested spike analyte list. That satisfied the acceptance criteria for the client and the data results have been reported. |
| 3. The MS(1202873990) and MSD(1202873991) failed multiple spike recovery limits. Please see the QC Summary/Spike Recovery Report for specific failures. | 3. The samples were analyzed at a dilution due to the presence of non-target analytes. As a result, some spike analytes were diluted out of the acceptance criteria and the data results have been reported. |

**Originator's Name:**

Josh Brooks 14-MAY-13

**Data Validator/Group Leader:**

Barbara Bailey 15-MAY-13

# Perchlorates by LCMSMS Analysis

# Case Narrative

**Perchlorate by LC/MSMS**
**ARS International (ARSL)**
**SDG 2013-809**

## Method/Analysis Information

| | |
|---|---|
| **Procedure:** | **Definitive Low Level Perchlorate Analysis Utilizing Liquid Chromatography/Mass Spectrometry/Mass Spectrometry (LC/MS/MS) by EPA Method 6850 Modified (6850M)** |
| Analytical Method: | SW846 6850 Modified |
| Prep Method: | SW846 6850 Modified |
| Analytical Batch Number: | 1301785 |
| Prep Batch Number: | 1301783 |

## Sample Analysis

| Sample ID | Client ID |
|---|---|
| 325284002 | CAMO-13-30591 |
| 325284004 | CAMO-13-30592 |
| 325284005 | CAMO-13-30558 |
| 1202876024 | Interference Check Sample (ICS) |
| 1202876020 | Method Blank (MB) |
| 1202876021 | Laboratory Control Sample (LCS) |
| 1202876022 | 325284004(CAMO-13-30592) Matrix Spike (MS) |
| 1202876023 | 325284004(CAMO-13-30592) Matrix Spike Duplicate (MSD) |

The samples in this SDG were analyzed on an "as received" basis.

## Preparation/Analytical Method Verification

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-067 REV# 10.

## Calibration Information

**Initial Calibration**
All initial calibration requirements have been met for this SDG. Due to software constraints, all Initial Calibration Blanks must be designated as IPB001.

**ICV Requirements**
All associated initial calibration verification standard(s) (ICV) met the acceptance criteria.

**CCB Requirements**
All continuing calibration blanks (CCB) bracketing the analyses associated with this batch were within acceptance criteria.

**CCV Requirements**
All continuing calibration checks (CCV) requirements were met by all bracketing CCV standards.

**Low Level Standard (CRI) Requirements**
All low level calibration verification (CRI) requirements were met by all bracketing CRI standards.

## Quality Control (QC) Information

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Interference Check Sample (ICS)**
The ICS met all recovery acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recoveries met the acceptance limits.

**QC Sample Designation**
Client sample 325284004 (CAMO-13-30592) was chosen for matrix spike and matrix spike duplicate analysis.

**Matrix Spike (MS) Recovery Statement**
The MS recoveries were within the established acceptance limits.

**Matrix Spike Duplicate (MSD) Recovery Statement**
The MSD recoveries were within the established acceptance limits.

**MS/MSD Relative Percent Difference (RPD) Statement**
The RPD(s) between the MS and MSD met the acceptance limits.

**Retention Time Standard Area Acceptance**
The retention time standard areas were within the required acceptance criteria for all samples and QC.

**Retention Time**
During the analysis of Perchlorate by LC/MS/MS, retention time shifts are commonly observed. These retention time shifts, which are caused by fouling of the column by the sample matrices, are problematic when the retention time is used as one of the criterion for confirmation. To overcome this problem, a known amount of O(18) labeled Perchlorate was added to each sample as a retention time standard. The presence of Perchlorate was confirmed by the relative retention time (RRT) of the Perchlorate peak and the O(18) standard. A RRT window of 0.98 to 1.02, as required by Method 332.0, has been used. In addition to the isotopic ratio, the presence of Perchlorate in the samples associated with this data package have been confirmed using the relative retention criteria stated above, not the absolute retention time.

## Technical Information

### Holding Time Specifications
All samples in this SDG in this analytical batch met the specified holding time. GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

### Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

### Sample Dilutions
Samples 1202876022 (CAMO-13-30592), 1202876023 (CAMO-13-30592), 325284002 (CAMO-13-30591), 325284004 (CAMO-13-30592) and 325284005 (CAMO-13-30558) were diluted to bring the over range concentrations within the calibration range.

### Sample Re-extraction/Re-analysis
Sample 325284005 (CAMO-13-30558) was re-analyzed to confirm potential carryover from the previous sample analysis. The re-analysis was reported.

## Miscellaneous Information

### Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

### Manual Integrations
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations.

### Method Comments
The samples in this SDG were not originally analyzed using EPA Method 314.0.

### Additional Comments
The Perchlorate Isotope Ratio on the Form I may differ slightly from the ratio on the corresponding raw data due to rounding rules and/or significant figures or due to software limitations when there are manual integrations, dilutions or other factors. The ratio value of the Form I is the correct value. The retention time marker, Perchlorate-O (18), is added to all samples, instrument blanks, and standards prior to injection. It is used to verify the retention time of Perchlorate and Perchlorate-101 and to insure an accurate injection occurred. Due to various anions affecting the recovery of Perchlorate-O (18) and not Perchlorate and Perchlorate-101, the calibration curves of Perchlorate and Perchlorate-101 are not internally corrected for using Perchlorate-O (18). They are external calibrations.

### Perchlorate Isotope Ratio
The Perchlorate isotope ratio met acceptance criteria for all samples and QC samples. Please see the isotope ratio criteria in the Miscellaneous Section.

## System Configuration

The laboratory utilizes a Waters LC 2795 liquid chromatography instrument for Perchlorate analysis. It is coupled with either a Micromass Quattro Micro Mass Spectrometer/ Mass Spectrometer, or a Micromass Quattro Ultima Mass Spectrometer/ Mass Spectrometer. Each being designated as LCMSMS #1 and LCMSMS #2, respectively. It is fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis. The laboratory may also utilize an Agilent 1100 liquid chromatography instrument for Perchlorate analysis. It is coupled with an Applied Biosystems 4000 Mass Spectrometer/ Mass Spectrometer, designated as LCMSMS #3 or LCMSMS #4. It is also fitted with an electrospray probe that is operated in the

negative electrospray ionization mode for Perchlorate analysis.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Chromatographic Columns**

Chromatographic separation of Perchlorate is accomplished through analysis on the following anion column:

Dionex: IonPac AG-16 2 x 50 mm.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-809  GEL Work Order: 325284

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

**  Analyte is a surrogate compound

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL  Indicates that sample is diluted.
RA  Indicates that sample is re-analyzed without re-extraction.
RE  Indicates that sample is re-extracted.

**Review/Validation**

GEL requires all analytical data to be verified by a qualified data reviewer.  In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

**Signature:** Pat Steele  **Name:** **Patricia Steele**

**Date:** **28 MAY 2013**  **Title:** **Data Validator**

# Sample Data Summary

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1301783

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CAMO-13-30591

**Date Received:** 08-MAY-13

**GEL Job No (SDG):** 2013-809

**GEL Sample ID:** 325284002

**Date Filtered:** 15-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .5 | 2 | 8.42 | ug/L | | 10 | 20-MAY-13 18:33 | per0520041a |
| | Perchlorate Isotope Ratio | | | 3.15 | | | 10 | 20-MAY-13 18:33 | per0520041a |
| 14797-73-0 | Perchlorate-101 | .5 | 2 | 8.32 | ug/L | | 10 | 20-MAY-13 18:33 | per0520041a |
| | Perchlorate-O(18) | | | 5.14 | ug/L | | 10 | 20-MAY-13 18:33 | per0520041a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1301783

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CAMO-13-30592

**Date Received:** 08-MAY-13

**GEL Job No (SDG):** 2013-809

**GEL Sample ID:** 325284004

**Date Filtered:** 15-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .1 | .4 | 0.931 | ug/L | | 2 | 20-MAY-13 19:21 | per0520047a |
| | Perchlorate Isotope Ratio | | | 3.07 | | | 2 | 20-MAY-13 19:21 | per0520047a |
| 14797-73-0 | Perchlorate-101 | .1 | .4 | 0.944 | ug/L | | 2 | 20-MAY-13 19:21 | per0520047a |
| | Perchlorate-O(18) | | | 0.994 | ug/L | | 2 | 20-MAY-13 19:21 | per0520047a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1301783

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CAMO-13-30558

**Date Received:** 08-MAY-13

**GEL Job No (SDG):** 2013-809

**GEL Sample ID:** 325284005

**Date Filtered:** 15-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.200 | ug/L | U | 1 | 20-MAY-13 18:41 | per0520042a |
| | Perchlorate Isotope Ratio | | | | | | 1 | 20-MAY-13 18:41 | per0520042a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.200 | ug/L | U | 1 | 20-MAY-13 18:41 | per0520042a |
| | Perchlorate-O(18) | | | 0.496 | ug/L | | 1 | 20-MAY-13 18:41 | per0520042a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Quality Control Summary

## Perchlorate Laboratory Control Sample

**Lab Name:** General Engineering Laboratories

**Lab Code:** GEL

**GEL Job No. (SDG):** 2013-809

**Extract Batch Code:** 1301783

**Date Filtered:** 15-MAY-13

**Matrix:** WATER

**Sample ID:** 1202876021

| Analyte^ | True | Found | Units | %Rec | Q | Control Limits |
|---|---|---|---|---|---|---|
| Perchlorate | 0.200 | .203 | ug/L | 102 | | 85 - 115 |
| Perchlorate Isotope Ratio | | 3 | | | | - |
| Perchlorate-101 | 0.200 | .21 | ug/L | 105 | | 85 - 115 |
| Perchlorate-O(18) | | .505 | ug/L | | | - |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

## Perchlorate Spike/Spike Duplicate Summary

**Lab Name:** General Engineering Laboratories

**Lab Code:** GEL

**GEL Job No (SDG):** 2013-809

**Extract Batch Code:** 1301783

**Date Extracted:** 15-MAY-13

**GEL MS/PS ID:** 1202876022

**Client ID:** CAMO-13-30592

**GEL MSD/PSD ID:** 1202876023

**QC Type:** MS

| Compound^ | Spike Added | Sample Conc | Units | MS Conc | MS Rec # | MSD Conc | MSD Rec # | RPD # | RPD Limit | Recovery Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| Perchlorate | 0.200 | 0.931 | ug/L | 1.11 | 90 | 1.16 | 114 | 4.19 | 30 | 75 - 125 |
| Perchlorate Isotope Ratio | 0 | 3.07 | | 3.13 | | 3.05 | | 2.52 | | - |
| Perchlorate-101 | 0.200 | 0.944 | ug/L | 1.10 | 80.5 | 1.18 | 119 | 6.71 | 30 | 75 - 125 |
| Perchlorate-O(18) | 0 | 0.994 | ug/L | 0.985 | | 1.02 | | 3.41 | | - |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

# Quality Control Data

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** EPA 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1301783

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
MB

**Date Received:** 15-MAY-13

**GEL Job No (SDG):** 2013-809

**GEL Sample ID:** 1202876020

**Date Filtered:** 15-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.050 | ug/L | U | 1 | 20-MAY-13 15:52 | per0520021a |
| | Perchlorate Isotope Ratio | | | | | | 1 | 20-MAY-13 15:52 | per0520021a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.050 | ug/L | U | 1 | 20-MAY-13 15:52 | per0520021a |
| | Perchlorate-O(18) | | | 0.496 | ug/L | | 1 | 20-MAY-13 15:52 | per0520021a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** EPA 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1301783

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
LCS

**Date Received:** 15-MAY-13

**GEL Job No (SDG):** 2013-809

**GEL Sample ID:** 1202876021

**Date Filtered:** 15-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.203 | ug/L | | 1 | 20-MAY-13 16:00 | per0520022a |
| | Perchlorate Isotope Ratio | | | 3 | | | 1 | 20-MAY-13 16:00 | per0520022a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.210 | ug/L | | 1 | 20-MAY-13 16:00 | per0520022a |
| | Perchlorate-O(18) | | | 0.505 | ug/L | | 1 | 20-MAY-13 16:00 | per0520022a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1301783

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
ICS

**Date Received:**

**GEL Job No (SDG):** 2013-809

**GEL Sample ID:** 1202876024

**Date Filtered:** 15-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.209 | ug/L | | 1 | 20-MAY-13 16:08 | per0520023a |
| | Perchlorate Isotope Ratio | | | 3.07 | | | 1 | 20-MAY-13 16:08 | per0520023a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.212 | ug/L | | 1 | 20-MAY-13 16:08 | per0520023a |
| | Perchlorate-O(18) | | | 0.506 | ug/L | | 1 | 20-MAY-13 16:08 | per0520023a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1301783

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CAMO-13-30592MS

**Date Received:** 08-MAY-13

**GEL Job No (SDG):** 2013-809

**GEL Sample ID:** 1202876022

**Date Filtered:** 15-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .1 | .4 | 1.11 | ug/L | | 2 | 20-MAY-13 19:29 | per0520048a |
| | Perchlorate Isotope Ratio | | | 3.13 | | | 2 | 20-MAY-13 19:29 | per0520048a |
| 14797-73-0 | Perchlorate-101 | .1 | .4 | 1.10 | ug/L | | 2 | 20-MAY-13 19:29 | per0520048a |
| | Perchlorate-O(18) | | | 0.985 | ug/L | | 2 | 20-MAY-13 19:29 | per0520048a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1301783

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CAMO-13-30592MSD

**Date Received:** 08-MAY-13

**GEL Job No (SDG):** 2013-809

**GEL Sample ID:** 1202876023

**Date Filtered:** 15-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .1 | .4 | 1.16 | ug/L | | 2 | 20-MAY-13 19:37 | per0520049a |
| | Perchlorate Isotope Ratio | | | 3.05 | | | 2 | 20-MAY-13 19:37 | per0520049a |
| 14797-73-0 | Perchlorate-101 | .1 | .4 | 1.18 | ug/L | | 2 | 20-MAY-13 19:37 | per0520049a |
| | Perchlorate-O(18) | | | 1.02 | ug/L | | 2 | 20-MAY-13 19:37 | per0520049a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Metals Analysis

# Case Narrative

**Metals Fractional Narrative**
**ARS International (ARSL)**
**SDG 2013-809**

## Sample Analysis

| Sample ID | Client ID |
|---|---|
| 325284002 | CAMO-13-30591 |
| 325284004 | CAMO-13-30592 |
| 325284005 | CAMO-13-30558 |
| 1202874202 | Method Blank (MB) **ICP** |
| 1202874203 | Laboratory Control Sample (LCS) |
| 1202874206 | 325480002(CAMO-13-30589L) Serial Dilution (SD) |
| 1202874204 | 325480002(CAMO-13-30589D) Sample Duplicate (DUP) |
| 1202874205 | 325480002(CAMO-13-30589S) Matrix Spike (MS) |
| 1202874210 | Method Blank (MB) **ICP-MS** |
| 1202874211 | Laboratory Control Sample (LCS) |
| 1202874214 | 325480002(CAMO-13-30589L) Serial Dilution (SD) |
| 1202874212 | 325480002(CAMO-13-30589D) Sample Duplicate (DUP) |
| 1202874213 | 325480002(CAMO-13-30589S) Matrix Spike (MS) |
| 1202876202 | Method Blank (MB) **CVAA** |
| 1202876203 | Laboratory Control Sample (LCS) |
| 1202876206 | 325394002(CAMO-13-30588L) Serial Dilution (SD) |
| 1202876204 | 325394002(CAMO-13-30588D) Sample Duplicate (DUP) |
| 1202876205 | 325394002(CAMO-13-30588S) Matrix Spike (MS) |

## Method/Analysis Information

| | |
|---|---|
| **Analytical Batch:** | 1301065, 1301067, 1301863 and 1305711 |
| **Prep Batch :** | 1301064, 1301066 and 1301862 |
| **Standard Operating Procedures:** | GL-MA-E-013 REV# 22, GL-MA-E-006 REV# 9, GL-MA-E-014 REV# 25, GL-MA-E-010 REV# 26 and GL-GC-E-107 REV# 8 |
| **Analytical Method:** | SW846 3005/6010B, SW846 3005/6020 DOE-AL, EPA |

245.1/245.2 and SM 2340 B

**Prep Method :** SW846 3005A and EPA 245.1/245.2 Prep

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

**System Configuration**

The Hardness as CaCO3 is calculated from Calcium and Magnesium results.

The Metals analysis-ICP was performed on a P E 5300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis-ICP was performed on a PE 7300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN 9000 inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadruple mass spectrometer, and dual mode electron multiplier detector. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum. Operating conditions are set at 1400W power and combined argon pressures of 360+/-7 kPa for the plasma and auxiliary gases, and 0.85 L/min carrier gas flow, and an initial lens voltage of 5.2.

The Metals analysis-Mercury was performed on a Perkin-Elmer Flow Injection Mercury System (FIMS-100) automated mercury analyzer. The instrument consists of a cold vapor atomic absorption spectrometer set to detect mercury at a wavelength of 253.7 nm. Sample introduction through the flow injection system is performed via a peristaltic pump at 9 mL/min and nitrogen carrier gas rate of 80 mL/min.

## Calibration Information

**Instrument Calibration**
All initial calibration requirements have been met for this sample delivery group (SDG).

**CRDL Requirements**
All CRDL standards met the referenced advisory control limits.

**ICSA/ICSAB Statement**
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

**Continuing Calibration Blank (CCB) Requirements**
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

**Continuing Calibration Verification (CCV) Requirements**
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

## Quality Control (QC) Information

**Method Blank (MB) Statement**
The MBs analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recoveries met the acceptance limits.

**Quality Control (QC) Sample Statement**
The following samples were selected as the quality control (QC) samples for this SDG: 325480002 (CAMO-13-30589)-ICP and ICP-MS and 325394002 (CAMO-13-30588)-CVAA.

**Matrix Spike (MS) Recovery Statement**
The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The MS met the recommended quality control acceptance criteria for percent recoveries for all applicable analytes with the exception of nickel.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. All applicable analytes met these requirements.

**Serial Dilution % Difference Statement**
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations that are 25X the IDL/MDL for CVAA, 50X the IDL/MDL for ICP, and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the acceptance criteria of less than 10% difference (%D).

## Technical Information

**Holding Time Specifications**
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

**Preparation/Analytical Method Verification**
All procedures were performed as stated in the SOP.

**Sample Dilutions**
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. The samples in this SDG did not require dilutions.

**Preparation Information**
The samples in this SDG were prepared exactly according to the cited SOP.

## Miscellaneous Information

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Data Exception (DER) Documentation**
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. The following DER was

generated for this SDG: 1191916. A copy is included in the Miscellaneous Data section of this package.

**Additional Comments**
Additional comments were not required for this SDG.
Total Hardness by Calculation is determined using the results of Total Calcium (Ca) and Total Magnesium (Mg) determined by ICP or ICP-MS.

Hardness = 2.497 (Ca) + 4.118 (Mg)

Please refer to the Total Ca and Total Mg data to validate results appearing on the Hardness Summary sheet. Both results are in the Inorganic/metals section of the package. There is no Batch QC for calculated results, and thus no QC Summary for the Hardness by Calculation Batch. The MDLs and PQLs are calculated using the higher of the two calculated values of Ca or Mg.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

**Review Validation:**

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

**The following data validator verified the information presented in this case narrative:**

**Reviewer:**_____ **Date:** 06/04/13

# Sample Data Summary

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-809  GEL Work Order: 325284

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

J  Value is estimated

N  Metals--The Matrix spike sample recovery is not within specified control limits

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____ 06/04/13

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−809 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

**SAMPLE ID:** 325284002 **BASIS:** As Received **DATE COLLECTED** 06−MAY−13

**CLIENT ID:** CAMO−13−30591 **LEVEL:** Low **DATE RECEIVED** 08−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7439−97−6 | Mercury | 0.20 | ug/L | U | 0.067 | 0.2 | 0.2 | 1 | AV | NOR1 | 05/16/13 11:05 | 051613W1−13 | 1301863 |

# METALS
## −1−
## INORGANICS ANALYSIS DATA PACKAGE

**SDG No:** 2013−809 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

**SAMPLE ID:** 325284002 **BASIS:** As Received **DATE COLLECTED** 06−MAY−13

**CLIENT ID:** CAMO−13−30591 **LEVEL:** Low **DATE RECEIVED** 08−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7429−90−5 | Aluminum | 200 | ug/L | U | 68 | 200 | 200 | 1 | P | HSC | 06/03/13 09:14 | 060313A−1 | 1301065 |
| 7440−36−0 | Antimony | 3 | ug/L | U | 1 | 3 | 3 | 1 | MS | PRB | 06/04/13 12:40 | 130604−12 | 1301067 |
| 7440−38−2 | Arsenic | 5 | ug/L | U | 1.7 | 5 | 5 | 1 | MS | BAJ | 06/04/13 03:58 | 130603−11 | 1301067 |
| 7440−39−3 | Barium | 28.1 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:14 | 060313A−1 | 1301065 |
| 7440−41−7 | Beryllium | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:14 | 060313A−1 | 1301065 |
| 7440−42−8 | Boron | 50 | ug/L | U | 15 | 50 | 50 | 1 | P | HSC | 06/03/13 09:14 | 060313A−1 | 1301065 |
| 7440−43−9 | Cadmium | 1 | ug/L | U | 0.11 | 1 | 1 | 1 | MS | BAJ | 06/01/13 14:24 | 130601−10 | 1301067 |
| 7440−70−2 | Calcium | 14000 | ug/L | | 50 | 200 | 200 | 1 | P | HSC | 06/03/13 09:14 | 060313A−1 | 1301065 |
| 7440−47−3 | Chromium | 12.5 | ug/L | | 2 | 10 | 10 | 1 | MS | BAJ | 06/01/13 01:14 | 130531−3 | 1301067 |
| 7440−48−4 | Cobalt | 1.08 | ug/L | J | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:14 | 060313A−1 | 1301065 |
| 7440−50−8 | Copper | 10 | ug/L | U | 3 | 10 | 10 | 1 | P | HSC | 06/03/13 09:14 | 060313A−1 | 1301065 |
| 7439−89−6 | Iron | 100 | ug/L | U | 30 | 100 | 100 | 1 | P | HSC | 06/03/13 09:14 | 060313A−1 | 1301065 |
| 7439−92−1 | Lead | 2 | ug/L | U | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/04/13 03:58 | 130603−11 | 1301067 |
| 7439−95−4 | Magnesium | 3820 | ug/L | | 110 | 300 | 300 | 1 | P | HSC | 06/03/13 09:14 | 060313A−1 | 1301065 |
| 7439−96−5 | Manganese | 10 | ug/L | U | 2 | 10 | 10 | 1 | P | HSC | 06/03/13 09:14 | 060313A−1 | 1301065 |
| 7439−98−7 | Molybdenum | 1 | ug/L | | 0.165 | 0.5 | 0.5 | 1 | MS | BAJ | 06/01/13 08:21 | 130531−7 | 1301067 |
| 7440−02−0 | Nickel | 0.970 | ug/L | J | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/01/13 01:14 | 130531−3 | 1301067 |
| 7440−09−7 | Potassium | 1830 | ug/L | | 50 | 150 | 150 | 1 | P | HSC | 06/03/13 09:14 | 060313A−1 | 1301065 |
| 7782−49−2 | Selenium | 5 | ug/L | U | 1.5 | 5 | 5 | 1 | MS | BAJ | 06/04/13 03:58 | 130603−11 | 1301067 |
| 7631−86−9 | Silica | 70100 | ug/L | | 53 | 213 | 213 | 1 | P | HSC | 06/03/13 09:14 | 060313A−1 | 1301065 |
| 7440−22−4 | Silver | 1 | ug/L | U | 0.2 | 1 | 1 | 1 | MS | BAJ | 06/01/13 14:24 | 130601−10 | 1301067 |
| 7440−23−5 | Sodium | 10500 | ug/L | | 100 | 300 | 300 | 1 | P | HSC | 06/03/13 11:04 | 060313A−2 | 1301065 |
| 7440−24−6 | Strontium | 64.7 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:14 | 060313A−1 | 1301065 |
| 7440−28−0 | Thallium | 2 | ug/L | U | 0.45 | 2 | 2 | 1 | MS | BAJ | 06/04/13 03:58 | 130603−11 | 1301067 |
| 7440−31−5 | Tin | 10 | ug/L | U | 2.5 | 10 | 10 | 1 | P | HSC | 06/03/13 11:04 | 060313A−2 | 1301065 |
| 7440−61−1 | Uranium | 0.440 | ug/L | | 0.067 | 0.2 | 0.2 | 1 | MS | BAJ | 06/01/13 11:54 | 130601−8 | 1301067 |
| 7440−62−2 | Vanadium | 5.94 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:14 | 060313A−1 | 1301065 |
| 7440−66−6 | Zinc | 10 | ug/L | U | 3.3 | 10 | 10 | 1 | P | HSC | 06/03/13 09:14 | 060313A−1 | 1301065 |

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−809 **CONTRACT:** ESHL00210 **METHOD TYPE:**

**SAMPLE ID:** 325284002 **BASIS:** As Received **DATE COLLECTED** 06−MAY−13

**CLIENT ID:** CAMO−13−30591 **LEVEL:** Low **DATE RECEIVED** 08−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Hardness as CaCO3 | 50.6 | mg/L | | 0.453 | 1.24 | 1.24 | 1 | | JJ2 | 06/04/13 11:28 | | 1305711 |

**Prep Information:**

| Analytical Batch | Prep Batch | Prep Method | Initial wt./vol. | Units | Final wt./vol. | Units | Date | Analyst |
|---|---|---|---|---|---|---|---|---|
| 1301065 | 1301064 | SW846 3005A | 50 | mL | 50 | mL | 05/31/13 | MTM1 |
| 1301067 | 1301066 | SW846 3005A | 50 | mL | 50 | mL | 05/31/13 | MTM1 |
| 1301863 | 1301862 | EPA 245.1/245.2 Prep | 20 | mL | 20 | mL | 05/15/13 | AXS5 |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**
**P** **SW846 3005/6010B**
**AV** **EPA 245.1/245.2**

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−809 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

**SAMPLE ID:** 325284004 **BASIS:** As Received **DATE COLLECTED** 06−MAY−13

**CLIENT ID:** CAMO−13−30592 **LEVEL:** Low **DATE RECEIVED** 08−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7439−97−6 | Mercury | 0.20 | ug/L | U | 0.067 | 0.2 | 0.2 | 1 | AV | NOR1 | 05/16/13 11:06 | 051613W1−13 | 1301863 |

# METALS
## −1−
## INORGANICS ANALYSIS DATA PACKAGE

**SDG No:** 2013−809 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

**SAMPLE ID:** 325284004 **BASIS:** As Received **DATE COLLECTED** 06−MAY−13

**CLIENT ID:** CAMO−13−30592 **LEVEL:** Low **DATE RECEIVED** 08−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7429−90−5 | Aluminum | 200 | ug/L | U | 68 | 200 | 200 | 1 | P | HSC | 06/03/13 09:18 | 060313A−1 | 1301065 |
| 7440−36−0 | Antimony | 3 | ug/L | U | 1 | 3 | 3 | 1 | MS | PRB | 06/04/13 12:44 | 130604−12 | 1301067 |
| 7440−38−2 | Arsenic | 5 | ug/L | U | 1.7 | 5 | 5 | 1 | MS | BAJ | 06/04/13 04:01 | 130603−11 | 1301067 |
| 7440−39−3 | Barium | 65.1 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:18 | 060313A−1 | 1301065 |
| 7440−41−7 | Beryllium | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:18 | 060313A−1 | 1301065 |
| 7440−42−8 | Boron | 20 | ug/L | J | 15 | 50 | 50 | 1 | P | HSC | 06/03/13 09:18 | 060313A−1 | 1301065 |
| 7440−43−9 | Cadmium | 1 | ug/L | U | 0.11 | 1 | 1 | 1 | MS | BAJ | 06/01/13 14:27 | 130601−10 | 1301067 |
| 7440−70−2 | Calcium | 44500 | ug/L | | 50 | 200 | 200 | 1 | P | HSC | 06/03/13 09:18 | 060313A−1 | 1301065 |
| 7440−47−3 | Chromium | 404 | ug/L | | 2 | 10 | 10 | 1 | MS | BAJ | 06/01/13 01:21 | 130531−3 | 1301067 |
| 7440−48−4 | Cobalt | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:18 | 060313A−1 | 1301065 |
| 7440−50−8 | Copper | 10 | ug/L | U | 3 | 10 | 10 | 1 | P | HSC | 06/03/13 09:18 | 060313A−1 | 1301065 |
| 7439−89−6 | Iron | 100 | ug/L | U | 30 | 100 | 100 | 1 | P | HSC | 06/03/13 09:18 | 060313A−1 | 1301065 |
| 7439−92−1 | Lead | 2 | ug/L | U | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/04/13 04:01 | 130603−11 | 1301067 |
| 7439−95−4 | Magnesium | 11100 | ug/L | | 110 | 300 | 300 | 1 | P | HSC | 06/03/13 09:18 | 060313A−1 | 1301065 |
| 7439−96−5 | Manganese | 10 | ug/L | U | 2 | 10 | 10 | 1 | P | HSC | 06/03/13 09:18 | 060313A−1 | 1301065 |
| 7439−98−7 | Molybdenum | 0.877 | ug/L | | 0.165 | 0.5 | 0.5 | 1 | MS | BAJ | 06/01/13 08:25 | 130531−7 | 1301067 |
| 7440−02−0 | Nickel | 23.3 | ug/L | | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/01/13 01:21 | 130531−3 | 1301067 |
| 7440−09−7 | Potassium | 1830 | ug/L | | 50 | 150 | 150 | 1 | P | HSC | 06/03/13 09:18 | 060313A−1 | 1301065 |
| 7782−49−2 | Selenium | 5 | ug/L | U | 1.5 | 5 | 5 | 1 | MS | BAJ | 06/04/13 04:01 | 130603−11 | 1301067 |
| 7631−86−9 | Silica | 72100 | ug/L | | 53 | 213 | 213 | 1 | P | HSC | 06/03/13 09:18 | 060313A−1 | 1301065 |
| 7440−22−4 | Silver | 1 | ug/L | U | 0.2 | 1 | 1 | 1 | MS | BAJ | 06/01/13 14:27 | 130601−10 | 1301067 |
| 7440−23−5 | Sodium | 15300 | ug/L | | 100 | 300 | 300 | 1 | P | HSC | 06/03/13 11:14 | 060313A−2 | 1301065 |
| 7440−24−6 | Strontium | 178 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:18 | 060313A−1 | 1301065 |
| 7440−28−0 | Thallium | 2 | ug/L | U | 0.45 | 2 | 2 | 1 | MS | BAJ | 06/04/13 04:01 | 130603−11 | 1301067 |
| 7440−31−5 | Tin | 10 | ug/L | U | 2.5 | 10 | 10 | 1 | P | HSC | 06/03/13 11:14 | 060313A−2 | 1301065 |
| 7440−61−1 | Uranium | 1.67 | ug/L | | 0.067 | 0.2 | 0.2 | 1 | MS | BAJ | 06/01/13 11:56 | 130601−8 | 1301067 |
| 7440−62−2 | Vanadium | 4.93 | ug/L | J | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:18 | 060313A−1 | 1301065 |
| 7440−66−6 | Zinc | 4.63 | ug/L | J | 3.3 | 10 | 10 | 1 | P | HSC | 06/03/13 09:18 | 060313A−1 | 1301065 |

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−809 **CONTRACT:** ESHL00210 **METHOD TYPE:**

**SAMPLE ID:** 325284004 **BASIS:** As Received **DATE COLLECTED** 06−MAY−13

**CLIENT ID:** CAMO−13−30592 **LEVEL:** Low **DATE RECEIVED** 08−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Hardness as CaCO3 | 157 | mg/L | | 0.453 | 1.24 | 1.24 | 1 | | JJ2 | 06/04/13 11:28 | | 1305711 |

**Prep Information:**

| Analytical Batch | Prep Batch | Prep Method | Initial wt./vol. | Units | Final wt./vol. | Units | Date | Analyst |
|---|---|---|---|---|---|---|---|---|
| 1301065 | 1301064 | SW846 3005A | 50 | mL | 50 | mL | 05/31/13 | MTM1 |
| 1301067 | 1301066 | SW846 3005A | 50 | mL | 50 | mL | 05/31/13 | MTM1 |
| 1301863 | 1301862 | EPA 245.1/245.2 Prep | 20 | mL | 20 | mL | 05/15/13 | AXS5 |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**
**P** **SW846 3005/6010B**
**AV** **EPA 245.1/245.2**

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−809 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

**SAMPLE ID:** 325284005 **BASIS:** As Received **DATE COLLECTED** 06−MAY−13

**CLIENT ID:** CAMO−13−30558 **LEVEL:** Low **DATE RECEIVED** 08−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7439−97−6 | Mercury | 0.20 | ug/L | U | 0.067 | 0.2 | 0.2 | 1 | AV | NOR1 | 05/16/13 11:08 | 051613W1−13 | 1301863 |

# METALS
## −1−
## INORGANICS ANALYSIS DATA PACKAGE

**SDG No:** 2013−809 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

**SAMPLE ID:** 325284005 **BASIS:** As Received **DATE COLLECTED** 06−MAY−13

**CLIENT ID:** CAMO−13−30558 **LEVEL:** Low **DATE RECEIVED** 08−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7429−90−5 | Aluminum | 200 | ug/L | U | 68 | 200 | 200 | 1 | P | HSC | 06/03/13 09:21 | 060313A−1 | 1301065 |
| 7440−36−0 | Antimony | 3 | ug/L | U | 1 | 3 | 3 | 1 | MS | PRB | 06/04/13 12:47 | 130604−12 | 1301067 |
| 7440−38−2 | Arsenic | 5 | ug/L | U | 1.7 | 5 | 5 | 1 | MS | BAJ | 06/04/13 04:04 | 130603−11 | 1301067 |
| 7440−39−3 | Barium | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:21 | 060313A−1 | 1301065 |
| 7440−41−7 | Beryllium | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:21 | 060313A−1 | 1301065 |
| 7440−42−8 | Boron | 50 | ug/L | U | 15 | 50 | 50 | 1 | P | HSC | 06/03/13 09:21 | 060313A−1 | 1301065 |
| 7440−43−9 | Cadmium | 1 | ug/L | U | 0.11 | 1 | 1 | 1 | MS | BAJ | 06/01/13 14:31 | 130601−10 | 1301067 |
| 7440−70−2 | Calcium | 200 | ug/L | U | 50 | 200 | 200 | 1 | P | HSC | 06/03/13 09:21 | 060313A−1 | 1301065 |
| 7440−47−3 | Chromium | 2.1 | ug/L | J | 2 | 10 | 10 | 1 | MS | BAJ | 06/01/13 01:27 | 130531−3 | 1301067 |
| 7440−48−4 | Cobalt | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:21 | 060313A−1 | 1301065 |
| 7440−50−8 | Copper | 10 | ug/L | U | 3 | 10 | 10 | 1 | P | HSC | 06/03/13 09:21 | 060313A−1 | 1301065 |
| 7439−89−6 | Iron | 100 | ug/L | U | 30 | 100 | 100 | 1 | P | HSC | 06/03/13 09:21 | 060313A−1 | 1301065 |
| 7439−92−1 | Lead | 2 | ug/L | U | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/04/13 04:04 | 130603−11 | 1301067 |
| 7439−95−4 | Magnesium | 300 | ug/L | U | 110 | 300 | 300 | 1 | P | HSC | 06/03/13 09:21 | 060313A−1 | 1301065 |
| 7439−96−5 | Manganese | 10 | ug/L | U | 2 | 10 | 10 | 1 | P | HSC | 06/03/13 09:21 | 060313A−1 | 1301065 |
| 7439−98−7 | Molybdenum | 0.50 | ug/L | U | 0.165 | 0.5 | 0.5 | 1 | MS | BAJ | 06/01/13 08:28 | 130531−7 | 1301067 |
| 7440−02−0 | Nickel | 2 | ug/L | U | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/01/13 01:27 | 130531−3 | 1301067 |
| 7440−09−7 | Potassium | 150 | ug/L | U | 50 | 150 | 150 | 1 | P | HSC | 06/03/13 09:21 | 060313A−1 | 1301065 |
| 7782−49−2 | Selenium | 5 | ug/L | U | 1.5 | 5 | 5 | 1 | MS | BAJ | 06/04/13 04:04 | 130603−11 | 1301067 |
| 7631−86−9 | Silica | 0.213 | mg/L | U | 0.053 | 0.213 | 0.213 | 1 | P | HSC | 06/03/13 09:21 | 060313A−1 | 1301065 |
| 7440−22−4 | Silver | 1 | ug/L | U | 0.2 | 1 | 1 | 1 | MS | BAJ | 06/01/13 14:31 | 130601−10 | 1301067 |
| 7440−23−5 | Sodium | 300 | ug/L | U | 100 | 300 | 300 | 1 | P | HSC | 06/03/13 11:17 | 060313A−2 | 1301065 |
| 7440−24−6 | Strontium | 1.46 | ug/L | J | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:21 | 060313A−1 | 1301065 |
| 7440−28−0 | Thallium | 2 | ug/L | U | 0.45 | 2 | 2 | 1 | MS | BAJ | 06/04/13 04:04 | 130603−11 | 1301067 |
| 7440−31−5 | Tin | 10 | ug/L | U | 2.5 | 10 | 10 | 1 | P | HSC | 06/03/13 11:17 | 060313A−2 | 1301065 |
| 7440−61−1 | Uranium | 0.20 | ug/L | U | 0.067 | 0.2 | 0.2 | 1 | MS | BAJ | 06/01/13 12:03 | 130601−8 | 1301067 |
| 7440−62−2 | Vanadium | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:21 | 060313A−1 | 1301065 |
| 7440−66−6 | Zinc | 10 | ug/L | U | 3.3 | 10 | 10 | 1 | P | HSC | 06/03/13 09:21 | 060313A−1 | 1301065 |

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−809 **CONTRACT:** ESHL00210 **METHOD TYPE:**

**SAMPLE ID:** 325284005 **BASIS:** As Received **DATE COLLECTED** 06−MAY−13

**CLIENT ID:** CAMO−13−30558 **LEVEL:** Low **DATE RECEIVED** 08−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Hardness as CaCO3 | 1.24 | mg/L | U | 0.453 | 1.24 | 1.24 | 1 | | JJ2 | 06/04/13 11:28 | | 1305711 |

**Prep Information:**

| Analytical Batch | Prep Batch | Prep Method | Initial wt./vol. | Units | Final wt./vol. | Units | Date | Analyst |
|---|---|---|---|---|---|---|---|---|
| 1301065 | 1301064 | SW846 3005A | 50 | mL | 50 | mL | 05/31/13 | MTM1 |
| 1301067 | 1301066 | SW846 3005A | 50 | mL | 50 | mL | 05/31/13 | MTM1 |
| 1301863 | 1301862 | EPA 245.1/245.2 Prep | 20 | mL | 20 | mL | 05/15/13 | AXS5 |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**
**P** **SW846 3005/6010B**
**AV** **EPA 245.1/245.2**

# Quality Control Summary

**METALS**
**−3b−**
**PREPARATION BLANK SUMMARY**

**SDG NO.** 2013−809

**Contract:** ESHL00210

**Matrix:** W

| Sample ID | Analyte | Result | Units | Acceptance Window | Conc Qual | M* | MDL | RDL |
|---|---|---|---|---|---|---|---|---|
| 1202874202 | | | | | | | | |
| | Aluminum | 68 | ug/L | +/−200 | U | P | 68 | 200 |
| | Barium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Beryllium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Boron | 15 | ug/L | +/−50 | U | P | 15 | 50 |
| | Calcium | 50 | ug/L | +/−200 | U | P | 50 | 200 |
| | Cobalt | 1.31 | ug/L | +/−5 | J | P | 1 | 5 |
| | Copper | 3 | ug/L | +/−10 | U | P | 3 | 10 |
| | Iron | 30 | ug/L | +/−100 | U | P | 30 | 100 |
| | Magnesium | 110 | ug/L | +/−300 | U | P | 110 | 300 |
| | Manganese | 2 | ug/L | +/−10 | U | P | 2 | 10 |
| | Potassium | 64.3 | ug/L | +/−150 | J | P | 50 | 150 |
| | Silica | 53 | ug/L | +/−213 | U | P | 53 | 213 |
| | Sodium | 100 | ug/L | +/−300 | U | P | 100 | 300 |
| | Strontium | 2.05 | ug/L | +/−5 | J | P | 1 | 5 |
| | Tin | 2.5 | ug/L | +/−10 | U | P | 2.5 | 10 |
| | Vanadium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Zinc | 3.3 | ug/L | +/−10 | U | P | 3.3 | 10 |
| 1202874210 | | | | | | | | |
| | Antimony | 1 | ug/L | +/−3 | U | MS | 1 | 3 |
| | Arsenic | 1.7 | ug/L | +/−5 | U | MS | 1.7 | 5 |
| | Cadmium | 0.11 | ug/L | +/−1 | U | MS | 0.11 | 1 |
| | Chromium | 2 | ug/L | +/−10 | U | MS | 2 | 10 |
| | Lead | 0.5 | ug/L | +/−2 | U | MS | 0.5 | 2 |
| | Molybdenum | 0.165 | ug/L | +/−0.5 | U | MS | 0.165 | 0.5 |
| | Nickel | 0.5 | ug/L | +/−2 | U | MS | 0.5 | 2 |
| | Selenium | 1.5 | ug/L | +/−5 | U | MS | 1.5 | 5 |
| | Silver | 0.2 | ug/L | +/−1 | U | MS | 0.2 | 1 |
| | Thallium | 0.45 | ug/L | +/−2 | U | MS | 0.45 | 2 |
| | Uranium | 0.067 | ug/L | +/−0.2 | U | MS | 0.067 | 0.2 |
| 1202876202 | | | | | | | | |
| | Mercury | 0.067 | ug/L | +/−0.2 | U | AV | 0.067 | 0.2 |

***Analytical Methods:**

| | |
|---|---|
| **MS** | **SW846 3005/6020 DOE−AL** |
| **P** | **SW846 3005/6010B** |
| **AV** | **EPA 245.1/245.2** |

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−809 **Client ID** CAMO−13−30589S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 325480002 **Spike ID:** 1202874205

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | ug/L | 75−125 | 5060 | | 68 | U | 5000 | 101 | | P |
| Barium | ug/L | 75−125 | 504 | | 41.1 | | 500 | 92.5 | | P |
| Beryllium | ug/L | 75−125 | 473 | | 1 | U | 500 | 94.5 | | P |
| Boron | ug/L | 75−125 | 509 | | 42.3 | J | 500 | 93.4 | | P |
| Calcium | ug/L | | 68900 | | 63900 | | 5000 | 98.3 | N/A | P |
| Cobalt | ug/L | 75−125 | 438 | | 1 | U | 500 | 87.5 | | P |
| Copper | ug/L | 75−125 | 490 | | 6.12 | J | 500 | 96.7 | | P |
| Iron | ug/L | 75−125 | 4790 | | 30 | U | 5000 | 95.6 | | P |
| Magnesium | ug/L | 75−125 | 17600 | | 13000 | | 5000 | 92.7 | | P |
| Manganese | ug/L | 75−125 | 450 | | 2.92 | J | 500 | 89.5 | | P |
| Potassium | ug/L | 75−125 | 5640 | | 881 | | 5000 | 95.2 | | P |
| Silica | ug/L | | 75900 | | 65300 | | 10700 | 99 | N/A | P |
| Sodium | ug/L | | 30200 | | 25500 | | 5000 | 93.5 | N/A | P |
| Strontium | ug/L | 75−125 | 812 | | 305 | | 500 | 101 | | P |
| Tin | ug/L | 75−125 | 454 | | 2.5 | U | 500 | 90.8 | | P |
| Vanadium | ug/L | 75−125 | 469 | | 1 | U | 500 | 93.6 | | P |
| Zinc | ug/L | 75−125 | 430 | | 15.9 | | 500 | 82.8 | | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−809 **Client ID** CAMO−13−30589S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 325480002 **Spike ID:** 1202874213

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ug/L | 75−125 | 50.4 | | 1 | U | 50 | 100 | | MS |
| Arsenic | ug/L | 75−125 | 49.9 | | 1.7 | U | 50 | 99.9 | | MS |
| Cadmium | ug/L | 75−125 | 52.7 | | 0.11 | U | 50 | 105 | | MS |
| Chromium | ug/L | 75−125 | 135 | | 73.2 | | 50 | 124 | | MS |
| Lead | ug/L | 75−125 | 50.1 | | 0.5 | U | 50 | 100 | | MS |
| Molybdenum | ug/L | 75−125 | 55.4 | | 1.45 | | 50 | 108 | | MS |
| Nickel | ug/L | 75−125 | 104 | | 41.3 | | 50 | 126 | N | MS |
| Selenium | ug/L | 75−125 | 54.9 | | 1.5 | U | 50 | 108 | | MS |
| Silver | ug/L | 75−125 | 51.5 | | 0.2 | U | 50 | 103 | | MS |
| Thallium | ug/L | 75−125 | 45.7 | | 0.45 | U | 50 | 91.1 | | MS |
| Uranium | ug/L | 75−125 | 55 | | 1.27 | | 50 | 108 | | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−809 **Client ID** CAMO−13−30588S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 325394002 **Spike ID:** 1202876205

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | ug/L | 75−125 | 1.99 | | 0.067 | U | 2 | 99.5 | | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−809 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CAMO−13−30589D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325480002 **Duplicate ID:** 1202874204 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | ug/L | | 68 | U | 68 | U | | | P |
| Barium | ug/L | +/−20% | 41.1 | | 41.6 | | 1.31 | | P |
| Beryllium | ug/L | | 1 | U | 1 | U | | | P |
| Boron | ug/L | +/−50 | 42.3 | J | 42.5 | J | .481 | | P |
| Calcium | ug/L | +/−20% | 63900 | | 65400 | | 2.23 | | P |
| Cobalt | ug/L | | 1 | U | 1.08 | J | 200 | | P |
| Copper | ug/L | +/−10 | 6.12 | J | 6.13 | J | .16 | | P |
| Iron | ug/L | | 30 | U | 30 | U | | | P |
| Magnesium | ug/L | +/−20% | 13000 | | 13200 | | 1.48 | | P |
| Manganese | ug/L | +/−10 | 2.92 | J | 2.81 | J | 3.67 | | P |
| Potassium | ug/L | +/−20% | 881 | | 863 | | 2.09 | | P |
| Silica | ug/L | +/−20% | 65300 | | 66300 | | 1.56 | | P |
| Sodium | ug/L | +/−20% | 25500 | | 25500 | | .0667 | | P |
| Strontium | ug/L | +/−20% | 305 | | 312 | | 2.26 | | P |
| Tin | ug/L | | 2.5 | U | 2.5 | U | | | P |
| Vanadium | ug/L | | 1 | U | 1 | U | | | P |
| Zinc | ug/L | +/−10 | 15.9 | | 14.5 | | 9.43 | | P |

***Analytical Methods:**

**P SW846 3005/6010B**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−809 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CAMO−13−30589D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325480002 **Duplicate ID:** 1202874212 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Antimony | ug/L | | 1 | U | 1 | U | | | MS |
| Arsenic | ug/L | | 1.7 | U | 1.7 | U | | | MS |
| Cadmium | ug/L | | 0.11 | U | 0.11 | U | | | MS |
| Chromium | ug/L | +/−20% | 73.2 | | 72.1 | | 1.52 | | MS |
| Lead | ug/L | | 0.5 | U | 0.5 | U | | | MS |
| Molybdenum | ug/L | +/−.5 | 1.45 | | 1.44 | | .416 | | MS |
| Nickel | ug/L | +/−20% | 41.3 | | 40.3 | | 2.57 | | MS |
| Selenium | ug/L | | 1.5 | U | 1.5 | U | | | MS |
| Silver | ug/L | | 0.2 | U | 0.2 | U | | | MS |
| Thallium | ug/L | | 0.45 | U | 0.45 | U | | | MS |
| Uranium | ug/L | +/−20% | 1.27 | | 1.22 | | 4.25 | | MS |

***Analytical Methods:**

**MS SW846 3005/6020 DOE−AL**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−809 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CAMO−13−30588D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325394002 **Duplicate ID:** 1202876204 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | ug/L | | 0.067 | U | 0.067 | U | | | AV |

***Analytical Methods:**

**AV EPA 245.1/245.2**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−809

**Contract:** ESHL00210

**Aqueous LCS Source:** OS2I **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202874203 | | | | | | | | |
| | Manganese | ug/L | 500 | 469 | | 93.8 | 80−120 | P |
| | Potassium | ug/L | 5000 | 4880 | | 97.6 | 80−120 | P |
| | Silica | ug/L | 10700 | 9820 | | 91.7 | 80−120 | P |
| | Sodium | ug/L | 5000 | 4920 | | 98.4 | 80−120 | P |
| | Strontium | ug/L | 500 | 513 | | 103 | 80−120 | P |
| | Tin | ug/L | 500 | 480 | | 96 | 80−120 | P |
| | Vanadium | ug/L | 500 | 476 | | 95.1 | 80−120 | P |
| | Zinc | ug/L | 500 | 443 | | 88.7 | 80−120 | P |
| | Magnesium | ug/L | 5000 | 4900 | | 98 | 80−120 | P |
| | Barium | ug/L | 500 | 478 | | 95.6 | 80−120 | P |
| | Beryllium | ug/L | 500 | 485 | | 97 | 80−120 | P |
| | Boron | ug/L | 500 | 462 | | 92.4 | 80−120 | P |
| | Calcium | ug/L | 5000 | 4940 | | 98.8 | 80−120 | P |
| | Cobalt | ug/L | 500 | 465 | | 93.1 | 80−120 | P |
| | Copper | ug/L | 500 | 484 | | 96.9 | 80−120 | P |
| | Iron | ug/L | 5000 | 4950 | | 99.1 | 80−120 | P |
| | Aluminum | ug/L | 5000 | 5220 | | 104 | 80−120 | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−809

**Contract:** ESHL00210

**Aqueous LCS Source:** O2Si **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202874211 | | | | | | | | |
| | Antimony | ug/L | 50 | 52.9 | | 106 | 80−120 | MS |
| | Arsenic | ug/L | 50 | 52.2 | | 104 | 80−120 | MS |
| | Cadmium | ug/L | 50 | 52 | | 104 | 80−120 | MS |
| | Chromium | ug/L | 50 | 53 | | 106 | 80−120 | MS |
| | Lead | ug/L | 50 | 53.7 | | 107 | 80−120 | MS |
| | Molybdenum | ug/L | 50 | 50.7 | | 101 | 80−120 | MS |
| | Nickel | ug/L | 50 | 55.6 | | 111 | 80−120 | MS |
| | Selenium | ug/L | 50 | 55.4 | | 111 | 80−120 | MS |
| | Silver | ug/L | 50 | 52.5 | | 105 | 80−120 | MS |
| | Thallium | ug/L | 50 | 47.5 | | 95 | 80−120 | MS |
| | Uranium | ug/L | 50 | 51.5 | | 103 | 80−120 | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−809

**Contract:** ESHL00210

**Aqueous LCS Source:** GEL **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202876203 | | | | | | | | |
| | Mercury | ug/L | 2 | 2.05 | | 103 | 85−115 | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−809 **Client ID** CAMO−13−30589L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325480002 **Serial Dilution ID:** 1202874206

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Aluminum | 68 | U | 340 | U | | | | P |
| Barium | 41.1 | | 41.1 | | .033 | | | P |
| Beryllium | 1 | U | 5 | U | | | | P |
| Boron | 42.3 | J | 75 | U | 100 | | | P |
| Calcium | 63900 | | 64700 | | 1.18 | | 10 | P |
| Cobalt | 1 | U | 5 | U | | | | P |
| Copper | 6.12 | J | 15 | U | 100 | | | P |
| Iron | 30 | U | 150 | U | | | | P |
| Magnesium | 13000 | | 13000 | | .331 | | 10 | P |
| Manganese | 2.92 | J | 10 | U | 100 | | | P |
| Potassium | 881 | | 1120 | | 27.4 | | | P |
| Silica | 65300 | | 63400 | | 2.89 | | 10 | P |
| Sodium | 25500 | | 26000 | | 2.02 | | 10 | P |
| Strontium | 305 | | 311 | | 2.03 | | 10 | P |
| Tin | 2.5 | U | 12.5 | U | | | | P |
| Vanadium | 1 | U | 5 | U | | | | P |
| Zinc | 15.9 | | 16.5 | U | 100 | | | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−809 **Client ID** CAMO−13−30589L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325480002 **Serial Dilution ID:** 1202874214

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Antimony | 1 | U | 5 | U | | | | MS |
| Arsenic | 1.7 | U | 8.5 | U | | | | MS |
| Cadmium | .11 | U | .55 | U | | | | MS |
| Chromium | 73.2 | | 81.4 | | 11.2 | | | MS |
| Lead | .5 | U | 2.5 | U | | | | MS |
| Molybdenum | 1.45 | | 1.79 | J | 23.5 | | | MS |
| Nickel | 41.3 | | 43.4 | | 5.08 | | | MS |
| Selenium | 1.5 | U | 7.5 | U | | | | MS |
| Silver | .2 | U | 1 | U | | | | MS |
| Thallium | .45 | U | 2.65 | J | | | | MS |
| Uranium | 1.27 | | 1.3 | | 2.04 | | | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−809 **Client ID** CAMO−13−30588L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325394002 **Serial Dilution ID:** 1202876206

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Mercury | .067 | U | .335 | U | | | | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

# Miscellaneous

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 04-JUN-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| ICP/MS | SW846 3005/6020 DOE-AL | Liquid | ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1301067 | See Below | | |

**Potentially affected work order(s)(SDG):** **325283(2013-808),325284(2013-809),325285(2013-810),325394(2013-813),325410(2013-814),325479(2013-822),325480(2013-823)**

**Application Issues:**

Failed Recovery for MS/PS

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed Recovery for MS/PS:<br><br>QC 1202874213MS | The matrix spike recovery failed outside of the control limits for Ni due to possible matrix interferences and/or non-homogeneity. Per GEL's accredited methods and SOPs, a corrective action is not required and the data is qualified and reported. |

**Originator's Name:**
Elizabeth Janssen 04-JUN-13

**Data Validator/Group Leader:**
Paul Boyd 04-JUN-13

# General Chem Analysis

# Case Narrative

**General Chemistry Narrative**
**ARS International (ARSL)**
**SDG 2013-809**

## Method/Analysis Information

**Product:** **Carbon, Total Organic**

**Analytical Batch:** 1300890 **Method:** SW 9060 Total Organic Carbon

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9060:

| Sample ID | Client ID |
|---|---|
| 325284001 | CAMO-13-30575 |
| 325284003 | CAMO-13-30576 |
| 325284005 | CAMO-13-30558 |
| 1202873770 | Method Blank (MB) |
| 1202873772 | 325410001(CAMO-13-30616) Sample Duplicate (DUP) |
| 1202873774 | 325410001(CAMO-13-30616) Post Spike (PS) |
| 1202873775 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-093 REV# 12.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Carbon analysis was performed on a O-I Analytical Model 1010 Total Organic Carbon Analyzer.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325410001 (CAMO-13-30616).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an

effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Specific Conductivity** | | |
| **Analytical Batch:** | 1300876 | **Method:** | EPA120.1 Specific Conductivity |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 120.1:

| Sample ID | Client ID |
|---|---|
| 325284002 | CAMO-13-30591 |
| 325284004 | CAMO-13-30592 |
| 325284005 | CAMO-13-30558 |
| 1202873728 | Laboratory Control Sample (LCS) |
| 1202873730 | 325410002(CAMO-13-30620) Sample Duplicate (DUP) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-009 REV# 11.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Conductivity analysis was performed on a Orion 160 Conductivity Meter.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325410002 (CAMO-13-30620).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

**Product:** **pH**

**Analytical Batch:** 1300535 **Method:** EPA 150.1 pH

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 150.1:

| Sample ID | Client ID |
|---|---|
| 325284002 | CAMO-13-30591 |
| 325284004 | CAMO-13-30592 |
| 325284005 | CAMO-13-30558 |
| 1202872792 | 325283002(CAMO-13-30590) Sample Duplicate (DUP) |
| 1202872793 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-008 REV# 21.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Electrode analysis was performed on a PerpHect pH Meter Orion 370.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325283002 (CAMO-13-30590).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
The following samples from this sample group were received by the lab outside of the method specified holding time: 325284002 (CAMO-13-30591), 325284004 (CAMO-13-30592) and 325284005 (CAMO-13-30558).

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1188762 325284002 (CAMO-13-30591), 325284004 (CAMO-13-30592) and 325284005 (CAMO-13-30558).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Ion Chromatography** | | |
| **Analytical Batch:** | 1300377 | **Method:** | EPA 300.0 Anions Liquid 28 day |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

| Sample ID | Client ID |
|---|---|
| 325284002 | CAMO-13-30591 |
| 325284004 | CAMO-13-30592 |
| 325284005 | CAMO-13-30558 |
| 1202872355 | Method Blank (MB) |
| 1202872356 | 325284005(CAMO-13-30558) Sample Duplicate (DUP) |
| 1202872357 | 325284005(CAMO-13-30558) Post Spike (PS) |
| 1202872358 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 21.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-5000 Ion Chromatograph.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within

acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325284005 (CAMO-13-30558).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The following sample in this sample group was diluted due to high concentration: 325284004 (CAMO-13-30592).

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Manual Integrations**
The following samples from this sample group had to be manually integrated due to errors in the instrument software peak integration: 325284002 (CAMO-13-30591) and 325284004 (CAMO-13-30592).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Ammonia Nitrogen** | | |
| **Analytical Batch:** | 1300621 | **Method:** | EPA 350.1 Nitrogen and Ammonia L |
| **Prep Batch :** | 1300620 | **Method:** | EEPA 350.2 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 350.1:

| Sample ID | Client ID |
|---|---|
| 325284002 | CAMO-13-30591 |
| 325284004 | CAMO-13-30592 |
| 325284005 | CAMO-13-30558 |
| 1202873025 | Method Blank (MB) |
| 1202873026 | 325283002(CAMO-13-30590) Sample Duplicate (DUP) |
| 1202873027 | 325283004(CAMO-13-30593) Sample Duplicate (DUP) |
| 1202873028 | 325283002(CAMO-13-30590) Matrix Spike (MS) |
| 1202873029 | 325283004(CAMO-13-30593) Matrix Spike (MS) |
| 1202873030 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-106 REV# 9.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following samples were selected for QC analysis: 325283002 (CAMO-13-30590) and 325283004 (CAMO-13-30593).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recoveries for this sample set were within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
One or more of the values for the sample and/or duplicate are less than 5 times the Practical Quantitation Limit (PQL), and the difference is within one PQL value; therefore, the RPD is not applicable. 1202873027 (CAMO-13-30593). The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample: 1202873026 (CAMO-13-30590).

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The following samples were re-analyzed due to CCV failure: 1202873027 (CAMO-13-30593), 1202873029 (CAMO-13-30593), 325284002 (CAMO-13-30591), 325284004 (CAMO-13-30592) and 325284005 (CAMO-13-30558).

## Miscellaneous Information

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1185844 1202873026 (CAMO-13-30590).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Total Kjeldahl Nitrogen** | | |
| **Analytical Batch:** | 1300635 | **Method:** | Nitrogen and Total Kjeldahl (TKN) |
| **Prep Batch :** | 1300634 | **Method:** | EEPA 351.2 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 351.2:

| Sample ID | Client ID |
|---|---|
| 325284001 | CAMO-13-30575 |
| 325284003 | CAMO-13-30576 |
| 325284005 | CAMO-13-30558 |
| 1202873058 | Method Blank (MB) |
| 1202873059 | 325283001(CAMO-13-30574) Sample Duplicate (DUP) |
| 1202873060 | 325283003(CAMO-13-30577) Sample Duplicate (DUP) |
| 1202873061 | 325283001(CAMO-13-30574) Matrix Spike (MS) |
| 1202873062 | 325283003(CAMO-13-30577) Matrix Spike (MS) |
| 1202873063 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-104 REV# 14.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following samples were selected for QC analysis: 325283001 (CAMO-13-30574) and 325283003 (CAMO-13-30577).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recoveries for this sample set were within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202873059 (CAMO-13-30574).

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The following samples were re-analyzed due to CCV failure: 1202873058 (MB), 1202873059 (CAMO-13-30574), 1202873060 (CAMO-13-30577), 1202873061 (CAMO-13-30574), 1202873062 (CAMO-13-30577), 1202873063 (LCS) and 325284001 (CAMO-13-30575).

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Method/Analysis Information**

| | | | |
|---|---|---|---|
| **Product:** | **Nitrate Nitrite by Cadmium Reduction** | | |
| **Analytical Batch:** | 1301246 | **Method:** | EPA 353.2 Nitrogen and Nitrate/Nitrite |

**Sample Analysis**

The following samples were analyzed using the analytical protocol as established in EPA 353.2:

| Sample ID | Client ID |
|---|---|
| 325284002 | CAMO-13-30591 |
| 325284004 | CAMO-13-30592 |
| 325284005 | CAMO-13-30558 |
| 1202874598 | Method Blank (MB) |
| 1202874599 | 325284002(CAMO-13-30591) Sample Duplicate (DUP) |
| 1202874602 | 325284002(CAMO-13-30591) Post Spike (PS) |
| 1202874605 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-128 REV# 8.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

**Calibration Information**

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8500 Series.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325284002 (CAMO-13-30591).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recoveries for this sample set were within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The following samples in this sample group were diluted due to high concentration: 1202874599 (CAMO-13-30591), 1202874602 (CAMO-13-30591), 325284002 (CAMO-13-30591) and 325284004 (CAMO-13-30592).

**Sample Re-analysis**
The following sample was re-analyzed due to instrument failure: 325284004 (CAMO-13-30592).

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Method/Analysis Information**

| | | | |
|---|---|---|---|
| **Product:** | **Total Phosphorus** | | |
| **Analytical Batch:** | 1300626 | **Method:** | EPA 365.4 Phosphorus and Total in |
| **Prep Batch :** | 1300625 | **Method:** | EEPA 365.4 Prep |

**Sample Analysis**

The following samples were analyzed using the analytical protocol as established in EPA 365.4:

| Sample ID | Client ID |
|---|---|
| 325284002 | CAMO-13-30591 |
| 325284004 | CAMO-13-30592 |
| 325284005 | CAMO-13-30558 |
| 1202873039 | Method Blank (MB) |
| 1202873040 | 325283002(CAMO-13-30590) Sample Duplicate (DUP) |
| 1202873041 | 325287001(NP027-13-30514) Sample Duplicate (DUP) |
| 1202873042 | 325283002(CAMO-13-30590) Matrix Spike (MS) |
| 1202873043 | 325287001(NP027-13-30514) Matrix Spike (MS) |
| 1202873044 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-103 REV# 10.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

**Calibration Information**

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within

acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following samples were selected for QC analysis: 325283002 (CAMO-13-30590) and 325287001 (NP027-13-30514).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recoveries for this sample set were within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The following samples in this sample group were diluted due to high concentration: 1202873041 (NP027-13-30514) and 1202873043 (NP027-13-30514).

**Sample Re-analysis**
The following samples were re-analyzed due to CCV failure: 1202873041 (NP027-13-30514) and 1202873043 (NP027-13-30514).

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Solids, Total Dissolved** | | |
| **Analytical Batch:** | 1300534 | **Method:** | EPA 160.1 Solids and Dissolved-F |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 160.1:

| Sample ID | Client ID |
|---|---|
| 325284002 | CAMO-13-30591 |
| 325284004 | CAMO-13-30592 |
| 325284005 | CAMO-13-30558 |
| 1202872789 | Method Blank (MB) |
| 1202872790 | 325283004(CAMO-13-30593) Sample Duplicate (DUP) |
| 1202872791 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-001 REV# 13.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Solids analysis was performed on a Sartorius Balance BAL216. Solids lab

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

## Quality Control (QC) Information

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325283004 (CAMO-13-30593).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Sample Aliquot**
A sufficient amount of sample was provided by the client for analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

**Product:** **Alkalinity**

**Analytical Batch:** 1302074 **Method:** EPA 310.1 Total Alkalinity

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 310.1:

| Sample ID | Client ID |
|---|---|
| 325284002 | CAMO-13-30591 |
| 325284004 | CAMO-13-30592 |
| 325284005 | CAMO-13-30558 |
| 1202876728 | Laboratory Control Sample (LCS) |
| 1202876731 | 325410002(CAMO-13-30620) Sample Duplicate (DUP) |
| 1202876732 | 325410002(CAMO-13-30620) Matrix Spike (MS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-033 REV# 10.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Titration analysis was performed on a Manually operated buret.

**Initial Standardization**
The titrant was properly standardized

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325410002 (CAMO-13-30620).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

**Review Validation:**

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

**The following data validator verified the information presented in this case narrative:**

**Reviewer:**_____ **Date:**_____04Jun13_____

# Sample Data Summary

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-809  GEL Work Order: 325284

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

**  Analyte is a Tracer compound

**  Analyte is a surrogate compound

H  Analytical holding time was exceeded

J  Value is estimated

N  Metals--The Matrix spike sample recovery is not within specified control limits

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____

# GEL LABORATORIES LLC

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## Certificate of Analysis

Report Date: June 4, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples

Client SDG: 2013-809

Client Sample ID: CAMO-13-30575
Sample ID: 325284001
Matrix: W
Collect Date: 06-MAY-13 13:24
Receive Date: 08-MAY-13
Collector: Client

Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon Analysis | | | | | | | | | | | |
| SW 9060 Total Organic Carbon "As Received" | | | | | | | | | | | |
| Total Organic Carbon Average | J | 0.477 | 0.330 | 1.00 | mg/L | 1 | TSM | 05/10/13 | 2134 | 1300890 | 1 |
| Nutrient Analysis | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl (TKN) "As Received" | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | U | ND | 0.033 | 0.100 | mg/L | 1 | KLP1 | 05/14/13 | 1354 | 1300635 | 2 |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 351.2 Prep | EPA 351.2 Total Kjeldahl Nitrogen Prep | KLP1 | 05/13/13 | 1700 | 1300634 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | SW846 9060 | |
| 2 | EPA 351.2 | |

**Notes:**

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## Certificate of Analysis

Report Date: June 4, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-809

Client Sample ID: CAMO-13-30591
Sample ID: 325284002
Matrix: W
Collect Date: 06-MAY-13 13:24
Receive Date: 08-MAY-13
Collector: Client
Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Conductivity Analysis | | | | | | | | | | | |
| EPA120.1 Specific Conductivity "As Received" | | | | | | | | | | | |
| Conductivity | | 159 | 1.00 | 1.00 | umhos/cm | 1 | LXA1 | 05/14/13 | 1152 | 1300876 | 1 |
| Electrode Analysis | | | | | | | | | | | |
| EPA 150.1 pH "As Received" | | | | | | | | | | | |
| pH at Temp 10.4C | H | 8.27 | 0.010 | 0.100 | SU | 1 | LYG1 | 05/09/13 | 0820 | 1300535 | 2 |
| Ion Chromatography | | | | | | | | | | | |
| EPA 300.0 Anions Liquid 28 day "As Received" | | | | | | | | | | | |
| Bromide | J | 0.0817 | 0.067 | 0.200 | mg/L | 1 | MAR1 | 05/31/13 | 0353 | 1300377 | 3 |
| Chloride | | 4.25 | 0.067 | 0.200 | mg/L | 1 | | | | | |
| Fluoride | | 0.164 | 0.033 | 0.100 | mg/L | 1 | | | | | |
| Sulfate | | 6.47 | 0.133 | 0.400 | mg/L | 1 | | | | | |
| Nutrient Analysis | | | | | | | | | | | |
| EPA 350.1 Nitrogen, Ammonia L "As Received" | | | | | | | | | | | |
| Nitrogen, Ammonia | U | ND | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/13/13 | 1623 | 1300621 | 4 |
| EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received" | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | 2.12 | 0.085 | 0.250 | mg/L | 5 | KLP1 | 06/03/13 | 1402 | 1301246 | 5 |
| EPA 365.4 Phosphorus, Total in "As Received" | | | | | | | | | | | |
| Phosphorus, Total as P | | 0.0646 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/14/13 | 1058 | 1300626 | 6 |
| Solids Analysis | | | | | | | | | | | |
| EPA 160.1 Solids, Dissolved-F "As Received" | | | | | | | | | | | |
| Total Dissolved Solids | | 149 | 3.40 | 14.3 | mg/L | | LYG1 | 05/09/13 | 0906 | 1300534 | 7 |
| Titration Analysis | | | | | | | | | | | |
| EPA 310.1 Total Alkalinity "As Received" | | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | 54.8 | 0.725 | 1.00 | mg/L | | LXA1 | 05/16/13 | 1446 | 1302074 | 8 |
| Carbonate alkalinity (CaCO3) | U | ND | 0.725 | 1.00 | mg/L | | | | | | |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 350.2 Prep | EPA 350.1 Ammonia Nitrogen Prep | KLP1 | 05/13/13 | 1400 | 1300620 |
| EPA 365.4 Prep | EPA 365.4 Phosphorus, Total in liquid PR | KLP1 | 05/13/13 | 1700 | 1300625 |

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## Certificate of Analysis

Report Date: June 4, 2013

| | | | |
|---|---|---|---|
| Company : | Los Alamos National Laboratory | | |
| Address : | PO Box 1663<br>TA-03, SM271, Drop Pt. 02U, Rm111<br>Los Alamos, New Mexico 87545 | | |
| Contact: | Keith Greene | Client SDG: | 2013-809 |
| Project: | LANL-WQH Water Samples | | |

| | | | |
|---|---|---|---|
| Client Sample ID: | CAMO-13-30591 | Project: | ESHL00210 |
| Sample ID: | 325284002 | Client ID: | ARSL001 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | EPA 120.1 | |
| 2 | EPA 150.1 | |
| 3 | EPA 300.0 | |
| 4 | EPA 350.1 | |
| 5 | EPA 353.2 | |
| 6 | EPA 365.4 | |
| 7 | EPA 160.1 | |
| 8 | EPA 310.1 | |

**Notes:**

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## Certificate of Analysis

Report Date: June 4, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-809

Client Sample ID: CAMO-13-30576
Sample ID: 325284003
Matrix: W
Collect Date: 06-MAY-13 11:59
Receive Date: 08-MAY-13
Collector: Client
Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon Analysis | | | | | | | | | | | |
| SW 9060 Total Organic Carbon "As Received" | | | | | | | | | | | |
| Total Organic Carbon Average | J | 0.901 | 0.330 | 1.00 | mg/L | 1 | TSM | 05/10/13 | 2208 | 1300890 | 1 |
| Nutrient Analysis | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl (TKN) "As Received" | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | 0.116 | 0.033 | 0.100 | mg/L | 1 | KLP1 | 05/14/13 | 1355 | 1300635 | 2 |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 351.2 Prep | EPA 351.2 Total Kjeldahl Nitrogen Prep | KLP1 | 05/13/13 | 1700 | 1300634 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | SW846 9060 | |
| 2 | EPA 351.2 | |

**Notes:**

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## Certificate of Analysis

Report Date: June 4, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-809

Client Sample ID: CAMO-13-30592
Sample ID: 325284004
Matrix: W
Collect Date: 06-MAY-13 11:59
Receive Date: 08-MAY-13
Collector: Client
Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Conductivity Analysis | | | | | | | | | | | |
| EPA120.1 Specific Conductivity "As Received" | | | | | | | | | | | |
| Conductivity | | 424 | 1.00 | 1.00 | umhos/cm | 1 | LXA1 | 05/14/13 | 1152 | 1300876 | 1 |
| Electrode Analysis | | | | | | | | | | | |
| EPA 150.1 pH "As Received" | | | | | | | | | | | |
| pH at Temp 12.3C | H | 7.78 | 0.010 | 0.100 | SU | 1 | LYG1 | 05/09/13 | 0823 | 1300535 | 2 |
| Ion Chromatography | | | | | | | | | | | |
| EPA 300.0 Anions Liquid 28 day "As Received" | | | | | | | | | | | |
| Bromide | | 0.232 | 0.067 | 0.200 | mg/L | 1 | MAR1 | 05/31/13 | 0425 | 1300377 | 3 |
| Fluoride | | 0.264 | 0.033 | 0.100 | mg/L | 1 | | | | | |
| Chloride | | 34.3 | 0.670 | 2.00 | mg/L | 10 | MAR1 | 06/01/13 | 0619 | 1300377 | 4 |
| Sulfate | | 48.0 | 1.33 | 4.00 | mg/L | 10 | | | | | |
| Nutrient Analysis | | | | | | | | | | | |
| EPA 350.1 Nitrogen, Ammonia L "As Received" | | | | | | | | | | | |
| Nitrogen, Ammonia | J | 0.0283 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/13/13 | 1624 | 1300621 | 5 |
| EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received" | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | 3.83 | 0.170 | 0.500 | mg/L | 10 | KLP1 | 06/03/13 | 1431 | 1301246 | 6 |
| EPA 365.4 Phosphorus, Total in "As Received" | | | | | | | | | | | |
| Phosphorus, Total as P | J | 0.0175 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/14/13 | 1059 | 1300626 | 7 |
| Solids Analysis | | | | | | | | | | | |
| EPA 160.1 Solids, Dissolved-F "As Received" | | | | | | | | | | | |
| Total Dissolved Solids | | 261 | 3.40 | 14.3 | mg/L | | LYG1 | 05/09/13 | 0906 | 1300534 | 8 |
| Titration Analysis | | | | | | | | | | | |
| EPA 310.1 Total Alkalinity "As Received" | | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | 76.6 | 0.725 | 1.00 | mg/L | | LXA1 | 05/16/13 | 1451 | 1302074 | 9 |
| Carbonate alkalinity (CaCO3) | U | ND | 0.725 | 1.00 | mg/L | | | | | | |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 350.2 Prep | EPA 350.1 Ammonia Nitrogen Prep | KLP1 | 05/13/13 | 1400 | 1300620 |
| EPA 365.4 Prep | EPA 365.4 Phosphorus, Total in liquid PR | KLP1 | 05/13/13 | 1700 | 1300625 |

# GEL LABORATORIES LLC

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## Certificate of Analysis

Report Date: June 4, 2013

| | | | |
|---|---|---|---|
| Company : | Los Alamos National Laboratory | | |
| Address : | PO Box 1663<br>TA-03, SM271, Drop Pt. 02U, Rm111<br>Los Alamos, New Mexico 87545 | | |
| Contact: | Keith Greene | Client SDG: | 2013-809 |
| Project: | LANL-WQH Water Samples | | |

| | | | |
|---|---|---|---|
| Client Sample ID: | CAMO-13-30592 | Project: | ESHL00210 |
| Sample ID: | 325284004 | Client ID: | ARSL001 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | EPA 120.1 | |
| 2 | EPA 150.1 | |
| 3 | EPA 300.0 | |
| 4 | EPA 300.0 | |
| 5 | EPA 350.1 | |
| 6 | EPA 353.2 | |
| 7 | EPA 365.4 | |
| 8 | EPA 160.1 | |
| 9 | EPA 310.1 | |

**Notes:**

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: June 4, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples

Client SDG: 2013-809

Client Sample ID: CAMO-13-30558
Sample ID: 325284005
Matrix: W
Collect Date: 06-MAY-13 14:36
Receive Date: 08-MAY-13
Collector: Client

Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon Analysis | | | | | | | | | | | |
| SW 9060 Total Organic Carbon "As Received" | | | | | | | | | | | |
| Total Organic Carbon Average | J | 0.375 | 0.330 | 1.00 | mg/L | 1 | TSM | 05/10/13 | 2300 | 1300890 | 1 |
| Conductivity Analysis | | | | | | | | | | | |
| EPA120.1 Specific Conductivity "As Received" | | | | | | | | | | | |
| Conductivity | | 1.58 | 1.00 | 1.00 | umhos/cm | 1 | LXA1 | 05/14/13 | 1152 | 1300876 | 2 |
| Electrode Analysis | | | | | | | | | | | |
| EPA 150.1 pH "As Received" | | | | | | | | | | | |
| pH at Temp 12.5C | H | 6.00 | 0.010 | 0.100 | SU | 1 | LYG1 | 05/09/13 | 0825 | 1300535 | 3 |
| Ion Chromatography | | | | | | | | | | | |
| EPA 300.0 Anions Liquid 28 day "As Received" | | | | | | | | | | | |
| Bromide | U | ND | 0.067 | 0.200 | mg/L | 1 | MAR1 | 05/31/13 | 0456 | 1300377 | 4 |
| Chloride | U | ND | 0.067 | 0.200 | mg/L | 1 | | | | | |
| Fluoride | U | ND | 0.033 | 0.100 | mg/L | 1 | | | | | |
| Sulfate | U | ND | 0.133 | 0.400 | mg/L | 1 | | | | | |
| Nutrient Analysis | | | | | | | | | | | |
| EPA 350.1 Nitrogen, Ammonia L "As Received" | | | | | | | | | | | |
| Nitrogen, Ammonia | | 0.068 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/13/13 | 1625 | 1300621 | 5 |
| EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received" | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | U | ND | 0.017 | 0.050 | mg/L | 1 | KLP1 | 06/03/13 | 1210 | 1301246 | 6 |
| EPA 365.4 Phosphorus, Total in "As Received" | | | | | | | | | | | |
| Phosphorus, Total as P | | 0.0651 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/14/13 | 1100 | 1300626 | 7 |
| Nitrogen, Total Kjeldahl (TKN) "As Received" | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | U | ND | 0.033 | 0.100 | mg/L | 1 | KLP1 | 05/14/13 | 1359 | 1300635 | 8 |
| Solids Analysis | | | | | | | | | | | |
| EPA 160.1 Solids, Dissolved-F "As Received" | | | | | | | | | | | |
| Total Dissolved Solids | U | ND | 3.40 | 14.3 | mg/L | | LYG1 | 05/09/13 | 0906 | 1300534 | 9 |
| Titration Analysis | | | | | | | | | | | |
| EPA 310.1 Total Alkalinity "As Received" | | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | 1.02 | 0.725 | 1.00 | mg/L | | LXA1 | 05/16/13 | 1503 | 1302074 | 10 |
| Carbonate alkalinity (CaCO3) | U | ND | 0.725 | 1.00 | mg/L | | | | | | |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 350.2 Prep | EPA 350.1 Ammonia Nitrogen Prep | KLP1 | 05/13/13 | 1400 | 1300620 |

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: June 4, 2013

| | | | |
|---|---|---|---|
| Company : | Los Alamos National Laboratory | | |
| Address : | PO Box 1663<br>TA-03, SM271, Drop Pt. 02U, Rm111<br>Los Alamos, New Mexico 87545 | | |
| Contact: | Keith Greene | Client SDG: | 2013-809 |
| Project: | LANL-WQH Water Samples | | |

| | | | |
|---|---|---|---|
| Client Sample ID: | CAMO-13-30558 | Project: | ESHL00210 |
| Sample ID: | 325284005 | Client ID: | ARSL001 |

| | | | | | |
|---|---|---|---|---|---|
| EPA 351.2 Prep | EPA 351.2 Total Kjeldahl Nitrogen Prep | KLP1 | 05/13/13 | 1700 | 1300634 |
| EPA 365.4 Prep | EPA 365.4 Phosphorus, Total in liquid PR | KLP1 | 05/13/13 | 1700 | 1300625 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | SW846 9060 | |
| 2 | EPA 120.1 | |
| 3 | EPA 150.1 | |
| 4 | EPA 300.0 | |
| 5 | EPA 350.1 | |
| 6 | EPA 353.2 | |
| 7 | EPA 365.4 | |
| 8 | EPA 351.2 | |
| 9 | EPA 160.1 | |
| 10 | EPA 310.1 | |

**Notes:**

# Quality Control Summary

# GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

## QC Summary

**Report Date: June 4, 2013**


**Los Alamos National Laboratory**
**PO Box 1663**
**TA-03, SM271, Drop Pt. 02U, Rm111**
**Los Alamos, New Mexico**

**Contact:** **Keith Greene**

**Workorder:** **325284**

| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Carbon Analysis** | | | | | | | | | | | |
| Batch 1300890 | | | | | | | | | | | |
| QC1202873772 325410001 DUP | | | | | | | | | | | |
| Total Organic Carbon Average | | J | 0.467 | J | 0.542 | mg/L | 14.9 ^ | | (+/-1.00) | TSM | 05/11/13 01:14 |
| QC1202873775 LCS | | | | | | | | | | | |
| Total Organic Carbon Average | 10.0 | | | | 9.94 | mg/L | | 99.4 | (85%-115%) | | 05/10/13 19:14 |
| QC1202873770 MB | | | | | | | | | | | |
| Total Organic Carbon Average | | | | U | ND | mg/L | | | | | 05/10/13 19:05 |
| QC1202873774 325410001 PS | | | | | | | | | | | |
| Total Organic Carbon Average | 10.0 | J | 0.467 | | 10.4 | mg/L | | 99.4 | (65%-120%) | | 05/11/13 01:34 |
| **Conductivity Analysis** | | | | | | | | | | | |
| Batch 1300876 | | | | | | | | | | | |
| QC1202873730 325410002 DUP | | | | | | | | | | | |
| Conductivity | | | 131 | | 130 | umhos/cm | 0.769 | | (0%-10%) | LXA1 | 05/14/13 11:54 |
| QC1202873728 LCS | | | | | | | | | | | |
| Conductivity | 1410 | | | | 1450 | umhos/cm | | 103 | (95%-105%) | | 05/14/13 11:41 |
| **Electrode Analysis** | | | | | | | | | | | |
| Batch 1300535 | | | | | | | | | | | |
| QC1202872792 325283002 DUP | | | | | | | | | | | |
| pH | | H | 8.26 | H | 8.27 | SU | 0.121 | | (0%-10%) | LYG1 | 05/09/13 08:17 |
| QC1202872793 LCS | | | | | | | | | | | |
| pH | 7.00 | | | | 7.01 | SU | | 100 | (99%-101%) | | 05/09/13 08:13 |
| **Ion Chromatography** | | | | | | | | | | | |
| Batch 1300377 | | | | | | | | | | | |
| QC1202872356 325284005 DUP | | | | | | | | | | | |
| Bromide | | U | ND | U | ND | mg/L | N/A | | | MAR1 | 05/31/13 05:28 |
| Chloride | | U | ND | U | ND | mg/L | N/A | | | | |
| Fluoride | | U | ND | U | ND | mg/L | N/A | | | | |
| Sulfate | | U | ND | U | ND | mg/L | N/A | | | | |
| QC1202872358 LCS | | | | | | | | | | | |
| Bromide | 1.25 | | | | 1.37 | mg/L | | 109 | (90%-110%) | | 05/31/13 02:19 |

## QC Summary

**Workorder: 325284**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Ion Chromatography** | | | | | | | | | | | |
| Batch 1300377 | | | | | | | | | | | |
| Chloride | 5.00 | | | | 4.77 | mg/L | | 95.3 | (90%-110%) | MAR1 | 05/31/13 02:19 |
| Fluoride | 2.50 | | | | 2.41 | mg/L | | 96.3 | (90%-110%) | | |
| Sulfate | 10.0 | | | | 9.65 | mg/L | | 96.5 | (90%-110%) | | |
| QC1202872355 MB | | | | | | | | | | | |
| Bromide | | | | U | ND | mg/L | | | | | 05/31/13 01:48 |
| Chloride | | | | U | ND | mg/L | | | | | |
| Fluoride | | | | U | ND | mg/L | | | | | |
| Sulfate | | | | U | ND | mg/L | | | | | |
| QC1202872357 325284005 PS | | | | | | | | | | | |
| Bromide | 1.25 | U | ND | | 1.23 | mg/L | | 98 | (90%-110%) | | 05/31/13 05:59 |
| Chloride | 5.00 | U | ND | | 4.60 | mg/L | | 91.9 | (90%-110%) | | |
| Fluoride | 2.50 | U | ND | | 2.34 | mg/L | | 93.5 | (90%-110%) | | |
| Sulfate | 10.0 | U | ND | | 9.38 | mg/L | | 93.8 | (90%-110%) | | |
| **Nutrient Analysis** | | | | | | | | | | | |
| Batch 1300621 | | | | | | | | | | | |
| QC1202873026 325283002 DUP | | | | | | | | | | | |
| Nitrogen, Ammonia | | | 0.0655 | U | ND | mg/L | N/A ^ | | (+/-0.050) | KLP1 | 05/13/13 15:55 |
| QC1202873027 325283004 DUP | | | | | | | | | | | |
| Nitrogen, Ammonia | | | 0.0587 | J | 0.0431 | mg/L | 30.6 ^ | | (+/-0.050) | | 05/13/13 16:22 |
| QC1202873030 LCS | | | | | | | | | | | |
| Nitrogen, Ammonia | 1.00 | | | | 0.918 | mg/L | | 91.8 | (90%-110%) | | 05/13/13 15:50 |
| QC1202873025 MB | | | | | | | | | | | |
| Nitrogen, Ammonia | | | | U | ND | mg/L | | | | | 05/13/13 15:50 |
| QC1202873028 325283002 MS | | | | | | | | | | | |
| Nitrogen, Ammonia | 1.00 | | 0.0655 | | 0.983 | mg/L | | 98.3 | (90%-110%) | | 05/13/13 15:56 |
| QC1202873029 325283004 MS | | | | | | | | | | | |
| Nitrogen, Ammonia | 1.00 | | 0.0587 | | 1.09 | mg/L | | 103 | (90%-110%) | | 05/13/13 16:23 |

## QC Summary

**Workorder: 325284**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Nutrient Analysis** | | | | | | | | | | | | |
| Batch 1300626 | | | | | | | | | | | | |
| QC1202873040 325283002 DUP | | | | | | | | | | | | |
| Phosphorus, Total as P | | | 0.0705 | | 0.0744 | mg/L | 5.38 | ^ | | (+/-0.050) | KLP1 | 05/14/13 10:51 |
| QC1202873041 325287001 DUP | | | | | | | | | | | | |
| Phosphorus, Total as P | | | 2.83 | | 2.68 | mg/L | 5.63 | | | (0%-31%) | | 05/14/13 12:17 |
| QC1202873044 LCS | | | | | | | | | | | | |
| Phosphorus, Total as P | 1.00 | | | | 1.06 | mg/L | | | 106 | (76%-120%) | | 05/14/13 10:46 |
| QC1202873039 MB | | | | | | | | | | | | |
| Phosphorus, Total as P | | | | U | ND | mg/L | | | | | | 05/14/13 10:46 |
| QC1202873042 325283002 MS | | | | | | | | | | | | |
| Phosphorus, Total as P | 1.00 | | 0.0705 | | 1.08 | mg/L | | | 101 | (62%-139%) | | 05/14/13 10:52 |
| QC1202873043 325287001 MS | | | | | | | | | | | | |
| Phosphorus, Total as P | 1.00 | | 2.83 | | 3.70 | mg/L | | | 86.5 | (62%-139%) | | 05/14/13 12:18 |
| Batch 1300635 | | | | | | | | | | | | |
| QC1202873059 325283001 DUP | | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | U | ND | U | ND | mg/L | N/A | | | | KLP1 | 05/14/13 13:50 |
| QC1202873060 325283003 DUP | | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | | 0.109 | | 0.123 | mg/L | 12.1 | ^ | | (+/-0.100) | | 05/14/13 13:53 |
| QC1202873063 LCS | | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | | | | 0.987 | mg/L | | | 98.7 | (90%-110%) | | 05/14/13 13:48 |
| QC1202873058 MB | | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | | | U | ND | mg/L | | | | | | 05/14/13 13:47 |
| QC1202873061 325283001 MS | | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | U | ND | | 0.991 | mg/L | | | 99.1 | (90%-110%) | | 05/14/13 13:51 |
| QC1202873062 325283003 MS | | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | | 0.109 | | 1.06 | mg/L | | | 95.1 | (90%-110%) | | 05/14/13 13:53 |
| Batch 1301246 | | | | | | | | | | | | |
| QC1202874599 325284002 DUP | | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | | 2.12 | | 2.10 | mg/L | 0.950 | | | (0%-20%) | KLP1 | 06/03/13 14:03 |
| QC1202874605 LCS | | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | 1.00 | | | | 0.979 | mg/L | | | 97.9 | (90%-110%) | | 06/03/13 11:59 |
| QC1202874598 MB | | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | | | U | ND | mg/L | | | | | | 06/03/13 11:58 |
| QC1202874602 325284002 PS | | | | | | | | | | | | |

## QC Summary

**Workorder: 325284**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Nutrient Analysis** | | | | | | | | | | |
| Batch 1301246 | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | 1.00 | 0.423 | | 1.43 | mg/L | | 101 | (90%-110%) | | 06/03/13 14:04 |
| **Solids Analysis** | | | | | | | | | | |
| Batch 1300534 | | | | | | | | | | |
| QC1202872790 325283004 DUP | | | | | | | | | | |
| Total Dissolved Solids | | 321 | | 321 | mg/L | 0.00 | | (0%-10%) | LYG1 | 05/09/13 09:06 |
| QC1202872791 LCS | | | | | | | | | | |
| Total Dissolved Solids | 300 | | | 286 | mg/L | | 95.2 | (95%-105%) | | 05/09/13 09:06 |
| QC1202872789 MB | | | | | | | | | | |
| Total Dissolved Solids | | | U | ND | mg/L | | | | | 05/09/13 09:06 |
| **Titration Analysis** | | | | | | | | | | |
| Batch 1302074 | | | | | | | | | | |
| QC1202876731 325410002 DUP | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | 58.4 | | 57.9 | mg/L | 0.873 | | (0%-20%) | LXA1 | 05/16/13 15:37 |
| Carbonate alkalinity (CaCO3) | U | ND | U | ND | mg/L | N/A | | | | |
| QC1202876728 LCS | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | 50.0 | | | 50.8 | mg/L | | 102 | (90%-110%) | | 05/16/13 12:18 |
| QC1202876732 325410002 MS | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | 50.0 | 58.4 | | 109 | mg/L | | 100 | (80%-120%) | | 05/16/13 15:39 |

**Notes:**

| | |
|---|---|
| ** | Analyte is a Tracer compound |
| ** | Analyte is a surrogate compound |
| < | Result is less than value reported |
| > | Result is greater than value reported |
| A | The TIC is a suspected aldol-condensation product |
| B | The target analyte was detected in the associated blank. |
| BD | Results are either below the MDC or tracer recovery is low |
| C | Analyte has been confirmed by GC/MS analysis |
| D | Results are reported from a diluted aliquot of the sample |
| E | %difference of sample and SD is >10%. Sample concentration must meet flagging criteria |
| E | Concentration of the target analyte exceeds the instrument calibration range |
| E | General Chemistry--Concentration of the target analyte exceeds the instrument calibration range |
| FA | Failed analysis. |

## QC Summary

**Workorder: 325284**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|

| | |
|---|---|
| FB | Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies |
| H | Analytical holding time was exceeded |
| J | Value is estimated |
| JNX | Non Calibrated Compound |
| K | Analyte present. Reported value may be biased high. Actual value is expected to be lower. |
| L | Analyte present. Reported value may be biased low. Actual value is expected to be higher. |
| M | M if above MDC and less than LLD |
| M | REMP Result > MDC/CL and < RDL |
| N | Metals--The Matrix spike sample recovery is not within specified control limits |
| N | Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N | Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N/A | RPD or %Recovery limits do not apply. |
| N1 | See case narrative |
| ND | Analyte concentration is not detected above the detection limit |
| NJ | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| P | Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70% |
| Q | One or more quality control criteria have not been met. Refer to the applicable narrative or DER. |
| R | Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes. |
| R | Sample results are rejected |
| U | Analyte was analyzed for, but not detected above the MDL, MDA, or LOD. |
| UI | Gamma Spectroscopy--Uncertain identification |
| UJ | Compound cannot be extracted |
| UJ | Gamma Spectroscopy--Uncertain identification |
| UL | Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias. |
| X | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| Y | Other specific qualifiers were required to properly define the results. Consult case narrative. |
| Y | QC Samples were not spiked with this compound |
| Z | Paint Filter Test--Particulates passed through the filter, however no free liquids were observed. |
| ^ | RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry. |
| d | 5-day BOD--The 2:1 depletion requirement was not met for this sample |
| h | Preparation or preservation holding time was exceeded |

## QC Summary

**Workorder:** **325284**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

# Miscellaneous

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 13-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| LACHAT Flow Injection Analyzer | EPA 350.1 | Liquid | ESHL, |
| **Batch ID:** | **Sample Numbers:** | | |
| 1300621 | See below. | | |

**Potentially affected work order(s)(SDG):** **324810,325209,325269,325273,325283(2013-808),325284(2013-809),325289,325333,325360,325361,325362,325384,325388,325389,325394(2013-813),325410(2013-814)**

**Application Issues:**

Failed RPD for DUP

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed RPD for DUP:<br><br>QC 1202873026DUP | 1. The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample. |

**Originator's Name:**
Kristen Parson 13-MAY-13

**Data Validator/Group Leader:**
Julia Hamilton 14-MAY-13

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 23-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| ELECTRODE | EPA 150.1 | Liquid | ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1300535 | See below. | | |

**Potentially affected work order(s)(SDG): 325283(2013-808),325284(2013-809)**

**Application Issues:**

Sample received out of holding

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Sample received out of holding:<br>325283 002,004<br>325284 002,004,005 | 1. Samples were received out of holding. |

**Originator's Name:**

Lisa Gregory 28-MAY-13

**Data Validator/Group Leader:**

Julia Hamilton 03-JUN-13

# Radiological Analysis

**Radiochemistry Case Narrative**
**ARS International (ARSL)**
**SDG 2013-809**
**Work Order 325284**

**Method/Analysis Information**

| | |
|---|---|
| **Product:** | **Alphaspec Am241 Liquid** |
| Analytical Method: | DOE EML HASL-300, Am-05-RC Modified |
| Analytical Batch Number: | 1298061 |

| Sample ID | Client ID |
|---|---|
| 325284005 | CAMO-13-30558 |
| 1202866240 | Method Blank (MB) |
| 1202866241 | 325284005(CAMO-13-30558) Sample Duplicate (DUP) |
| 1202866242 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 24.

**Calibration Information:**

**Calibration Information**
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

**Standards Information**
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

**Sample Geometry**
All counting sources were prepared in the same geometry as the calibration standards.

**Quality Control (QC) Information:**

**Blank Information**
Aliquots for samples 1202866240 (MB) and 1202866242 (LCS) were changed to 1.0 per client request.

**Designated QC**
The following sample was used for QC: 325284005 (CAMO-13-30558). The QC was from ARSL work order 325284.

**QC Information**

All of the QC samples met the required acceptance limits.

**CSU**
The blank result is greater than 1.65 times the CSU but less than the MDC.

**Technical Information:**

**Holding Time**
All sample procedures for this sample set were performed within the required holding time.

**Sample Re-prep/Re-analysis**
None of the samples in this sample set required reprep or reanalysis.

**Miscellaneous Information:**

**Data Exception (DER) Documentation**
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. The following DER was generated for this SDG: DER 1186476 was generated due to RDL less than MDA. 1. Sample 324498001 did not meet the Am-241 detection limit due to a reduced aliquot. 2. Samples 324671006, 324671007, and 325284005 did not meet the Am-241 detection limit. 1. The aliquot was reduced due to the matrix of the sample. The sample was counted the maximum count time of 1000 minutes in order to achieve the lowest possible MDCs. Reporting results. 2. When a blank population is performed the MDC is greater than the RDL due to the high standard deviation. The samples were counted the maximum count time of 1000 minutes in order to achieve the lowest possible MDCs. Reporting results.

**Manual Integration**
No manual integrations were performed on data in this batch.

**Additional Comments**
The MDCs are calculated using a blank population.

**Blank Decision Level**
The blank result is less than the decision level.

**Qualifier Information**

Manual qualifiers were not required.

**Method/Analysis Information**

| | |
|---|---|
| **Product:** | **Alphaspec U, Liquid** |
| Analytical Method: | DOE EML HASL-300, U-02-RC Modified |
| Analytical Batch Number: | 1298064 |

| Sample ID | Client ID |
|---|---|
| 325284005 | CAMO-13-30558 |
| 1202866248 | Method Blank (MB) |
| 1202866249 | 325284005(CAMO-13-30558) Sample Duplicate (DUP) |
| 1202866250 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 24.

**Calibration Information:**

**Calibration Information**
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

**Standards Information**
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

**Sample Geometry**
All counting sources were prepared in the same geometry as the calibration standards.

**Quality Control (QC) Information:**

**Blank Information**
Aliquots for samples 1202866248 (MB) and 1202866250 (LCS) were changed to 1.0 per client request.

**Designated QC**
The following sample was used for QC: 325284005 (CAMO-13-30558). The QC was from ARSL work order 325284.

**QC Information**
All of the QC samples met the required acceptance limits.

**CSU**
The U-233/234 blank result is greater than 1.65 times the CSU but less than the MDC.

**Technical Information:**

**Holding Time**
All sample procedures for this sample set were performed within the required holding time.

**Sample Re-prep/Re-analysis**
The batch was recounted due to low tracer counts. The recounts are reported.

**Miscellaneous Information:**

**Data Exception (DER) Documentation**
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Manual Integration**
No manual integrations were performed on data in this batch.

**Additional Comments**
The MDCs are calculated using a blank population.

**Blank Decision Level**
The blank result is less than the decision level.

**Qualifier Information**

Manual qualifiers were not required.

**Method/Analysis Information**

| | |
|---|---|
| **Product:** | **Alphaspec Pu, Liquid** |
| Analytical Method: | DOE EML HASL-300, Pu-11-RC Modified |
| Analytical Batch Number: | 1302191 |

| Sample ID | Client ID |
|---|---|
| 325284005 | CAMO-13-30558 |
| 1202877006 | Method Blank (MB) |
| 1202877007 | 325284005(CAMO-13-30558) Sample Duplicate (DUP) |
| 1202877008 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 24.

**Calibration Information:**

**Calibration Information**
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

**Standards Information**
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

**Sample Geometry**
All counting sources were prepared in the same geometry as the calibration standards.

**Quality Control (QC) Information:**

**Blank Information**
Aliquots for samples 1202877006 (MB) and 1202877008 (LCS) were changed to 1.0 per client request.

**Designated QC**
The following sample was used for QC: 325284005 (CAMO-13-30558). The QC was from ARSL work order 325284.

**QC Information**
All of the QC samples meet the required acceptance limits with the following exceptions: Refer to Data Exception Report (DER).

**CSU**
The blank result is less than 1.65 times the CSU.

**Technical Information:**

**Holding Time**
All sample procedures for this sample set were performed within the required holding time.

**Sample Re-prep/Re-analysis**
Samples were reprepped due to high relative percent difference/relative error ratio. The re-analysis is being reported. Sample 1202877007 (CAMO-13-30558) was recounted due to a peak shift. The recount is reported. Sample 1202877006 (MB) was recounted due to poor resolution. The recount is reported.

**Miscellaneous Information:**

**Data Exception (DER) Documentation**
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. The following DER was generated for this SDG: DER 1187810 was generated due to RDL less than MDA. 1. Samples 324498001 and 1202877007 did not meet the Pu-239/240 detection limit due to a reduced aliquot. 2. Samples 324671006, 324671008, and 1202877006 did not meet the Pu-239/240 detection limit. Sample 325284005 did not meet the Pu-238 and Pu-239/240 detection limits. 1. The aliquots were reduced due to the matrix of the samples. The samples were counted the maximum count time of 1000 minutes in order to achieve the lowest possible MDCs. Reporting results. 2. When a blank population is performed the MDC is greater than the RDL due to the high standard deviation. The samples were counted the maximum count time of 1000 minutes in order to achieve the lowest possible MDCs. Reporting results.

**Manual Integration**
No manual integrations were performed on data in this batch.

**Additional Comments**
The MDCs are calculated using a blank population.

**Blank Decision Level**
The blank result is less than the decision level.

**Qualifier Information**

Manual qualifiers were not required.

**Method/Analysis Information**

| | |
|---|---|
| **Product:** | **Gammaspec** |
| Analytical Method: | EPA 901.1 |
| Analytical Batch Number: | 1298376 |

| Sample ID | Client ID |
|---|---|
| 325284005 | CAMO-13-30558 |
| 1202867154 | Method Blank (MB) |
| 1202867155 | 324671006(CAPA-13-29667) Sample Duplicate (DUP) |
| 1202867156 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-013 REV# 25.

**Calibration Information:**

**Calibration Information**
All initial and continuing calibration requirements have been met. The initial Calibrations were performed in May 2012, June 2012, July 2012, August 2012 and February 2013.

**Standards Information**
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

**Sample Geometry**
All counting sources were prepared in the same geometry as the calibration standards.

**Quality Control (QC) Information:**

**Blank Information**
The blank volume is representative of the sample volume in this batch.

**Designated QC**
The following sample was used for QC: 324671006 (CAPA-13-29667). The QC was from ARSL work order 324671.

**QC Information**
All of the QC samples met the required acceptance limits.

**CSU**
The blank result is less than 1.65 times the CSU.

**Technical Information:**

**Holding Time**
All sample procedures for this sample set were performed within the required holding time.

**Sample Re-prep/Re-analysis**
None of the samples in this sample set required reprep or reanalysis.

**Miscellaneous Information:**

**Data Exception (DER) Documentation**
Data exception reports are generated to document any procedural anomalies that may deviate from referenced

SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this sample set.

**Blank Decision Level**
The blank result is less than the decision level.

**Qualifier Information**

Manual qualifiers were not required.

**Method/Analysis Information**

| | |
|---|---|
| **Product:** | **GFPC, Sr90, liquid** |
| Analytical Method: | EPA 905.0 Modified |
| Analytical Batch Number: | 1301365 |

| Sample ID | Client ID |
|---|---|
| 325284005 | CAMO-13-30558 |
| 1202874957 | Method Blank (MB) |
| 1202874958 | 325479001(CAMO-13-30586) Sample Duplicate (DUP) |
| 1202874959 | 325479001(CAMO-13-30586) Matrix Spike (MS) |
| 1202874960 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-004 REV# 16.

**Calibration Information:**

**Calibration Information**
All initial and continuing calibration requirements have been met. The initial Calibration was performed in March 2013.

**Standards Information**
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

**Sample Geometry**
All counting sources were prepared in the same geometry as the calibration standards.

**Quality Control (QC) Information:**

**Blank Information**
Aliquots for samples 1202874957 (MB) and 1202874960 (LCS) were changed to 1.0 per client request.

**Designated QC**
The following sample was used for QC: 325479001 (CAMO-13-30586). The QC was from ARSL work order 325479.

**QC Information**
All of the QC samples met the required acceptance limits.

**CSU**
The blank result is less than 1.65 times the CSU.

**Technical Information:**

**Holding Time**
All sample procedures for this sample set were performed within the required holding time.

**Sample Re-prep/Re-analysis**
Sample 325284005 (CAMO-13-30558) was recounted due to a suspected false positive. The recount is reported.

**Chemical Recoveries**
All chemical recoveries meet the required acceptance limits for this sample set.

**Miscellaneous Information:**

**Data Exception (DER) Documentation**
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
The matrix spike, 1202874959 (CAMO-13-30586), aliquot was reduced to conserve sample volume.

**Blank Decision Level**
The blank result is less than the decision level.

**Qualifier Information**

Manual qualifiers were not required.

**Method/Analysis Information**

| | |
|---|---|
| **Product:** | **WSP-GrossA/B** |
| Analytical Method: | EPA 900.0/SW846 9310 |
| Analytical Batch Number: | 1301385 |

| Sample ID | Client ID |
|---|---|
| 325284005 | CAMO-13-30558 |
| 1202875025 | Method Blank (MB) |
| 1202875026 | 325284005(CAMO-13-30558) Sample Duplicate (DUP) |
| 1202875027 | 325284005(CAMO-13-30558) Matrix Spike (MS) |
| 1202875028 | 325284005(CAMO-13-30558) Matrix Spike Duplicate (MSD) |
| 1202875029 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-001 REV# 16.

**Calibration Information:**

**Calibration Information**
All initial and continuing calibration requirements have been met. The initial Calibration was performed in December 2012.

**Standards Information**
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

**Sample Geometry**
All counting sources were prepared in the same geometry as the calibration standards.

**Quality Control (QC) Information:**

**Blank Information**
Aliquots for samples 1202875025 (MB) and 1202875029 (LCS) were changed to 1.0 per client request.

**Designated QC**
The following sample was used for QC: 325284005 (CAMO-13-30558). The QC was from ARSL work order 325284.

**QC Information**
All of the QC samples met the required acceptance limits.

**CSU**
The blank 1202875025 (MB) alpha result is greater than 1.65 times the CSU but less than the MDC.

**Technical Information:**

**Holding Time**
All sample procedures for this sample set were performed within the required holding time.

**Sample Re-prep/Re-analysis**
None of the samples in this sample set required reprep or reanalysis.

**Chemical Recoveries**
All chemical recoveries meet the required acceptance limits for this sample set.

**Gross Alpha/Beta Preparation Information**
High hygroscopic salt content in evaporated samples can cause the sample mass to fluctuate due to moisture absorption. To minimize this interference, the salts are converted to oxides by heating the sample under a flame until a dull red color is obtained. The conversion to oxides stabilizes the sample weight and ensures that proper alpha/beta efficiencies are assigned for each sample. Volatile radioisotopes of carbon, hydrogen, technetium, polonium and cesium may be lost during sample heating, especially to a dull red heat. For this sample set, the prepared planchet was counted for beta activity before being flamed. After flaming, the planchet was counted for alpha activity.

**Miscellaneous Information:**

**Data Exception (DER) Documentation**
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
The matrix spike and matrix spike duplicate, 1202875027 (CAMO-13-30558) and 1202875028 (CAMO-13-30558), aliquots were reduced to conserve sample volume.

**Blank Decision Level**
The blank 1202875025 (MB) alpha result is greater than the decision level but less than the MDC.

**Qualifier Information**

Manual qualifiers were not required.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

# GEL LABORATORIES LLC

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## Qualifier Definition Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-809  GEL Work Order: 325284

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

**  Analyte is a Tracer compound

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

**Review/Validation**

GEL requires all analytical data to be verified by a qualified data reviewer.  In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

**Signature:** Heather M. McCarty  **Name:** **Heather McCarty**

**Date:** **31 MAY 2013**  **Title:** **Analyst II**

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 15-MAY-13 | Radiochemistry | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| ALPHA SPECTROMETER | DOE EML HASL-300, Am-05-RC Modified | Liquid | ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1298061 | See Below | | |

**Potentially affected work order(s)(SDG): 324498(2013-760),324671(2013-778),325284(2013-809)**

**Application Issues:**

RDL less than MDA

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Sample 324498001 did not meet the Am-241 detection limit due to a reduced aliquot. | 1. The aliquot was reduced due to the matrix of the sample. The sample was counted the maximum count time of 1000 minutes in order to achieve the lowest possible MDCs. Reporting results. |
| 2. Samples 324671006, 324671007, and 325284005 did not meet the Am-241 detection limit. | 2. When a blank population is performed the MDC is greater than the RDL due to the high standard deviation. The samples were counted the maximum count time of 1000 minutes in order to achieve the lowest possible MDCs. Reporting results. |

**Originator's Name:**

Melanie Aycock 15-MAY-13

**Data Validator/Group Leader:**

Jessica Davis 16-MAY-13

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 21-MAY-13 | Radiochemistry | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| ALPHA SPECTROMETER | DOE EML HASL-300, Pu-11-RC Modified | Liquid | ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1302191 | See Below | | |

**Potentially affected work order(s)(SDG): 324498(2013-760),324671(2013-778),325284(2013-809)**

**Application Issues:**

RDL less than MDA

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Samples 324498001 and 1202877007 did not meet the Pu-239/240 detection limit due to a reduced aliquot.<br><br>2. Samples 324671006, 324671008, and 1202877006 did not meet the Pu-239/240 detection limit. Sample 325284005 did not meet the Pu-238 and Pu-239/240 detection limits. | 1. The aliquots were reduced due to the matrix of the samples. The samples were counted the maximum count time of 1000 minutes in order to achieve the lowest possible MDCs. Reporting results.<br><br>2. When a blank population is performed the MDC is greater than the RDL due to the high standard deviation. The samples were counted the maximum count time of 1000 minutes in order to achieve the lowest possible MDCs. Reporting results. |

**Originator's Name:**

Jessica Downey 21-MAY-13

**Data Validator/Group Leader:**

Jessica Davis 21-MAY-13

# Sample Data Summary

# GEL LABORATORIES LLC

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# Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: May 31, 2013

Contact: Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-30558
Sample ID: 325284005
Matrix: W
Collect Date: 06-MAY-13
Receive Date: 08-MAY-13
Collector: Client

Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | Uncertainty | MDC | TPU | RL | Units | DF | Analyst | Date | Time | Batch | Mtd. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Rad Alpha Spec Analysis** | | | | | | | | | | | | | |
| *Alphaspec Am241 Liquid "As Received"* | | | | | | | | | | | | | |
| Americium-241 | U | 0.00296 | +/-0.00663 | 0.0575 | +/-0.00663 | 0.050 | pCi/L | | MXS2 | 05/09/13 | 1209 | 1298061 | 1 |
| *Alphaspec Pu, Liquid "As Received"* | | | | | | | | | | | | | |
| Plutonium-238 | U | 0.00977 | +/-0.00977 | 0.0726 | +/-0.00978 | 0.050 | pCi/L | | NXP2 | 05/19/13 | 1400 | 1302191 | 2 |
| Plutonium-239/240 | U | -0.00976 | +/-0.00976 | 0.0875 | +/-0.00977 | 0.050 | pCi/L | | | | | | |
| *Alphaspec U, Liquid "As Received"* | | | | | | | | | | | | | |
| Uranium-234 | U | 0.00306 | +/-0.00918 | 0.0701 | +/-0.00918 | 1.00 | pCi/L | | MXS2 | 05/14/13 | 1530 | 1298064 | 3 |
| Uranium-235/236 | U | 0.00756 | +/-0.00756 | 0.0326 | +/-0.00758 | 1.00 | pCi/L | | | | | | |
| Uranium-238 | U | -0.00306 | +/-0.00684 | 0.0424 | +/-0.00684 | 0.500 | pCi/L | | | | | | |
| **Rad Gamma Spec Analysis** | | | | | | | | | | | | | |
| *Gammaspec "As Received"* | | | | | | | | | | | | | |
| Cesium-137 | U | 0.928 | +/-1.13 | 4.45 | +/-1.15 | 8.00 | pCi/L | | MXR1 | 05/17/13 | 1003 | 1298376 | 4 |
| Cobalt-60 | U | 0.186 | +/-1.26 | 5.09 | +/-1.26 | 8.00 | pCi/L | | | | | | |
| Neptunium-237 | U | 2.17 | +/-2.65 | 9.50 | +/-2.70 | 10.0 | pCi/L | | | | | | |
| Potassium-40 | U | 9.77 | +/-16.6 | 66.0 | +/-16.7 | 10.0 | pCi/L | | | | | | |
| Sodium-22 | U | 0.284 | +/-1.06 | 4.14 | +/-1.06 | 10.0 | pCi/L | | | | | | |
| **Rad Gas Flow Proportional Counting** | | | | | | | | | | | | | |
| *GFPC, Sr90, liquid "As Received"* | | | | | | | | | | | | | |
| Strontium-90 | U | 0.257 | +/-0.151 | 0.497 | +/-0.152 | 0.500 | pCi/L | | BXF1 | 05/28/13 | 1346 | 1301365 | 5 |
| *WSP-GrossA/B "As Received"* | | | | | | | | | | | | | |
| Beta | U | 0.489 | +/-0.823 | 2.91 | +/-0.825 | 3.00 | pCi/L | | DYT1 | 05/29/13 | 1231 | 1301385 | 6 |
| Alpha | U | 0.231 | +/-0.513 | 2.11 | +/-0.513 | 3.00 | pCi/L | | DYT1 | 05/30/13 | 1513 | 1301385 | 7 |

**The following Analytical Methods were performed**

| Method | Description |
|---|---|
| 1 | DOE EML HASL-300, Am-05-RC Modified |
| 2 | DOE EML HASL-300, Pu-11-RC Modified |
| 3 | DOE EML HASL-300, U-02-RC Modified |
| 4 | EPA 901.1 |
| 5 | EPA 905.0 Modified |
| 6 | EPA 900.0/SW846 9310 |
| 7 | EPA 900.0/SW846 9310 |

| Surrogate/Tracer Recovery | Test | Batch ID | Recovery% | Acceptable Limits |
|---|---|---|---|---|
| Americium-243 Tracer | Alphaspec Am241 Liquid "As Received" | 1298061 | 79.7 | (50%-105%) |
| Plutonium-242 Tracer | Alphaspec Pu, Liquid "As Received" | 1302191 | 60.9 | (50%-105%) |
| Uranium-232 Tracer | Alphaspec U, Liquid "As Received" | 1298064 | 72.2 | (50%-105%) |

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## Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: May 31, 2013

Contact: Keith Greene

Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-30558
Sample ID: 325284005

Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | Uncertainty | MDC | TPU | RL | Units | DF | Analyst | Date | Time | Batch | Mtd. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| Surrogate/Tracer Recovery | Test | Batch ID | Recovery% | Acceptable Limits |
|---|---|---|---|---|
| Strontium Carrier | GFPC, Sr90, liquid "As Received" | 1301365 | 88.9 | (50%-105%) |

**Notes:**

TPU and Counting Uncertainty are calculated at the 68% confidence level (1-sigma).

# Quality Control Data

# GEL LABORATORIES LLC

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## QC Summary

**Report Date: May 31, 2013**


**Client :** **Los Alamos National Laboratory**
**PO Box 1663**
**TA-03, SM271, Drop Pt. 02U, Rm111**
**Los Alamos, New Mexico**

**Contact:** **Keith Greene**

**Workorder:** **325284**

| Parmname | NOM | Sample | Qual | QC | Units | RER | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Rad Alpha Spec** | | | | | | | | | | |
| Batch 1298061 | | | | | | | | | | |
| QC1202866241 325284005 DUP | | | | | | | | | | |
| Americium-241 | U | 0.00296 | U | -0.00269 | pCi/L | 0.250 | | (0-1) | MXS2 | 05/09/1312:09 |
| | Uncert: | +/-0.00663 | | +/-0.00466 | | | | | | |
| | TPU: | +/-0.00663 | | +/-0.00466 | | | | | | |
| **Americium-243 Tracer | 2.62 | 2.09 | | 2.18 | pCi/L | | 83.4 | (50%-105%) | | |
| | Uncert: | +/-0.0876 | | +/-0.0834 | | | | | | |
| | TPU: | +/-0.144 | | +/-0.139 | | | | | | |
| QC1202866242 LCS | | | | | | | | | | |
| Americium-241 | 1.41 | | | 1.32 | pCi/L | | 93.2 | (80%-120%) | MXS2 | 05/09/1312:09 |
| | Uncert: | | | +/-0.0558 | | | | | | |
| | TPU: | | | +/-0.0802 | | | | | | |
| **Americium-243 Tracer | 2.09 | | | 1.52 | pCi/L | | 72.8 | (50%-105%) | | |
| | Uncert: | | | +/-0.0698 | | | | | | |
| | TPU: | | | +/-0.115 | | | | | | |
| QC1202866240 MB | | | | | | | | | | |
| Americium-241 | | | U | 0.0164 | pCi/L | | | | MXS2 | 05/09/1312:09 |
| | Uncert: | | | +/-0.0065 | | | | | | |
| | TPU: | | | +/-0.00653 | | | | | | |
| **Americium-243 Tracer | 2.09 | | | 1.81 | pCi/L | | 86.3 | (50%-105%) | | |
| | Uncert: | | | +/-0.0654 | | | | | | |
| | TPU: | | | +/-0.110 | | | | | | |
| Batch 1298064 | | | | | | | | | | |
| QC1202866249 325284005 DUP | | | | | | | | | | |
| Uranium-234 | U | 0.00306 | U | 0.00212 | pCi/L | 0.0318 | | (0-1) | MXS2 | 05/14/1316:04 |
| | Uncert: | +/-0.00918 | | +/-0.00561 | | | | | | |
| | TPU: | +/-0.00918 | | +/-0.00561 | | | | | | |
| Uranium-235/236 | U | 0.00756 | U | 0.00 | pCi/L | 0.335 | | (0-1) | | |
| | Uncert: | +/-0.00756 | | +/-0.0037 | | | | | | |
| | TPU: | +/-0.00758 | | +/-0.00371 | | | | | | |
| Uranium-238 | U | -0.00306 | U | -0.00636 | pCi/L | 0.132 | | (0-1) | | |
| | Uncert: | +/-0.00684 | | +/-0.00561 | | | | | | |
| | TPU: | +/-0.00684 | | +/-0.00561 | | | | | | |
| **Uranium-232 Tracer | 2.70 | 1.95 | | 2.13 | pCi/L | | 79.1 | (50%-105%) | | |
| | Uncert: | +/-0.0913 | | +/-0.0768 | | | | | | |
| | TPU: | +/-0.200 | | +/-0.187 | | | | | | |
| QC1202866250 LCS | | | | | | | | | | |
| Uranium-234 | | | | 2.70 | pCi/L | | | | MXS2 | 05/14/1316:04 |
| | Uncert: | | | +/-0.0824 | | | | | | |
| | TPU: | | | +/-0.196 | | | | | | |
| Uranium-235/236 | | | | 0.145 | pCi/L | | | | | |
| | Uncert: | | | +/-0.022 | | | | | | |
| | TPU: | | | +/-0.024 | | | | | | |
| Uranium-238 | 2.70 | | | 2.80 | pCi/L | | 104 | (80%-120%) | | |

## QC Summary

**Workorder: 325284**



| Parmname | NOM | Sample | Qual | QC | Units | RER | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Rad Alpha Spec** | | | | | | | | | | |
| Batch 1298064 | | | | | | | | | | |
| | Uncert: | | | +/-0.0838 | | | | | | |
| | TPU: | | | +/-0.203 | | | | | | |
| **Uranium-232 Tracer | 2.16 | | | 1.15 | pCi/L | | 53.5 | (50%-105%) | | |
| | Uncert: | | | +/-0.0742 | | | | | | |
| | TPU: | | | +/-0.161 | | | | | | |
| QC1202866248 MB | | | | | | | | | | |
| Uranium-234 | | | U | 0.00996 | pCi/L | | | | MXS2 | 05/14/1316:04 |
| | Uncert: | | | +/-0.00597 | | | | | | |
| | TPU: | | | +/-0.00601 | | | | | | |
| Uranium-235/236 | | | U | 0.00492 | pCi/L | | | | | |
| | Uncert: | | | +/-0.00492 | | | | | | |
| | TPU: | | | +/-0.00493 | | | | | | |
| Uranium-238 | | | U | -0.00199 | pCi/L | | | | | |
| | Uncert: | | | +/-0.00345 | | | | | | |
| | TPU: | | | +/-0.00345 | | | | | | |
| **Uranium-232 Tracer | 2.16 | | | 1.46 | pCi/L | | 67.7 | (50%-105%) | | |
| | Uncert: | | | +/-0.0658 | | | | | | |
| | TPU: | | | +/-0.153 | | | | | | |
| Batch 1302191 | | | | | | | | | | |
| QC1202877007 325284005 DUP | | | | | | | | | | |
| Plutonium-238 | U | 0.00977 | U | 0.00 | pCi/L | 0.336 | | (0-1) | NXP2 | 05/20/1315:12 |
| | Uncert: | +/-0.00977 | | +/-0.00473 | | | | | | |
| | TPU: | +/-0.00978 | | +/-0.00474 | | | | | | |
| Plutonium-239/240 | U | -0.00976 | U | 0.00335 | pCi/L | 0.380 | | (0-1) | | |
| | Uncert: | +/-0.00976 | | +/-0.00748 | | | | | | |
| | TPU: | +/-0.00977 | | +/-0.00748 | | | | | | |
| **Plutonium-242 Tracer | 3.25 | 1.98 | | 2.91 | pCi/L | | 89.5 | (50%-105%) | | |
| | Uncert: | +/-0.127 | | +/-0.105 | | | | | | |
| | TPU: | +/-0.201 | | +/-0.174 | | | | | | |
| QC1202877008 LCS | | | | | | | | | | |
| Plutonium-238 | | | U | 0.00973 | pCi/L | | | (80%-120%) | NXP2 | 05/19/1314:00 |
| | Uncert: | | | +/-0.00515 | | | | | | |
| | TPU: | | | +/-0.00517 | | | | | | |
| Plutonium-239/240 | 1.97 | | | 1.70 | pCi/L | | 86.2 | (80%-120%) | | |
| | Uncert: | | | +/-0.0575 | | | | | | |
| | TPU: | | | +/-0.0922 | | | | | | |
| **Plutonium-242 Tracer | 1.95 | | | 1.83 | pCi/L | | 94 | (50%-105%) | | |
| | Uncert: | | | +/-0.062 | | | | | | |
| | TPU: | | | +/-0.103 | | | | | | |
| QC1202877006 MB | | | | | | | | | | |
| Plutonium-238 | | | U | -0.0032 | pCi/L | | | | NXP2 | 05/20/1315:12 |
| | Uncert: | | | +/-0.00554 | | | | | | |
| | TPU: | | | +/-0.00554 | | | | | | |
| Plutonium-239/240 | | | U | -0.0032 | pCi/L | | | | | |
| | Uncert: | | | +/-0.00554 | | | | | | |
| | TPU: | | | +/-0.00554 | | | | | | |
| **Plutonium-242 Tracer | 1.95 | | | 1.09 | pCi/L | | 55.8 | (50%-105%) | | |
| | Uncert: | | | +/-0.0796 | | | | | | |
| | | | | +/-0.125 | | | | | | |

## QC Summary

**Workorder:** **325284**



| Parmname | NOM | Sample | Qual | QC | Units | RER | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Rad Alpha Spec** | | | | | | | | | | |
| Batch 1302191 | | | | | | | | | | |
| | TPU: | | | | | | | | | |
| **Rad Gamma Spec** | | | | | | | | | | |
| Batch 1298376 | | | | | | | | | | |
| QC1202867155 324671006 DUP | | | | | | | | | | |
| Cesium-137 | U | 1.69 | U | 0.679 | pCi/L | 0.167 | | (0-1) | MXR1 | 05/17/1312:05 |
| | Uncert: | +/-1.40 | | +/-1.57 | | | | | | |
| | TPU: | +/-1.46 | | +/-1.57 | | | | | | |
| Cobalt-60 | U | 0.442 | U | -1.14 | pCi/L | 0.271 | | (0-1) | | |
| | Uncert: | +/-1.02 | | +/-1.87 | | | | | | |
| | TPU: | +/-1.02 | | +/-1.89 | | | | | | |
| Neptunium-237 | U | 2.23 | U | -0.798 | pCi/L | 0.256 | | (0-1) | | |
| | Uncert: | +/-2.22 | | +/-3.63 | | | | | | |
| | TPU: | +/-2.28 | | +/-3.63 | | | | | | |
| Potassium-40 | U | 4.72 | U | -8.23 | pCi/L | 0.189 | | (0-1) | | |
| | Uncert: | +/-15.5 | | +/-18.7 | | | | | | |
| | TPU: | +/-15.5 | | +/-18.8 | | | | | | |
| Sodium-22 | U | -1.78 | U | -0.582 | pCi/L | 0.188 | | (0-1) | | |
| | Uncert: | +/-1.26 | | +/-1.85 | | | | | | |
| | TPU: | +/-1.32 | | +/-1.86 | | | | | | |
| QC1202867156 LCS | | | | | | | | | | |
| Americium-241 | 2780 | | | 3040 | pCi/L | | 109 | (80%-120%) | MXR1 | 05/17/1312:05 |
| | Uncert: | | | +/-148 | | | | | | |
| | TPU: | | | +/-284 | | | | | | |
| Cesium-137 | 6020 | | | 5870 | pCi/L | | 97.5 | (80%-120%) | | |
| | Uncert: | | | +/-58.5 | | | | | | |
| | TPU: | | | +/-283 | | | | | | |
| Cobalt-60 | 5300 | | | 5270 | pCi/L | | 99.4 | (80%-120%) | | |
| | Uncert: | | | +/-63.7 | | | | | | |
| | TPU: | | | +/-233 | | | | | | |
| Neptunium-237 | | | U | 11.1 | pCi/L | | | | | |
| | Uncert: | | | +/-24.4 | | | | | | |
| | TPU: | | | +/-24.6 | | | | | | |
| Potassium-40 | | | U | -88.6 | pCi/L | | | | | |
| | Uncert: | | | +/-47.2 | | | | | | |
| | TPU: | | | +/-51.5 | | | | | | |
| Sodium-22 | | | U | 0.109 | pCi/L | | | | | |
| | Uncert: | | | +/-7.92 | | | | | | |
| | TPU: | | | +/-7.92 | | | | | | |
| QC1202867154 MB | | | | | | | | | | |
| Cesium-137 | | | U | 1.37 | pCi/L | | | | MXR1 | 05/17/1310:03 |
| | Uncert: | | | +/-2.01 | | | | | | |
| | TPU: | | | +/-2.01 | | | | | | |
| Cobalt-60 | | | U | 1.30 | pCi/L | | | | | |
| | Uncert: | | | +/-1.43 | | | | | | |
| | TPU: | | | +/-1.46 | | | | | | |
| Neptunium-237 | | | U | -1.56 | pCi/L | | | | | |
| | Uncert: | | | +/-2.66 | | | | | | |
| | TPU: | | | +/-2.68 | | | | | | |

## QC Summary

**Workorder: 325284**



| Parmname | NOM | Sample | Qual | QC | Units | RER | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Rad Gamma Spec** | | | | | | | | | | |
| Batch 1298376 | | | | | | | | | | |
| Potassium-40 | | | U | -0.847 | pCi/L | | | | | |
| Uncert: | | | | +/-13.6 | | | | | | |
| TPU: | | | | +/-13.6 | | | | | | |
| Sodium-22 | | | U | 0.428 | pCi/L | | | | | |
| Uncert: | | | | +/-1.02 | | | | | | |
| TPU: | | | | +/-1.03 | | | | | | |
| **Rad Gas Flow** | | | | | | | | | | |
| Batch 1301365 | | | | | | | | | | |
| QC1202874958 325479001 DUP | | | | | | | | | | |
| Strontium-90 | U | 0.162 | U | -0.143 | pCi/L | 0.541 | | (0-1) | BXF1 | 05/27/1314:18 |
| Uncert: | | +/-0.145 | | +/-0.136 | | | | | | |
| TPU: | | +/-0.145 | | +/-0.136 | | | | | | |
| **Strontium Carrier | 8.55 | 7.40 | | 7.60 | mg | | 88.9 | (50%-105%) | | |
| QC1202874960 LCS | | | | | | | | | | |
| Strontium-90 | 24.3 | | | 25.1 | pCi/L | | 103 | (80%-120%) | BXF1 | 05/27/1314:18 |
| Uncert: | | | | +/-0.560 | | | | | | |
| TPU: | | | | +/-2.09 | | | | | | |
| **Strontium Carrier | 8.55 | | | 7.60 | mg | | 88.9 | (50%-105%) | | |
| QC1202874957 MB | | | | | | | | | | |
| Strontium-90 | | | U | 0.0327 | pCi/L | | | | BXF1 | 05/27/1314:18 |
| Uncert: | | | | +/-0.0567 | | | | | | |
| TPU: | | | | +/-0.0568 | | | | | | |
| **Strontium Carrier | 8.55 | | | 7.50 | mg | | 87.7 | (50%-105%) | | |
| QC1202874959 325479001 MS | | | | | | | | | | |
| Strontium-90 | 243 U | 0.162 | | 252 | pCi/L | | 104 | (75%-125%) | BXF1 | 05/27/1314:18 |
| Uncert: | | +/-0.145 | | +/-5.59 | | | | | | |
| TPU: | | +/-0.145 | | +/-22.3 | | | | | | |
| **Strontium Carrier | 8.55 | 7.40 | | 7.90 | mg | | 92.4 | (50%-105%) | | |
| Batch 1301385 | | | | | | | | | | |
| QC1202875026 325284005 DUP | | | | | | | | | | |
| Alpha | U | 0.231 | U | 0.0554 | pCi/L | 0.0999 | | (0-1) | DYT1 | 05/30/1315:12 |
| Uncert: | | +/-0.513 | | +/-0.366 | | | | | | |
| TPU: | | +/-0.513 | | +/-0.366 | | | | | | |
| Beta | U | 0.489 | U | 0.254 | pCi/L | 0.0715 | | (0-1) | | 05/29/1312:31 |
| Uncert: | | +/-0.823 | | +/-0.820 | | | | | | |
| TPU: | | +/-0.825 | | +/-0.820 | | | | | | |
| QC1202875029 LCS | | | | | | | | | | |
| Alpha | 12.3 | | | 14.1 | pCi/L | | 115 | (80%-120%) | DYT1 | 05/30/1314:16 |
| Uncert: | | | | +/-0.738 | | | | | | |
| TPU: | | | | +/-1.41 | | | | | | |
| Beta | 48.5 | | | 54.5 | pCi/L | | 112 | (80%-120%) | | 05/29/1312:31 |
| Uncert: | | | | +/-0.952 | | | | | | |
| TPU: | | | | +/-4.62 | | | | | | |
| QC1202875025 MB | | | | | | | | | | |
| Alpha | | | U | 0.200 | pCi/L | | | | DYT1 | 05/30/1315:12 |
| Uncert: | | | | +/-0.0958 | | | | | | |
| TPU: | | | | +/-0.0972 | | | | | | |
| Beta | | | U | 0.166 | pCi/L | | | | | 05/29/1312:31 |

## QC Summary

**Workorder:** **325284**



| Parmname | NOM | Sample | Qual | QC | Units | RER | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Rad Gas Flow** | | | | | | | | | | |
| Batch 1301385 | | | | | | | | | | |
| | Uncert: | | | +/-0.133 | | | | | | |
| | TPU: | | | +/-0.134 | | | | | | |
| QC1202875027 325284005 MS | | | | | | | | | | |
| Alpha | 494 | 0.231 | U | 495 | pCi/L | | 100 | (75%-125%) | DYT1 | 05/30/1314:16 |
| | Uncert: | +/-0.513 | | +/-24.7 | | | | | | |
| | TPU: | +/-0.513 | | +/-48.6 | | | | | | |
| Beta | 1940 | 0.489 | U | 2260 | pCi/L | | 116 | (75%-125%) | | 05/29/1312:31 |
| | Uncert: | +/-0.823 | | +/-39.9 | | | | | | |
| | TPU: | +/-0.825 | | +/-193 | | | | | | |
| QC1202875028 325284005 MSD | | | | | | | | | | |
| Alpha | 494 | 0.231 | U | 522 | pCi/L | 0.134 | 106 | (0-1) | DYT1 | 05/30/1314:16 |
| | Uncert: | +/-0.513 | | +/-25.7 | | | | | | |
| | TPU: | +/-0.513 | | +/-50.8 | | | | | | |
| Beta | 1940 | 0.489 | U | 2140 | pCi/L | 0.162 | 110 | (0-1) | | 05/29/1312:31 |
| | Uncert: | +/-0.823 | | +/-37.9 | | | | | | |
| | TPU: | +/-0.825 | | +/-182 | | | | | | |

**Notes:**

TPU and Counting Uncertainty are calculated at the 68% confidence level (1-sigma).

The Qualifiers in this report are defined as follows:

| | |
|---|---|
| ** | Analyte is a Tracer compound |
| ** | Analyte is a surrogate compound |
| < | Result is less than value reported |
| > | Result is greater than value reported |
| A | The TIC is a suspected aldol-condensation product |
| B | The target analyte was detected in the associated blank. |
| BD | Results are either below the MDC or tracer recovery is low |
| C | Analyte has been confirmed by GC/MS analysis |
| D | Results are reported from a diluted aliquot of the sample |
| E | %difference of sample and SD is >10%. Sample concentration must meet flagging criteria |
| E | Concentration of the target analyte exceeds the instrument calibration range |
| E | General Chemistry--Concentration of the target analyte exceeds the instrument calibration range |
| FA | Failed analysis. |
| FB | Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies |
| H | Analytical holding time was exceeded |
| J | Value is estimated |
| JNX | Non Calibrated Compound |
| K | Analyte present. Reported value may be biased high. Actual value is expected to be lower. |
| L | Analyte present. Reported value may be biased low. Actual value is expected to be higher. |
| M | M if above MDC and less than LLD |
| M | REMP Result > MDC/CL and < RDL |
| N | Metals--The Matrix spike sample recovery is not within specified control limits |
| N | Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |

## QC Summary

**Workorder:** **325284**



| Parmname | NOM | Sample | Qual | QC | Units | RER | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|

| | |
|---|---|
| N | Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N/A | RPD or %Recovery limits do not apply. |
| N1 | See case narrative |
| ND | Analyte concentration is not detected above the detection limit |
| NJ | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| P | Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70% |
| Q | One or more quality control criteria have not been met. Refer to the applicable narrative or DER. |
| R | Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes. |
| R | Sample results are rejected |
| U | Analyte was analyzed for, but not detected above the MDL, MDA, or LOD. |
| UI | Gamma Spectroscopy--Uncertain identification |
| UJ | Compound cannot be extracted |
| UJ | Gamma Spectroscopy--Uncertain identification |
| UL | Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias. |
| X | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| Y | Other specific qualifiers were required to properly define the results. Consult case narrative. |
| Y | QC Samples were not spiked with this compound |
| Z | Paint Filter Test--Particulates passed through the filter, however no free liquids were observed. |
| ^ | RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry. |
| d | 5-day BOD--The 2:1 depletion requirement was not met for this sample |
| h | Preparation or preservation holding time was exceeded |

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
** Indicates analyte is a surrogate/tracer compound.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

# Chain of Custody/Analysis Request

COC/Lab Request #: 2013-808



**Client Contact:**

**Lab Agreement # :** 126310011

**Project Number :**

**Analysis Turnaround Time:**

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

**Site Name:** Los Alamos National Laboratory

**Rad Screening Info:** Yes, Below Background

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | WSP-CL04 | WSP-GENINORG | WSP-Met+B+SN+SR+U | WSP-NH3+NO3/NO2+PO4 | WSP-TKN+TOC | Special Instructions: |
|---|---|---|---|---|---|---|---|---|---|
| CAMO-13-30574 | May 6 2013 | 12:30 | W | | | | | 1 | |
| CAMO-13-30590 | May 6 2013 | 12:30 | W | | 1 | 1 | 1 | | |
| CAMO-13-30577 | May 6 2013 | 14:47 | W | | | | | 1 | |
| CAMO-13-30593 | May 6 2013 | 14:47 | W | 1 | 1 | 1 | 1 | | |

Special Instructions:

| | | | |
|---|---|---|---|
| Relinquished by: Melissa Montoya | | Date/Time: 5/7/13 3:00 | Received by: |
| Relinquished by: | | Date/Time: | Received by: |
| Relinquished by: | | Date/Time: | Received by: |

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30574

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| **DATE COLLECTED (MM/DD/YYYY):** | | 05/06/2013 | **FIELD MATRIX:** | WG | ok |
| **TIME COLLECTED (HH:MM):** | | 1230 | **MEDIA:** | UA | ↓ |
| **PRS ID:** | | ok | **SAMPLE TECH CODE:** | UA | BSP |
| **LOCATION ID:** | R-13 | ↓ | **FIELD PREP:** | UF | ok |
| **LOCATION TYPE:** | MON | ↓ | **FIELD QC TYPE:** | REG | ↓ |
| **PORT:** | SINGLE COMPLETION | ↓ | **SAMPLE USAGE:** | INV | ↓ |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-TKN+TOC | 500 ML AMBER GLASS | 1 | H2SO4 | Y | NA |

**SAMPLE COMMENTS:**

NA

**LOCATION COMMENTS:**

diesel generator running 40' away

**FIELD PARAMETERS:**

Dissolved Oxygen NA mg/L  Oxidation-Reduction Potential NA MV  pH NA SU

Specific Conductance NA uS/cm  Temperature NA deg C  Turbidity NA NTU

**COLLECTED BY (PRINT)** M. Stenko

| | | | |
|---|---|---|---|
| **RELINQUISHED BY (Printed Name) (Signature)** Andrey Stoke | **Date/Time** 5/6/13 1545 | **RECEIVED BY (Printed Name) (Signature)** M. Martin | **Date/Time** 5/6/13 1545 |
| **RELINQUISHED BY (Printed Name) (Signature)** | **Date/Time** | **RECEIVED BY (Printed Name) (Signature)** | **Date/Time** |

Report Date 04/30/2013

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30577

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | 05/06/2013 | FIELD MATRIX: | WG | |
| TIME COLLECTED (HH:MM): | | 1447 | MEDIA: | UA | |
| PRS ID: | | | SAMPLE TECH CODE: | UA | GSP |
| LOCATION ID: | R-42 | | FIELD PREP: | UF | |
| LOCATION TYPE: | MON | | FIELD QC TYPE: | REG | |
| PORT: | SINGLE COMPLETION | | SAMPLE USAGE: | INV | |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-TKN+TOC | 500 ML AMBER GLASS | 1 | H2SO4 | Y | NA |

**SAMPLE COMMENTS:**

NA

**LOCATION COMMENTS:** Diesel generator running 40' away

**FIELD PARAMETERS:**

Dissolved Oxygen 6.83 mg/L Oxidation-Reduction Potential 274.6 MV pH 7.36 SU

Specific Conductance 502 uS/cm Temperature 19.48 deg C Turbidity 1.05 NTU

**COLLECTED BY (PRINT)** M. Stenslo

| | | | |
|---|---|---|---|
| RELINQUISHED BY (Printed Name) (Signature) Andrew Stocker | Date/Time 5/6/13 1545 | RECEIVED BY (Printed Name) (Signature) M. Martin | Date/Time 5/6/13 1545 |
| RELINQUISHED BY (Printed Name) (Signature) | Date/Time | RECEIVED BY (Printed Name) (Signature) | Date/Time |

Report Date 04/30/2013

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30590

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | 05/06/2013 | FIELD MATRIX: | WG | ok |
| TIME COLLECTED (HH:MM): | | 1230 | MEDIA: | UA | ↓ |
| PRS ID: | | ok | SAMPLE TECH CODE: | UA | GSP |
| LOCATION ID: | R-13 | ↓ | FIELD PREP: | F | ok |
| LOCATION TYPE: | MON | ↓ | FIELD QC TYPE: | REG | ↓ |
| PORT: | SINGLE COMPLETION | ↓ | SAMPLE USAGE: | INV | ↓ |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-GENINORG | 1 LITER POLY | 1 | ICE | Y | NA |
| ↓ | WSP-Met+B+SN+SR+U | 1 LITER POLY | 1 | HNO3 | ↓ | ↓ |
| ↓ | WSP-NH3+NO3/NO2+PO4 | 500 ML AMBER GLASS | 1 | H2SO4 | ↓ | ↓ |

**SAMPLE COMMENTS:**

NA

**LOCATION COMMENTS:** diesel generator running 40' away

**FIELD PARAMETERS:**

Dissolved Oxygen 6.58 mg/L  Oxidation-Reduction Potential 271.4 MV  pH 7.96 SU

Specific Conductance 143 uS/cm  Temperature 21.08 deg C  Turbidity 0.26 NTU

**COLLECTED BY (PRINT)** M. Stenko

| RELINQUISHED BY (Printed Name) (Signature) | Date/Time | RECEIVED BY (Printed Name) (Signature) | Date/Time |
|---|---|---|---|
| Andrew Stokes | 5/6/13 1545 | M. Martinez | 5/6/13 1545 |
| **RELINQUISHED BY (Printed Name) (Signature)** | **Date/Time** | **RECEIVED BY (Printed Name) (Signature)** | **Date/Time** |

Report Date 04/30/2013

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4195

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2013 Q3 Watershed Sampling_MORTANDAD

**SAMPLE ID:** CAMO-13-30593

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | 05/06/2013 | FIELD MATRIX: | WG | ok |
| TIME COLLECTED (HH:MM): | | 1447 | MEDIA: | UA | ↓ |
| PRS ID: | | ok | SAMPLE TECH CODE: | UA | BSP |
| LOCATION ID: | R-42 | ↓ | FIELD PREP: | F | ok |
| LOCATION TYPE: | MON | ↓ | FIELD QC TYPE: | REG | ↓ |
| PORT: | SINGLE COMPLETION | ↓ | SAMPLE USAGE: | INV | ↓ |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-CL04 | 250 ML POLY | 1 | ICE | Y | NA |
| ↓ | WSP-GENINORG | 1 LITER POLY | 1 | ICE | ↓ | ↓ |
| ↓ | WSP-Met+B+SN+SR+U | 1 LITER POLY | 1 | HNO3 | ↓ | ↓ |
| ↓ | WSP-NH3+NO3/NO2+PO4 | 500 ML AMBER GLASS | 1 | H2SO4 | ↓ | ↓ |

**SAMPLE COMMENTS:**

NA

**LOCATION COMMENTS:** diesel generator running 40' away

**FIELD PARAMETERS:**

Dissolved Oxygen 6.83 mg/L  Oxidation-Reduction Potential 274.6 MV  pH 7.36 SU

Specific Conductance 502 uS/cm  Temperature 19.48 deg C  Turbidity 1.05 NTU

**COLLECTED BY (PRINT)** M. Stenda

| RELINQUISHED BY (Printed Name) (Signature) | Date/Time | RECEIVED BY (Printed Name) (Signature) | Date/Time |
|---|---|---|---|
| Lindsay Stocker | 5/6/13 1545 | M. Martin | 5/6/13 1545 |
| **RELINQUISHED BY (Printed Name) (Signature)** | **Date/Time** | **RECEIVED BY (Printed Name) (Signature)** | **Date/Time** |
| | | | |

Report Date 04/30/2013

Data Validation Report

Chain Of Custody No. 2013-808

**1. Distribution Of Samples In EDD.**

| SDG | Analytical Method | Regular Samples | Field Duplicates | Trip Blanks | Field Blanks | Equipment Blanks |
|---|---|---|---|---|---|---|
| 325283 | EPA:120.1 | 2 | | | | |
| 325283 | EPA:150.1 | 2 | | | | |
| 325283 | EPA:160.1 | 2 | | | | |
| 325283 | EPA:245.2 | 2 | | | | |
| 325283 | EPA:300.0 | 2 | | | | |
| 325283 | EPA:310.1 | 2 | | | | |
| 325283 | EPA:350.1 | 2 | | | | |
| 325283 | EPA:351.2 | 2 | | | | |
| 325283 | EPA:353.2 | 2 | | | | |
| 325283 | EPA:365.4 | 2 | | | | |
| 325283 | SM:A2340B | 2 | | | | |
| 325283 | SW-846:6010B | 2 | | | | |
| 325283 | SW-846:6020 | 2 | | | | |
| 325283 | SW-846:6850 | 1 | | | | |
| 325283 | SW-846:9060 | 2 | | | | |

| SDG | Analytical Method | Analysis Lot ID | Prep Lot ID | Regular Samples | Field Duplicates | Trip Blanks | Field Blanks | Equipment Blanks | Method Blanks | Matrix Spikes | Matrix Spike Dups |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 325283 | EPA:120.1 | 1300876 | 1300876 | 2 | | | | | | | |
| 325283 | EPA:150.1 | 1300535 | 1300535 | 2 | | | | | | | |
| 325283 | EPA:160.1 | 1300534 | 1300534 | 2 | | | | | 1 | | |
| 325283 | EPA:245.2 | 1301863 | 1301862 | 2 | | | | | 1 | 2 | |
| 325283 | EPA:300.0 | 1300377 | 1300377 | 2 | | | | | 1 | | |
| 325283 | EPA:310.1 | 1301389 | 1301389 | 2 | | | | | 2 | 1 | |
| 325283 | EPA:350.1 | 1300621 | 1300620 | 2 | | | | | 1 | 2 | |
| 325283 | EPA:351.2 | 1300635 | 1300634 | 2 | | | | | 1 | 2 | |
| 325283 | EPA:353.2 | 1301244 | 1301244 | 2 | | | | | 1 | | |
| 325283 | EPA:365.4 | 1300626 | 1300625 | 2 | | | | | 1 | 2 | |
| 325283 | SM:A2340B | 1305711 | 1305711 | 2 | | | | | | | |
| 325283 | SW-846:6010B | 1301065 | 1301064 | 2 | | | | | 1 | 1 | |
| 325283 | SW-846:6020 | 1301067 | 1301066 | 2 | | | | | 1 | 1 | |
| 325283 | SW-846:6850 | 1301785 | 1301783 | 1 | | | | | 1 | 1 | 1 |
| 325283 | SW-846:9060 | 1300890 | 1300890 | 2 | | | | | 1 | | |

**2. Distribution Of Analytes In EDD.**

| Analytical Method | Method Category | Field Sample ID | Lab Sample ID | Sample Purpose | Target Analytes | Surrogates | Spikes | TICS |
|---|---|---|---|---|---|---|---|---|
| EPA:120.1 | GENERAL CHEMISTRY | CAMO-13-30590 | 325283002 | REG | 1 | 0 | 0 | 0 |
| EPA:120.1 | GENERAL CHEMISTRY | CAMO-13-30593 | 325283004 | REG | 1 | 0 | 0 | 0 |
| EPA:120.1 | GENERAL CHEMISTRY | CAMO-13-30620 | 1202873730 | DUP | 1 | 0 | 0 | 0 |
| EPA:120.1 | GENERAL CHEMISTRY | LCS | 1202873728 | LCS | 0 | 0 | 1 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | CAMO-13-30590 | 1202872792 | DUP | 1 | 0 | 0 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | CAMO-13-30590 | 325283002 | REG | 1 | 0 | 0 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | CAMO-13-30593 | 325283004 | REG | 1 | 0 | 0 | 0 |
| EPA:150.1 | GENERAL CHEMISTRY | LCS | 1202872793 | LCS | 0 | 0 | 1 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | CAMO-13-30590 | 325283002 | REG | 1 | 0 | 0 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | CAMO-13-30593 | 1202872790 | DUP | 1 | 0 | 0 | 0 |

| Analytical Spikes | Post-Digestion Spikes | Lab Control Samples | Lab Control Sample Dups | Blank Spikes | Blank Spike Dups | Lab Duplicates | Storage Blanks | Preparation Blanks | Reagent Blanks |
|---|---|---|---|---|---|---|---|---|---|
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 2 | | | |
| | | 1 | | | | 1 | | | |
| | | 2 | | | | 1 | | | |
| | | 1 | | | | 2 | | | |
| | | 1 | | | | 2 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 2 | | | |
| | | | | | | | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | 1 | | | |
| | | 1 | | | | | | | |
| | | 1 | | | | 1 | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| EPA:160.1 | GENERAL CHEMISTRY | CAMO-13-30593 | 325283004 | REG | 1 | 0 | 0 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | LCS | 1202872791 | LCS | 0 | 0 | 1 | 0 |
| EPA:160.1 | GENERAL CHEMISTRY | MB | 1202872789 | MB | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30588 | 1202876204 | DUP | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30588 | 1202876205 | MS | 0 | 0 | 1 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30590 | 1202876207 | DUP | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30590 | 1202876209 | MS | 0 | 0 | 1 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30590 | 325283002 | REG | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | CAMO-13-30593 | 325283004 | REG | 1 | 0 | 0 | 0 |
| EPA:245.2 | INORGANIC | LCS | 1202876203 | LCS | 0 | 0 | 1 | 0 |
| EPA:245.2 | INORGANIC | MB | 1202876202 | MB | 1 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | CAMO-13-30558 | 1202872356 | DUP | 4 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | CAMO-13-30590 | 325283002 | REG | 4 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | CAMO-13-30593 | 325283004 | REG | 4 | 0 | 0 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | LCS | 1202872358 | LCS | 0 | 0 | 4 | 0 |
| EPA:300.0 | GENERAL CHEMISTRY | MB | 1202872355 | MB | 4 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CAMO-13-30590 | 1202875043 | DUP | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CAMO-13-30590 | 1202875044 | MS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CAMO-13-30590 | 325283002 | REG | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | CAMO-13-30593 | 325283004 | REG | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | LCS | 1202875038 | LCS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | LCS | 1202875910 | LCS | 0 | 0 | 1 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | MB | 1202875037 | MB | 2 | 0 | 0 | 0 |
| EPA:310.1 | GENERAL CHEMISTRY | MB | 1202875909 | MB | 2 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30590 | 1202873026 | DUP | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30590 | 1202873028 | MS | 0 | 0 | 1 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30590 | 325283002 | REG | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30593 | 1202873027 | DUP | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30593 | 1202873029 | MS | 0 | 0 | 1 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | CAMO-13-30593 | 325283004 | REG | 1 | 0 | 0 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | LCS | 1202873030 | LCS | 0 | 0 | 1 | 0 |
| EPA:350.1 | GENERAL CHEMISTRY | MB | 1202873025 | MB | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30574 | 1202873059 | DUP | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30574 | 1202873061 | MS | 0 | 0 | 1 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30574 | 325283001 | REG | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30577 | 1202873060 | DUP | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30577 | 1202873062 | MS | 0 | 0 | 1 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | CAMO-13-30577 | 325283003 | REG | 1 | 0 | 0 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | LCS | 1202873063 | LCS | 0 | 0 | 1 | 0 |
| EPA:351.2 | GENERAL CHEMISTRY | MB | 1202873058 | MB | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CAMO-13-30590 | 1202874592 | DUP | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CAMO-13-30590 | 325283002 | REG | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | CAMO-13-30593 | 325283004 | REG | 1 | 0 | 0 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | LCS | 1202874597 | LCS | 0 | 0 | 1 | 0 |
| EPA:353.2 | GENERAL CHEMISTRY | MB | 1202874590 | MB | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CAMO-13-30590 | 1202873040 | DUP | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CAMO-13-30590 | 1202873042 | MS | 0 | 0 | 1 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CAMO-13-30590 | 325283002 | REG | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | CAMO-13-30593 | 325283004 | REG | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | LCS | 1202873044 | LCS | 0 | 0 | 1 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | MB | 1202873039 | MB | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | NP027-13-30514 | 1202873041 | DUP | 1 | 0 | 0 | 0 |
| EPA:365.4 | GENERAL CHEMISTRY | NP027-13-30514 | 1202873043 | MS | 0 | 0 | 1 | 0 |
| SM:A2340B | INORGANIC | CAMO-13-30590 | 325283002 | REG | 1 | 0 | 0 | 0 |
| SM:A2340B | INORGANIC | CAMO-13-30593 | 325283004 | REG | 1 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30589 | 1202874204 | DUP | 17 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30589 | 1202874205 | MS | 0 | 0 | 17 | 0 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| SW-846:6010B | INORGANIC | CAMO-13-30590 | 325283002 | REG | 17 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | CAMO-13-30593 | 325283004 | REG | 17 | 0 | 0 | 0 |
| SW-846:6010B | INORGANIC | LCS | 1202874203 | LCS | 0 | 0 | 17 | 0 |
| SW-846:6010B | INORGANIC | MB | 1202874202 | MB | 17 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30589 | 1202874212 | DUP | 11 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30589 | 1202874213 | MS | 0 | 0 | 11 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30590 | 325283002 | REG | 11 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | CAMO-13-30593 | 325283004 | REG | 11 | 0 | 0 | 0 |
| SW-846:6020 | INORGANIC | LCS | 1202874211 | LCS | 0 | 0 | 11 | 0 |
| SW-846:6020 | INORGANIC | MB | 1202874210 | MB | 11 | 0 | 0 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | CAMO-13-30592 | 1202876022 | MS | 0 | 0 | 1 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | CAMO-13-30592 | 1202876023 | MSD | 0 | 0 | 1 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | CAMO-13-30593 | 325283004 | REG | 1 | 0 | 0 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | LCS | 1202876021 | LCS | 0 | 0 | 1 | 0 |
| SW-846:6850 | LCMS/MS PERCHLORATE | MB | 1202876020 | MB | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | CAMO-13-30574 | 325283001 | REG | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | CAMO-13-30577 | 325283003 | REG | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | CAMO-13-30616 | 1202873772 | DUP | 1 | 0 | 0 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | LCS | 1202873775 | LCS | 0 | 0 | 1 | 0 |
| SW-846:9060 | GENERAL CHEMISTRY | MB | 1202873770 | MB | 1 | 0 | 0 | 0 |

**3. Are any analytes missing?**

No.

**4. Were any holding times exceeded?**

No.

**5. Any contaminants in blanks?**

| Field Sample ID | Lab Sample ID | Type Of Blank | Analytical Method | Sample Matrix | Parameter Name | Lab Result | Lab Qualifier | Units | Lab Detection Limit |
|---|---|---|---|---|---|---|---|---|---|
| MB | 1202874202 | METHOD BLANK | SW-846:6010B | W | Cobalt | 1.31 | J | ug/L | 5 |
| MB | 1202874202 | METHOD BLANK | SW-846:6010B | W | Potassium | 64.3 | J | ug/L | 150 |
| MB | 1202874202 | METHOD BLANK | SW-846:6010B | W | Strontium | 2.05 | J | ug/L | 5 |

**Any samples affected by the presence of contaminants in blanks?**

| Field Sample ID | Blank Field Sample ID | Blank Lab Sample ID | Blank Type | Analytical Method | Parameter Name | Units | Blank Result | Sample Result | Lab Qualifier | Detect Limit | Detected |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAMO-13-30590 | MB | 1202874202 | METHOD BLANK | SW-846:6010B | Cobalt | ug/L | 1.31 | 1.11 | J | 5 | Y |

**6. Any surrogate recoveries outside the control limits?**

No.

**7. Any MS/MSD recoveries or RPDs outside the control limits?**

| Field Sample ID | Matrix Spike ID | Matrix Spike Dup ID | Analytical Method | Parameter Name | Analysis Lot ID | Analysis Date | Sample Matrix | MS % Recvry | MSD % Recvry | Upper Limit | Lower Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAMO-13-30589 | 1202874213 | | SW-846:6020 | Nickel | 1301066 | 6/1/2013 | W | 126 | | 125 | 75 |

Data Validation Report for:

Chain Of Custody No. 2013-808

| Correction Factor (ND) | Correction Factor (J) | Use Factors |
|---|---|---|
| 5 | | Y |

| Rejection Limit | RPD |
|---|---|
| 10 | |

RPD Limit

**8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?**

No.

**9. Any Field Duplicate RPDs outside the desired limits?**

No.

**10. Any Lab Duplicate RPDs outside the desired limits?**

No.

**11. Any required reporting limits exceeded?**

No.

**12. Additional Validator's Coments.**

None.

**13. Display Flagged Data.**

| Location ID | Chain Of Custody No | Field Sample ID | Sample Purpose | Analysis Type Code | Analytical Suite | Analytical Method | Parameter Name | Lab Qualifier | Validation Qualifier | Validation Reason Codes | Detected |
|---|---|---|---|---|---|---|---|---|---|---|---|
| R-13 | 2013-808 | CAMO-13-30590 | REG | INIT | INORGANIC | SW-846:6010B | Cobalt | J | U | I4 | N |

| **Reason Code** | Description |
|---|---|
| I4 | the sample result is =<5x the concentration of related analyte in the method blank. |
| J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL |
| NQ | The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample. |
| U_LAB | The analytical laboratory qualified the analyte as not detected. |

**14. Useable Result Count.**

| Field Sample ID | Location ID | Sample Purpose | Analytical Method | No. Unuseable Records | Total No. Of Records |
|---|---|---|---|---|---|
| CAMO-13-30574 | R-13 | REG | EPA:351.2 | 0 | 1 |
| CAMO-13-30574 | R-13 | REG | SW-846:9060 | 0 | 1 |
| CAMO-13-30577 | R-42 | REG | EPA:351.2 | 0 | 1 |
| CAMO-13-30577 | R-42 | REG | SW-846:9060 | 0 | 1 |
| CAMO-13-30590 | R-13 | REG | EPA:120.1 | 0 | 1 |
| CAMO-13-30590 | R-13 | REG | EPA:150.1 | 0 | 1 |
| CAMO-13-30590 | R-13 | REG | EPA:160.1 | 0 | 1 |
| CAMO-13-30590 | R-13 | REG | EPA:245.2 | 0 | 1 |
| CAMO-13-30590 | R-13 | REG | EPA:300.0 | 0 | 4 |
| CAMO-13-30590 | R-13 | REG | EPA:310.1 | 0 | 2 |
| CAMO-13-30590 | R-13 | REG | EPA:350.1 | 0 | 1 |
| CAMO-13-30590 | R-13 | REG | EPA:353.2 | 0 | 1 |
| CAMO-13-30590 | R-13 | REG | EPA:365.4 | 0 | 1 |
| CAMO-13-30590 | R-13 | REG | SM:A2340B | 0 | 1 |
| CAMO-13-30590 | R-13 | REG | SW-846:6010B | 0 | 17 |
| CAMO-13-30590 | R-13 | REG | SW-846:6020 | 0 | 11 |
| CAMO-13-30593 | R-42 | REG | EPA:120.1 | 0 | 1 |

Data Validation Report for:

Chain Of Custody No. 2013-808

| Lab Result | Lab Units | Report Result | Report Units | Report MDA | Report Uncertainty | Lab Matrix | Sample Date | Percent Moisture | Analysis Lot ID | Validation Status Code | Use Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.11 | ug/L | 1.11 | ug/L | | | W | 5/6/2013 | | 1301065 | VAL | Y |

Chain Of Custody No. 2013-808

Data Validation Report for:

| | | | | | |
|---|---|---|---|---|---|
| CAMO-13-30593 | R-42 | REG | EPA:150.1 | 0 | 1 |
| CAMO-13-30593 | R-42 | REG | EPA:160.1 | 0 | 1 |
| CAMO-13-30593 | R-42 | REG | EPA:245.2 | 0 | 1 |
| CAMO-13-30593 | R-42 | REG | EPA:300.0 | 0 | 4 |
| CAMO-13-30593 | R-42 | REG | EPA:310.1 | 0 | 2 |
| CAMO-13-30593 | R-42 | REG | EPA:350.1 | 0 | 1 |
| CAMO-13-30593 | R-42 | REG | EPA:353.2 | 0 | 1 |
| CAMO-13-30593 | R-42 | REG | EPA:365.4 | 0 | 1 |
| CAMO-13-30593 | R-42 | REG | SM:A2340B | 0 | 1 |
| CAMO-13-30593 | R-42 | REG | SW-846:6010B | 0 | 17 |
| CAMO-13-30593 | R-42 | REG | SW-846:6020 | 0 | 11 |
| CAMO-13-30593 | R-42 | REG | SW-846:6850 | 0 | 1 |

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178
www.gel.com

June 04, 2013

Keith Greene
Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Re: LANL-WQH Water Samples
Work Order: 325283
SDG: 2013-808

Dear Keith Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on May 08, 2013, and analyzed for General Chemistry, Metals and Perchlorates by LCMSMS. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,

for

Valerie Davis
Project Manager

Purchase Order: 63641-10
Chain of Custody: 2013-808
Enclosures

**ARS International (63641-10)**
**LANL-WQH Water Samples**
**Work Order #: 325283**
**SDG: 2013-808**

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# Case Narrative

**Case Narrative for**
**ARS International (63641-10)**
**LANL-WQH Water Samples**
**Workorder #: 325283**
**SDG # : 2013-808**

**June 04, 2013**

**Laboratory Identification:**

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

**Summary**

**Sample receipt** The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on May 08, 2013 for analysis. The samples were delivered with proper chain of custody documentation and signatures. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. Containers were checked for pH, where appropriate, and matched the preservative as documented on the accompanying chain of custody. Shipping container temperature was within specification (0 - 6C). Shipping container temperatures were checked, documented, and within specifications. There are no additional comments concerning sample receipt.

**Sample Identification** The laboratory received the following samples:

| Laboratory ID | Client ID |
|---|---|
| 325283001 | CAMO-13-30574 |
| 325283002 | CAMO-13-30590 |
| 325283003 | CAMO-13-30577 |
| 325283004 | CAMO-13-30593 |

**Case Narrative**

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

**Data Package**

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: General Chemistry, Metals and Perchlorates by LCMSMS.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.

for

Valerie Davis
Project Manager

**List of current GEL Certifications as of 04 June 2013**

| State | Certification |
|---|---|
| Alaska | UST−110 |
| Arkansas | 88−0651 |
| CLIA | 42D0904046 |
| California NELAP | 01151CA |
| Colorado | SC00012 |
| Connecticut | PH−0169 |
| Delaware | SC00012 |
| DoD ELAP A2LA ISO 17025 | 2567.01 |
| Florida NELAP | E87156 |
| Foreign Soils Permit | P330−12−00283, P330−12−00284 |
| Georgia | SC00012 |
| Georgia SDWA | 967 |
| Hawaii | SC00012 |
| Idaho | SC00012 |
| Illinois NELAP | 200029 |
| Indiana | C−SC−01 |
| Kansas NELAP | E−10332 |
| Kentucky | 90129 |
| Louisiana NELAP | 03046 (AI33904) |
| Louisiana SDWA | LA130005 |
| Maryland | 270 |
| Massachusetts | M−SC012 |
| Nevada | SC000122011−1 |
| New Hampshire NELAP | 2054 |
| New Jersey NELAP | SC002 |
| New Mexico | SC00012 |
| New York NELAP | 11501 |
| North Carolina | 233 |
| North Carolina SDWA | 45709 |
| Oklahoma | 9904 |
| Pennsylvania NELAP | 68−00485 |
| Plant Material Permit | PDEP−12−00260 |
| South Carolina Chemistry | 10120001 |
| South Carolina Radiochemi | 10120002 |
| Tennessee | TN 02934 |
| Texas NELAP | T104704235−13−8 |
| Utah NELAP | SC000122013−8 |
| Vermont | VT87156 |
| Virginia NELAP | 460202 |
| Washington | C780−12 |
| Wisconsin | 999887790 |

# Chain of Custody and Supporting Documentation

General Engineering Laboratories, Inc., Charleston, SC.
2040 Savage Rd
Charleston SC 29407

# Chain of Custody/Analysis Request

325283

COC/Lab Request #: 2013-808

Page 1 of 1

Client Contact:

Lab Agreement # : 126310011

Project Number :

Analysis Turnaround Time:
24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Special Instructions:

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | WSP-CL04 | WSP-GENINORG | WSP-Met+B+SN+SR+U | WSP-NH3+NO3/NO2+PO4 | WSP-TKN+TOC |
|---|---|---|---|---|---|---|---|---|
| CAMO-13-30574 | May 6 2013 | 12:30 | W | | | | | 1 |
| CAMO-13-30590 | May 6 2013 | 12:30 | W | | 1 | 1 | 1 | |
| CAMO-13-30577 | May 6 2013 | 14:47 | W | | | | | 1 |
| CAMO-13-30593 | May 6 2013 | 14:47 | W | 1 | 1 | 1 | 1 | |

Special Instructions:

| | | | | |
|---|---|---|---|---|
| Relinquished by: Melissa Montoya | | Date/Time: 5/7/13 3:00 | Received by: P. Nlent | 5-8-13 08:55 |
| Relinquished by: | | Date/Time: | Received by: | |
| Relinquished by: | | Date/Time: | Received by: | |

GEL Laboratories LLC

# SAMPLE RECEIPT & REVIEW FORM

| | |
|---|---|
| **Client: LANL** | **SDG/AR/COC/Work Order: 2013-808** |
| **Received By: Patricia Dent** | **Date Received: May 8, 2013** |

| **Suspected Hazard Information** | **Yes** | **No** | *If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation. |
|---|---|---|---|
| COC/Samples marked as radioactive? | | X | Maximum Net Counts Observed* (Observed Counts - Area Background Counts): **0 CPM** |
| Classified Radioactive II or III by RSO? | | X | If yes, Were swipes taken of sample contatiners < action levels? |
| COC/Samples marked containing PCBs? | | X | |
| Package, COC, and/or Samples marked as beryllium or asbestos containing? | | X | If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group. |
| Shipped as a DOT Hazardous? | | X | Hazard Class Shipped: UN#: |
| Samples identified as Foreign Soil? | | X | |

| | **Sample Receipt Criteria** | **Yes** | **NA** | **No** | **Comments/Qualifiers (Required for Non-Conforming Items)** |
|---|---|---|---|---|---|
| 1 | Shipping containers received intact and sealed? | X | | | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 2 | Samples requiring cold preservation within (0 ≤ 6 deg. C)?* | X | | | Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius **2,3,4C** |
| 2a | Daily check performed and passed on IR temperature gun? | X | | | Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable):**61524649** |
| 3 | Chain of custody documents included with shipment? | X | | | |
| 4 | Sample containers intact and sealed? | X | | | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 5 | Samples requiring chemical preservation at proper pH? | X | | | Sample ID's, containers affected and observed pH: If Preservation added, Lot# |
| 6 | VOA vials free of headspace (defined as < 6mm bubble)? | | X | | Sample ID's and containers affected: |
| 7 | Are Encore containers present? | | | X | (If yes, immediately deliver to Volatiles laboratory) |
| 8 | Samples received within holding time? | X | | | ID's and tests affected: |
| 9 | Sample ID's on COC match ID's on bottles? | X | | | Sample ID's and containers affected: |
| 10 | Date & time on COC match date & time on bottles? | X | | | Sample ID's affected: |
| 11 | Number of containers received match number indicated on COC? | X | | | Sample ID's affected: |
| 12 | Are sample containers identifiable as GEL provided? | | | X | **Client** |
| 13 | COC form is properly signed in relinquished/received sections? | X | | | |
| 14 | Carrier and tracking number. | X | | | Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other **5462 9832 9898 2C 5462 9832 9902 3C 5462 9832 9913 4C** |

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB
TA00 BLDG 1237 DPU 03
LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 07MAY13
ACTWGT: 37.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: WE6L11551000

2c

580C1/9983/18BC

FedEx Express

J111131106060125

TRK# 0201 5462 9832 9898

WED - 08 MAY 10:30A
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

Part # 156748-434 RIT2 08/10

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 07MAY13
ACTWGT: 49.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWKO

4c

5BDC1/9983/1BBC

FedEx
Express

J111311060860125

2 of 2
MPS# 0263 5462 9832 9913
Mstr# 5462 9832 9902

WED - 08 MAY 10:30A
PRIORITY OVERNIGHT
0201

XX CHSA

29407
SC-US CHS

Part # 156753 434 RIT2 06/10 ©

# Data Review Qualifier Flag Definition Sheet

## Data Review Qualifier Definitions

| Qualifier | Explanation |
|---|---|
| * | A quality control analyte recovery is outside of specified acceptance criteria |
| ** | Analyte is a surrogate compound |
| < | Result is less than value reported |
| > | Result is greater than value reported |
| ^ | RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL |
| A | The TIC is a suspected aldol-condensation product |
| B | Target analyte was detected in the associated blank |
| B | Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL |
| BD | Results are either below the MDC or tracer recovery is low |
| C | Analyte has been confirmed by GC/MS analysis |
| D | Results are reported from a diluted aliquot of the sample |
| d | 5-day BOD-The 2:1 depletion requirement was not met for this sample |
| E | Organics-Concentration of the target analyte exceeds the instrument calibration range |
| E | Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria |
| H | Analytical holding time was exceeded |
| h | Preparation or preservation holding time was exceeded |
| J | Value is estimated |
| N | Metals-The Matrix spike sample recovery is not within specified control limits |
| N | Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N/A | Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more |
| ND | Analyte concentration is not detected above the reporting limit |
| UI | Gamma Spectroscopy-Uncertain identification |
| X | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| Y | QC Samples were not spiked with this compound |
| Z | Paint Filter Test-Particulates passed through the filter, however no free liquids were observed. |

# Perchlorates by LCMSMS Analysis

# Case Narrative

**Perchlorate by LC/MSMS**
**ARS International (ARSL)**
**SDG 2013-808**

## Method/Analysis Information

| | |
|---|---|
| **Procedure:** | **Definitive Low Level Perchlorate Analysis Utilizing Liquid Chromatography/Mass Spectrometry/Mass Spectrometry (LC/MS/MS) by EPA Method 6850 Modified (6850M)** |
| Analytical Method: | SW846 6850 Modified |
| Prep Method: | SW846 6850 Modified |
| Analytical Batch Number: | 1301785 |
| Prep Batch Number: | 1301783 |

## Sample Analysis

| Sample ID | Client ID |
|---|---|
| 325283004 | CAMO-13-30593 |
| 1202876024 | Interference Check Sample (ICS) |
| 1202876020 | Method Blank (MB) |
| 1202876021 | Laboratory Control Sample (LCS) |
| 1202876022 | 325284004(CAMO-13-30592) Matrix Spike (MS) |
| 1202876023 | 325284004(CAMO-13-30592) Matrix Spike Duplicate (MSD) |

The samples in this SDG were analyzed on an "as received" basis.

## Preparation/Analytical Method Verification

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-067 REV# 10.

## Calibration Information

**Initial Calibration**
All initial calibration requirements have been met for this SDG. Due to software constraints, all Initial Calibration Blanks must be designated as IPB001.

**ICV Requirements**
All associated initial calibration verification standard(s) (ICV) met the acceptance criteria.

**CCB Requirements**
All continuing calibration blanks (CCB) bracketing the analyses associated with this batch were within acceptance criteria.

**CCV Requirements**
All continuing calibration checks (CCV) requirements were met by all bracketing CCV standards.

**Low Level Standard (CRI) Requirements**
All low level calibration verification (CRI) requirements were met by all bracketing CRI standards.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Interference Check Sample (ICS)**
The ICS met all recovery acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recoveries met the acceptance limits.

**QC Sample Designation**
Client sample 325284004 (CAMO-13-30592) was chosen for matrix spike and matrix spike duplicate analysis.

**Matrix Spike (MS) Recovery Statement**
The MS recoveries were within the established acceptance limits.

**Matrix Spike Duplicate (MSD) Recovery Statement**
The MSD recoveries were within the established acceptance limits.

**MS/MSD Relative Percent Difference (RPD) Statement**
The RPD(s) between the MS and MSD met the acceptance limits.

**Retention Time Standard Area Acceptance**
The retention time standard areas were within the required acceptance criteria for all samples and QC.

**Retention Time**
During the analysis of Perchlorate by LC/MS/MS, retention time shifts are commonly observed. These retention time shifts, which are caused by fouling of the column by the sample matrices, are problematic when the retention time is used as one of the criterion for confirmation. To overcome this problem, a known amount of O(18) labeled Perchlorate was added to each sample as a retention time standard. The presence of Perchlorate was confirmed by the relative retention time (RRT) of the Perchlorate peak and the O(18) standard. A RRT window of 0.98 to 1.02, as required by Method 332.0, has been used. In addition to the isotopic ratio, the presence of Perchlorate in the samples associated with this data package have been confirmed using the relative retention criteria stated above, not the absolute retention time.

**Technical Information**

**Holding Time Specifications**
All samples in this SDG in this analytical batch met the specified holding time. GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

**Preparation/Analytical Method Verification**
All procedures were performed as stated in the SOP.

**Sample Dilutions**
Samples 1202876022 (CAMO-13-30592), 1202876023 (CAMO-13-30592) and 325283004 (CAMO-13-30593) were diluted to bring the over range concentrations within the calibration range.

**Sample Re-extraction/Re-analysis**
Re-extractions or re-analyses were not required in this SDG.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Manual Integrations**
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations.

**Method Comments**
The samples in this SDG were not originally analyzed using EPA Method 314.0.

**Additional Comments**
The Perchlorate Isotope Ratio on the Form I may differ slightly from the ratio on the corresponding raw data due to rounding rules and/or significant figures or due to software limitations when there are manual integrations, dilutions or other factors. The ratio value of the Form I is the correct value. The retention time marker, Perchlorate-O (18), is added to all samples, instrument blanks, and standards prior to injection. It is used to verify the retention time of Perchlorate and Perchlorate-101 and to insure an accurate injection occurred. Due to various anions affecting the recovery of Perchlorate-O (18) and not Perchlorate and Perchlorate-101, the calibration curves of Perchlorate and Perchlorate-101 are not internally corrected for using Perchlorate-O (18). They are external calibrations.

**Perchlorate Isotope Ratio**
The Perchlorate isotope ratio met acceptance criteria for all samples and QC samples. Please see the isotope ratio criteria in the Miscellaneous Section.

**System Configuration**

The laboratory utilizes a Waters LC 2795 liquid chromatography instrument for Perchlorate analysis. It is coupled with either a Micromass Quattro Micro Mass Spectrometer/ Mass Spectrometer, or a Micromass Quattro Ultima Mass Spectrometer/ Mass Spectrometer. Each being designated as LCMSMS #1 and LCMSMS #2, respectively. It is fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis. The laboratory may also utilize an Agilent 1100 liquid chromatography instrument for Perchlorate analysis. It is coupled with an Applied Biosystems 4000 Mass Spectrometer/ Mass Spectrometer, designated as LCMSMS #3 or LCMSMS #4. It is also fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and

dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Chromatographic Columns**

Chromatographic separation of Perchlorate is accomplished through analysis on the following anion column:

Dionex: IonPac AG-16 2 x 50 mm.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-808 GEL Work Order: 325283

**The Qualifiers in this report are defined as follows:**

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

**Review/Validation**

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

**Signature:** Pat Steele **Name: Patricia Steele**

**Date: 24 MAY 2013** **Title: Data Validator**

# Sample Data Summary

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1301783

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CAMO-13-30593

**Date Received:** 08-MAY-13

**GEL Job No (SDG):** 2013-808

**GEL Sample ID:** 325283004

**Date Filtered:** 15-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .1 | .4 | 1.26 | ug/L | | 2 | 20-MAY-13 18:25 | per0520040a |
| | Perchlorate Isotope Ratio | | | 3.16 | | | 2 | 20-MAY-13 18:25 | per0520040a |
| 14797-73-0 | Perchlorate-101 | .1 | .4 | 1.24 | ug/L | | 2 | 20-MAY-13 18:25 | per0520040a |
| | Perchlorate-O(18) | | | 1.02 | ug/L | | 2 | 20-MAY-13 18:25 | per0520040a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Quality Control Summary

## Perchlorate Laboratory Control Sample

**Lab Name:** General Engineering Laboratories

**Lab Code:** GEL

**GEL Job No. (SDG):** 2013-808

**Extract Batch Code:** 1301783

**Date Filtered:** 15-MAY-13

**Matrix:** WATER

**Sample ID:** 1202876021

| Analyte^ | True | Found | Units | %Rec | Q | Control Limits |
|---|---|---|---|---|---|---|
| Perchlorate | 0.200 | .203 | ug/L | 102 | | 85 - 115 |
| Perchlorate Isotope Ratio | | 3 | | | | - |
| Perchlorate-101 | 0.200 | .21 | ug/L | 105 | | 85 - 115 |
| Perchlorate-O(18) | | .505 | ug/L | | | - |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

## Perchlorate Spike/Spike Duplicate Summary

**Lab Name:** General Engineering Laboratories

**Lab Code:** GEL

**GEL Job No (SDG):** 2013-808

**Extract Batch Code:** 1301783

**Date Extracted:** 15-MAY-13

**GEL MS/PS ID:** 1202876022

**Client ID:** CAMO-13-30592

**GEL MSD/PSD ID:** 1202876023

**QC Type:** MS

| Compound^ | Spike Added | Sample Conc | Units | MS Conc | MS Rec # | MSD Conc | MSD Rec # | RPD # | RPD Limit | Recovery Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| Perchlorate | 0.200 | 0.931 | ug/L | 1.11 | 90 | 1.16 | 114 | 4.19 | 30 | 75 - 125 |
| Perchlorate Isotope Ratio | 0 | 3.07 | | 3.13 | | 3.05 | | 2.52 | | - |
| Perchlorate-101 | 0.200 | 0.944 | ug/L | 1.10 | 80.5 | 1.18 | 119 | 6.71 | 30 | 75 - 125 |
| Perchlorate-O(18) | 0 | 0.994 | ug/L | 0.985 | | 1.02 | | 3.41 | | - |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

# Quality Control Data

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** EPA 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1301783

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
MB

**Date Received:** 15-MAY-13

**GEL Job No (SDG):** 2013-808

**GEL Sample ID:** 1202876020

**Date Filtered:** 15-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.050 | ug/L | U | 1 | 20-MAY-13 15:52 | per0520021a |
| | Perchlorate Isotope Ratio | | | | | | 1 | 20-MAY-13 15:52 | per0520021a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.050 | ug/L | U | 1 | 20-MAY-13 15:52 | per0520021a |
| | Perchlorate-O(18) | | | 0.496 | ug/L | | 1 | 20-MAY-13 15:52 | per0520021a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** EPA 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1301783

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
LCS

**Date Received:** 15-MAY-13

**GEL Job No (SDG):** 2013-808

**GEL Sample ID:** 1202876021

**Date Filtered:** 15-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.203 | ug/L | | 1 | 20-MAY-13 16:00 | per0520022a |
| | Perchlorate Isotope Ratio | | | 3 | | | 1 | 20-MAY-13 16:00 | per0520022a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.210 | ug/L | | 1 | 20-MAY-13 16:00 | per0520022a |
| | Perchlorate-O(18) | | | 0.505 | ug/L | | 1 | 20-MAY-13 16:00 | per0520022a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1301783

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
ICS

**Date Received:**

**GEL Job No (SDG):** 2013-808

**GEL Sample ID:** 1202876024

**Date Filtered:** 15-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .05 | .2 | 0.209 | ug/L | | 1 | 20-MAY-13 16:08 | per0520023a |
| | Perchlorate Isotope Ratio | | | 3.07 | | | 1 | 20-MAY-13 16:08 | per0520023a |
| 14797-73-0 | Perchlorate-101 | .05 | .2 | 0.212 | ug/L | | 1 | 20-MAY-13 16:08 | per0520023a |
| | Perchlorate-O(18) | | | 0.506 | ug/L | | 1 | 20-MAY-13 16:08 | per0520023a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1301783

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CAMO-13-30592MS

**Date Received:** 08-MAY-13

**GEL Job No (SDG):** 2013-808

**GEL Sample ID:** 1202876022

**Date Filtered:** 15-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .1 | .4 | 1.11 | ug/L | | 2 | 20-MAY-13 19:29 | per0520048a |
| | Perchlorate Isotope Ratio | | | 3.13 | | | 2 | 20-MAY-13 19:29 | per0520048a |
| 14797-73-0 | Perchlorate-101 | .1 | .4 | 1.10 | ug/L | | 2 | 20-MAY-13 19:29 | per0520048a |
| | Perchlorate-O(18) | | | 0.985 | ug/L | | 2 | 20-MAY-13 19:29 | per0520048a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Perchlorate Analysis Data Sheet

**Lab Name:** GEL Laboratories LLC

**Lab Code:** GEL

**Instrument:** LCMSMS

**Method:** SW846 6850 Modified

**Matrix:** WATER

**Extraction Batch ID:** 1301783

**Extraction Type:** Filter/DAI

**Sample Volume/Weight:** 10.0 mL

**Concentrated Extract Volume:** 10.0

**Client Sample No.**
CAMO-13-30592MSD

**Date Received:** 08-MAY-13

**GEL Job No (SDG):** 2013-808

**GEL Sample ID:** 1202876023

**Date Filtered:** 15-MAY-13

**Injection Volume (uL):** 20

**%Solids:**

| CAS No. | Analyte^ | MDL | RL | Conc* | Units | Q | Dilution Factor | Date Analyzed | GEL File ID |
|---|---|---|---|---|---|---|---|---|---|
| 14797-73-0 | Perchlorate | .1 | .4 | 1.16 | ug/L | | 2 | 20-MAY-13 19:37 | per0520049a |
| | Perchlorate Isotope Ratio | | | 3.05 | | | 2 | 20-MAY-13 19:37 | per0520049a |
| 14797-73-0 | Perchlorate-101 | .1 | .4 | 1.18 | ug/L | | 2 | 20-MAY-13 19:37 | per0520049a |
| | Perchlorate-O(18) | | | 1.02 | ug/L | | 2 | 20-MAY-13 19:37 | per0520049a |

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

# Metals Analysis

# Case Narrative

**Metals Fractional Narrative**
**ARS International (ARSL)**
**SDG 2013-808**

## Sample Analysis

| Sample ID | Client ID |
|---|---|
| 325283002 | CAMO-13-30590 |
| 325283004 | CAMO-13-30593 |
| 1202874202 | Method Blank (MB) **ICP** |
| 1202874203 | Laboratory Control Sample (LCS) |
| 1202874206 | 325480002(CAMO-13-30589L) Serial Dilution (SD) |
| 1202874204 | 325480002(CAMO-13-30589D) Sample Duplicate (DUP) |
| 1202874205 | 325480002(CAMO-13-30589S) Matrix Spike (MS) |
| 1202874210 | Method Blank (MB) **ICP-MS** |
| 1202874211 | Laboratory Control Sample (LCS) |
| 1202874214 | 325480002(CAMO-13-30589L) Serial Dilution (SD) |
| 1202874212 | 325480002(CAMO-13-30589D) Sample Duplicate (DUP) |
| 1202874213 | 325480002(CAMO-13-30589S) Matrix Spike (MS) |
| 1202876202 | Method Blank (MB) **CVAA** |
| 1202876203 | Laboratory Control Sample (LCS) |
| 1202876208 | 325283002(CAMO-13-30590L) Serial Dilution (SD) |
| 1202876207 | 325283002(CAMO-13-30590D) Sample Duplicate (DUP) |
| 1202876209 | 325283002(CAMO-13-30590S) Matrix Spike (MS) |

## Method/Analysis Information

| | |
|---|---|
| **Analytical Batch:** | 1301065, 1301067, 1301863 and 1305711 |
| **Prep Batch :** | 1301064, 1301066 and 1301862 |
| **Standard Operating Procedures:** | GL-MA-E-013 REV# 22, GL-MA-E-006 REV# 9, GL-MA-E-014 REV# 25, GL-MA-E-010 REV# 26 and GL-GC-E-107 REV# 8 |
| **Analytical Method:** | SW846 3005/6010B, SW846 3005/6020 DOE-AL, EPA 245.1/245.2 and SM 2340 B |
| **Prep Method :** | SW846 3005A and EPA 245.1/245.2 Prep |

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

**System Configuration**

The Hardness as CaCO3 is calculated from Calcium and Magnesium results.

The Metals analysis-ICP was performed on a P E 5300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis-ICP was performed on a PE 7300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN 9000 inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadrupole mass spectrometer, and dual mode electron multiplier detector. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum. Operating conditions are set at 1400W power and combined argon pressures of 360+/-7 kPa for the plasma and auxiliary gases, and 0.85 L/min carrier gas flow, and an initial lens voltage of 5.2.

The Metals analysis-Mercury was performed on a Perkin-Elmer Flow Injection Mercury System (FIMS-100) automated mercury analyzer. The instrument consists of a cold vapor atomic absorption spectrometer set to detect mercury at a wavelength of 253.7 nm. Sample introduction through the flow injection system is performed via a peristaltic pump at 9 mL/min and nitrogen carrier gas rate of 80 mL/min.

**Calibration Information**

**Instrument Calibration**
All initial calibration requirements have been met for this sample delivery group (SDG).

**CRDL Requirements**
All CRDL standards met the referenced advisory control limits.

**ICSA/ICSAB Statement**
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

**Continuing Calibration Blank (CCB) Requirements**
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

**Continuing Calibration Verification (CCV) Requirements**
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

## Quality Control (QC) Information

**Method Blank (MB) Statement**
The MBs analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recoveries met the acceptance limits.

**Quality Control (QC) Sample Statement**
The following samples were selected as the quality control (QC) samples for this SDG: 325480002 (CAMO-13-30589)-ICP and ICP-MS and 325283002 (CAMO-13-30590)-CVAA.

**Matrix Spike (MS) Recovery Statement**
The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The MS met the recommended quality control acceptance criteria for percent recoveries for all applicable analytes with the exception of nickel.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. All applicable analytes met these requirements.

**Serial Dilution % Difference Statement**
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations that are 25X the IDL/MDL for CVAA, 50X the IDL/MDL for ICP, and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the acceptance criteria of less than 10% difference (%D).

## Technical Information

**Holding Time Specifications**
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are

calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

**Preparation/Analytical Method Verification**
All procedures were performed as stated in the SOP.

**Sample Dilutions**
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. The samples in this SDG did not require dilutions.

**Preparation Information**
Sample 325285001 was prepped at a dilution because, more sample consumed excessive amounts of potassium permanganate.

**Miscellaneous Information**

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Data Exception (DER) Documentation**
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. The following DER was generated for this SDG DER ID 1191916. A copy is included in the Miscellaneous Data section of this package.

**Additional Comments**
Additional comments were not required for this SDG.
Total Hardness by Calculation is determined using the results of Total Calcium (Ca) and Total Magnesium (Mg) determined by ICP or ICP-MS.

Hardness = 2.497 (Ca) + 4.118 (Mg)

Please refer to the Total Ca and Total Mg data to validate results appearing on the Hardness Summary sheet. Both results are in the Inorganic/metals section of the package. There is no Batch QC for calculated results, and thus no QC Summary for the Hardness by Calculation

Batch. The MDLs and PQLs are calculated using the higher of the two calculated values of Ca or Mg.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

**Review Validation:**

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

**The following data validator verified the information presented in this case narrative:**

**Reviewer:**_____ **Date:** 06.04.13

# Sample Data Summary

# GEL LABORATORIES LLC

2040 Savage Road  Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Qualifier Definition Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-808  GEL Work Order: 325283

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

J  Value is estimated

N  Metals--The Matrix spike sample recovery is not within specified control limits

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by Nick-Cole A. Elmore 06.04.13

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−808 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

**SAMPLE ID:** 325283002 **BASIS:** As Received **DATE COLLECTED** 06−MAY−13

**CLIENT ID:** CAMO−13−30590 **LEVEL:** Low **DATE RECEIVED** 08−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7439−97−6 | Mercury | 0.20 | ug/L | U | 0.067 | 0.2 | 0.2 | 1 | AV | NOR1 | 05/16/13 10:56 | 051613W1−13 | 1301863 |

# METALS
## −1−
## INORGANICS ANALYSIS DATA PACKAGE

**SDG No:** 2013−808 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

**SAMPLE ID:** 325283002 **BASIS:** As Received **DATE COLLECTED** 06−MAY−13

**CLIENT ID:** CAMO−13−30590 **LEVEL:** Low **DATE RECEIVED** 08−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7429−90−5 | Aluminum | 200 | ug/L | U | 68 | 200 | 200 | 1 | P | HSC | 06/03/13 09:08 | 060313A−1 | 1301065 |
| 7440−36−0 | Antimony | 3 | ug/L | U | 1 | 3 | 3 | 1 | MS | PRB | 06/04/13 12:34 | 130604−12 | 1301067 |
| 7440−38−2 | Arsenic | 5 | ug/L | U | 1.7 | 5 | 5 | 1 | MS | BAJ | 06/04/13 03:46 | 130603−11 | 1301067 |
| 7440−39−3 | Barium | 24.9 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:08 | 060313A−1 | 1301065 |
| 7440−41−7 | Beryllium | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:08 | 060313A−1 | 1301065 |
| 7440−42−8 | Boron | 50 | ug/L | U | 15 | 50 | 50 | 1 | P | HSC | 06/03/13 09:08 | 060313A−1 | 1301065 |
| 7440−43−9 | Cadmium | 1 | ug/L | U | 0.11 | 1 | 1 | 1 | MS | BAJ | 06/01/13 14:10 | 130601−10 | 1301067 |
| 7440−70−2 | Calcium | 13600 | ug/L | | 50 | 200 | 200 | 1 | P | HSC | 06/03/13 09:08 | 060313A−1 | 1301065 |
| 7440−47−3 | Chromium | 5.49 | ug/L | J | 2 | 10 | 10 | 1 | MS | BAJ | 06/01/13 01:01 | 130531−3 | 1301067 |
| 7440−48−4 | Cobalt | 1.11 | ug/L | J | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:08 | 060313A−1 | 1301065 |
| 7440−50−8 | Copper | 10 | ug/L | U | 3 | 10 | 10 | 1 | P | HSC | 06/03/13 09:08 | 060313A−1 | 1301065 |
| 7439−89−6 | Iron | 100 | ug/L | U | 30 | 100 | 100 | 1 | P | HSC | 06/03/13 09:08 | 060313A−1 | 1301065 |
| 7439−92−1 | Lead | 2 | ug/L | U | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/04/13 03:46 | 130603−11 | 1301067 |
| 7439−95−4 | Magnesium | 3360 | ug/L | | 110 | 300 | 300 | 1 | P | HSC | 06/03/13 09:08 | 060313A−1 | 1301065 |
| 7439−96−5 | Manganese | 10 | ug/L | U | 2 | 10 | 10 | 1 | P | HSC | 06/03/13 09:08 | 060313A−1 | 1301065 |
| 7439−98−7 | Molybdenum | 1.19 | ug/L | | 0.165 | 0.5 | 0.5 | 1 | MS | BAJ | 06/01/13 08:14 | 130531−7 | 1301067 |
| 7440−02−0 | Nickel | 2 | ug/L | U | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/01/13 01:01 | 130531−3 | 1301067 |
| 7440−09−7 | Potassium | 1330 | ug/L | | 50 | 150 | 150 | 1 | P | HSC | 06/03/13 09:08 | 060313A−1 | 1301065 |
| 7782−49−2 | Selenium | 5 | ug/L | U | 1.5 | 5 | 5 | 1 | MS | BAJ | 06/04/13 03:46 | 130603−11 | 1301067 |
| 7631−86−9 | Silica | 69100 | ug/L | | 53 | 213 | 213 | 1 | P | HSC | 06/03/13 09:08 | 060313A−1 | 1301065 |
| 7440−22−4 | Silver | 1 | ug/L | U | 0.2 | 1 | 1 | 1 | MS | BAJ | 06/01/13 14:10 | 130601−10 | 1301067 |
| 7440−23−5 | Sodium | 9930 | ug/L | | 100 | 300 | 300 | 1 | P | HSC | 06/03/13 10:58 | 060313A−2 | 1301065 |
| 7440−24−6 | Strontium | 54.5 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:08 | 060313A−1 | 1301065 |
| 7440−28−0 | Thallium | 2 | ug/L | U | 0.45 | 2 | 2 | 1 | MS | BAJ | 06/04/13 03:46 | 130603−11 | 1301067 |
| 7440−31−5 | Tin | 10 | ug/L | U | 2.5 | 10 | 10 | 1 | P | HSC | 06/03/13 10:58 | 060313A−2 | 1301065 |
| 7440−61−1 | Uranium | 0.477 | ug/L | | 0.067 | 0.2 | 0.2 | 1 | MS | BAJ | 06/01/13 11:50 | 130601−8 | 1301067 |
| 7440−62−2 | Vanadium | 4.64 | ug/L | J | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:08 | 060313A−1 | 1301065 |
| 7440−66−6 | Zinc | 10 | ug/L | U | 3.3 | 10 | 10 | 1 | P | HSC | 06/03/13 09:08 | 060313A−1 | 1301065 |

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−808 **CONTRACT:** ESHL00210 **METHOD TYPE:**

**SAMPLE ID:** 325283002 **BASIS:** As Received **DATE COLLECTED** 06−MAY−13

**CLIENT ID:** CAMO−13−30590 **LEVEL:** Low **DATE RECEIVED** 08−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Hardness as CaCO3 | 47.8 | mg/L | | 0.453 | 1.24 | 1.24 | 1 | | JJ2 | 06/04/13 11:28 | | 1305711 |

**Prep Information:**

| Analytical Batch | Prep Batch | Prep Method | Initial wt./vol. | Units | Final wt./vol. | Units | Date | Analyst |
|---|---|---|---|---|---|---|---|---|
| 1301065 | 1301064 | SW846 3005A | 50 | mL | 50 | mL | 05/31/13 | MTM1 |
| 1301067 | 1301066 | SW846 3005A | 50 | mL | 50 | mL | 05/31/13 | MTM1 |
| 1301863 | 1301862 | EPA 245.1/245.2 Prep | 20 | mL | 20 | mL | 05/15/13 | AXS5 |

***Analytical Methods:**

| | |
|---|---|
| **MS** | **SW846 3005/6020 DOE−AL** |
| **P** | **SW846 3005/6010B** |
| **AV** | **EPA 245.1/245.2** |

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−808 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

**SAMPLE ID:** 325283004 **BASIS:** As Received **DATE COLLECTED** 06−MAY−13

**CLIENT ID:** CAMO−13−30593 **LEVEL:** Low **DATE RECEIVED** 08−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7439−97−6 | Mercury | 0.20 | ug/L | U | 0.067 | 0.2 | 0.2 | 1 | AV | NOR1 | 05/16/13 11:03 | 051613W1−13 | 1301863 |

# METALS
## −1−
## INORGANICS ANALYSIS DATA PACKAGE

**SDG No:** 2013−808 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

**SAMPLE ID:** 325283004 **BASIS:** As Received **DATE COLLECTED** 06−MAY−13

**CLIENT ID:** CAMO−13−30593 **LEVEL:** Low **DATE RECEIVED** 08−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7429−90−5 | Aluminum | 200 | ug/L | U | 68 | 200 | 200 | 1 | P | HSC | 06/03/13 09:11 | 060313A−1 | 1301065 |
| 7440−36−0 | Antimony | 1.2 | ug/L | J | 1 | 3 | 3 | 1 | MS | PRB | 06/04/13 12:37 | 130604−12 | 1301067 |
| 7440−38−2 | Arsenic | 5 | ug/L | U | 1.7 | 5 | 5 | 1 | MS | BAJ | 06/04/13 03:49 | 130603−11 | 1301067 |
| 7440−39−3 | Barium | 90.1 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:11 | 060313A−1 | 1301065 |
| 7440−41−7 | Beryllium | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:11 | 060313A−1 | 1301065 |
| 7440−42−8 | Boron | 50 | ug/L | U | 15 | 50 | 50 | 1 | P | HSC | 06/03/13 09:11 | 060313A−1 | 1301065 |
| 7440−43−9 | Cadmium | 1 | ug/L | U | 0.11 | 1 | 1 | 1 | MS | BAJ | 06/01/13 14:13 | 130601−10 | 1301067 |
| 7440−70−2 | Calcium | 51600 | ug/L | | 50 | 200 | 200 | 1 | P | HSC | 06/03/13 09:11 | 060313A−1 | 1301065 |
| 7440−47−3 | Chromium | 932 | ug/L | | 2 | 10 | 10 | 1 | MS | BAJ | 06/01/13 01:07 | 130531−3 | 1301067 |
| 7440−48−4 | Cobalt | 5 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:11 | 060313A−1 | 1301065 |
| 7440−50−8 | Copper | 10 | ug/L | U | 3 | 10 | 10 | 1 | P | HSC | 06/03/13 09:11 | 060313A−1 | 1301065 |
| 7439−89−6 | Iron | 100 | ug/L | U | 30 | 100 | 100 | 1 | P | HSC | 06/03/13 09:11 | 060313A−1 | 1301065 |
| 7439−92−1 | Lead | 2 | ug/L | U | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/04/13 03:49 | 130603−11 | 1301067 |
| 7439−95−4 | Magnesium | 14300 | ug/L | | 110 | 300 | 300 | 1 | P | HSC | 06/03/13 09:11 | 060313A−1 | 1301065 |
| 7439−96−5 | Manganese | 10 | ug/L | U | 2 | 10 | 10 | 1 | P | HSC | 06/03/13 09:11 | 060313A−1 | 1301065 |
| 7439−98−7 | Molybdenum | 0.523 | ug/L | | 0.165 | 0.5 | 0.5 | 1 | MS | BAJ | 06/01/13 08:18 | 130531−7 | 1301067 |
| 7440−02−0 | Nickel | 24.3 | ug/L | | 0.5 | 2 | 2 | 1 | MS | BAJ | 06/01/13 01:07 | 130531−3 | 1301067 |
| 7440−09−7 | Potassium | 2420 | ug/L | | 50 | 150 | 150 | 1 | P | HSC | 06/03/13 09:11 | 060313A−1 | 1301065 |
| 7782−49−2 | Selenium | 5 | ug/L | U | 1.5 | 5 | 5 | 1 | MS | BAJ | 06/04/13 03:49 | 130603−11 | 1301067 |
| 7631−86−9 | Silica | 71400 | ug/L | | 53 | 213 | 213 | 1 | P | HSC | 06/03/13 09:11 | 060313A−1 | 1301065 |
| 7440−22−4 | Silver | 1 | ug/L | U | 0.2 | 1 | 1 | 1 | MS | BAJ | 06/01/13 14:13 | 130601−10 | 1301067 |
| 7440−23−5 | Sodium | 17000 | ug/L | | 100 | 300 | 300 | 1 | P | HSC | 06/03/13 11:01 | 060313A−2 | 1301065 |
| 7440−24−6 | Strontium | 206 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:11 | 060313A−1 | 1301065 |
| 7440−28−0 | Thallium | 2 | ug/L | U | 0.45 | 2 | 2 | 1 | MS | BAJ | 06/04/13 03:49 | 130603−11 | 1301067 |
| 7440−31−5 | Tin | 10 | ug/L | U | 2.5 | 10 | 10 | 1 | P | HSC | 06/03/13 11:01 | 060313A−2 | 1301065 |
| 7440−61−1 | Uranium | 0.864 | ug/L | | 0.067 | 0.2 | 0.2 | 1 | MS | BAJ | 06/01/13 11:52 | 130601−8 | 1301067 |
| 7440−62−2 | Vanadium | 4.6 | ug/L | J | 1 | 5 | 5 | 1 | P | HSC | 06/03/13 09:11 | 060313A−1 | 1301065 |
| 7440−66−6 | Zinc | 7 | ug/L | J | 3.3 | 10 | 10 | 1 | P | HSC | 06/03/13 09:11 | 060313A−1 | 1301065 |

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** 2013−808 **CONTRACT:** ESHL00210 **METHOD TYPE:**

**SAMPLE ID:** 325283004 **BASIS:** As Received **DATE COLLECTED** 06−MAY−13

**CLIENT ID:** CAMO−13−30593 **LEVEL:** Low **DATE RECEIVED** 08−MAY−13

**MATRIX:** W **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Hardness as CaCO3 | 188 | mg/L | | 0.453 | 1.24 | 1.24 | 1 | | JJ2 | 06/04/13 11:28 | | 1305711 |

**Prep Information:**

| Analytical Batch | Prep Batch | Prep Method | Initial wt./vol. | Units | Final wt./vol. | Units | Date | Analyst |
|---|---|---|---|---|---|---|---|---|
| 1301065 | 1301064 | SW846 3005A | 50 | mL | 50 | mL | 05/31/13 | MTM1 |
| 1301067 | 1301066 | SW846 3005A | 50 | mL | 50 | mL | 05/31/13 | MTM1 |
| 1301863 | 1301862 | EPA 245.1/245.2 Prep | 20 | mL | 20 | mL | 05/15/13 | AXS5 |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**
**P** **SW846 3005/6010B**
**AV** **EPA 245.1/245.2**

# Quality Control Summary

**METALS**
**−3b−**
**PREPARATION BLANK SUMMARY**

**SDG NO.** 2013−808

**Contract:** ESHL00210

**Matrix:** W

| Sample ID | Analyte | Result | Units | Acceptance Window | Conc Qual | M* | MDL | RDL |
|---|---|---|---|---|---|---|---|---|
| 1202874202 | | | | | | | | |
| | Aluminum | 68 | ug/L | +/−200 | U | P | 68 | 200 |
| | Barium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Beryllium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Boron | 15 | ug/L | +/−50 | U | P | 15 | 50 |
| | Calcium | 50 | ug/L | +/−200 | U | P | 50 | 200 |
| | Cobalt | 1.31 | ug/L | +/−5 | J | P | 1 | 5 |
| | Copper | 3 | ug/L | +/−10 | U | P | 3 | 10 |
| | Iron | 30 | ug/L | +/−100 | U | P | 30 | 100 |
| | Magnesium | 110 | ug/L | +/−300 | U | P | 110 | 300 |
| | Manganese | 2 | ug/L | +/−10 | U | P | 2 | 10 |
| | Potassium | 64.3 | ug/L | +/−150 | J | P | 50 | 150 |
| | Silica | 53 | ug/L | +/−213 | U | P | 53 | 213 |
| | Sodium | 100 | ug/L | +/−300 | U | P | 100 | 300 |
| | Strontium | 2.05 | ug/L | +/−5 | J | P | 1 | 5 |
| | Tin | 2.5 | ug/L | +/−10 | U | P | 2.5 | 10 |
| | Vanadium | 1 | ug/L | +/−5 | U | P | 1 | 5 |
| | Zinc | 3.3 | ug/L | +/−10 | U | P | 3.3 | 10 |
| 1202874210 | | | | | | | | |
| | Antimony | 1 | ug/L | +/−3 | U | MS | 1 | 3 |
| | Arsenic | 1.7 | ug/L | +/−5 | U | MS | 1.7 | 5 |
| | Cadmium | 0.11 | ug/L | +/−1 | U | MS | 0.11 | 1 |
| | Chromium | 2 | ug/L | +/−10 | U | MS | 2 | 10 |
| | Lead | 0.5 | ug/L | +/−2 | U | MS | 0.5 | 2 |
| | Molybdenum | 0.165 | ug/L | +/−0.5 | U | MS | 0.165 | 0.5 |
| | Nickel | 0.5 | ug/L | +/−2 | U | MS | 0.5 | 2 |
| | Selenium | 1.5 | ug/L | +/−5 | U | MS | 1.5 | 5 |
| | Silver | 0.2 | ug/L | +/−1 | U | MS | 0.2 | 1 |
| | Thallium | 0.45 | ug/L | +/−2 | U | MS | 0.45 | 2 |
| | Uranium | 0.067 | ug/L | +/−0.2 | U | MS | 0.067 | 0.2 |
| 1202876202 | | | | | | | | |
| | Mercury | 0.067 | ug/L | +/−0.2 | U | AV | 0.067 | 0.2 |

***Analytical Methods:**

| | |
|---|---|
| **MS** | **SW846 3005/6020 DOE−AL** |
| **P** | **SW846 3005/6010B** |
| **AV** | **EPA 245.1/245.2** |

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−808 **Client ID** CAMO−13−30589S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 325480002 **Spike ID:** 1202874205

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | ug/L | 75−125 | 5060 | | 68 | U | 5000 | 101 | | P |
| Barium | ug/L | 75−125 | 504 | | 41.1 | | 500 | 92.5 | | P |
| Beryllium | ug/L | 75−125 | 473 | | 1 | U | 500 | 94.5 | | P |
| Boron | ug/L | 75−125 | 509 | | 42.3 | J | 500 | 93.4 | | P |
| Calcium | ug/L | | 68900 | | 63900 | | 5000 | 98.3 | N/A | P |
| Cobalt | ug/L | 75−125 | 438 | | 1 | U | 500 | 87.5 | | P |
| Copper | ug/L | 75−125 | 490 | | 6.12 | J | 500 | 96.7 | | P |
| Iron | ug/L | 75−125 | 4790 | | 30 | U | 5000 | 95.6 | | P |
| Magnesium | ug/L | 75−125 | 17600 | | 13000 | | 5000 | 92.7 | | P |
| Manganese | ug/L | 75−125 | 450 | | 2.92 | J | 500 | 89.5 | | P |
| Potassium | ug/L | 75−125 | 5640 | | 881 | | 5000 | 95.2 | | P |
| Silica | ug/L | | 75900 | | 65300 | | 10700 | 99 | N/A | P |
| Sodium | ug/L | | 30200 | | 25500 | | 5000 | 93.5 | N/A | P |
| Strontium | ug/L | 75−125 | 812 | | 305 | | 500 | 101 | | P |
| Tin | ug/L | 75−125 | 454 | | 2.5 | U | 500 | 90.8 | | P |
| Vanadium | ug/L | 75−125 | 469 | | 1 | U | 500 | 93.6 | | P |
| Zinc | ug/L | 75−125 | 430 | | 15.9 | | 500 | 82.8 | | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−808 **Client ID** CAMO−13−30589S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 325480002 **Spike ID:** 1202874213

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ug/L | 75−125 | 50.4 | | 1 | U | 50 | 100 | | MS |
| Arsenic | ug/L | 75−125 | 49.9 | | 1.7 | U | 50 | 99.9 | | MS |
| Cadmium | ug/L | 75−125 | 52.7 | | 0.11 | U | 50 | 105 | | MS |
| Chromium | ug/L | 75−125 | 135 | | 73.2 | | 50 | 124 | | MS |
| Lead | ug/L | 75−125 | 50.1 | | 0.5 | U | 50 | 100 | | MS |
| Molybdenum | ug/L | 75−125 | 55.4 | | 1.45 | | 50 | 108 | | MS |
| Nickel | ug/L | 75−125 | 104 | | 41.3 | | 50 | 126 | N | MS |
| Selenium | ug/L | 75−125 | 54.9 | | 1.5 | U | 50 | 108 | | MS |
| Silver | ug/L | 75−125 | 51.5 | | 0.2 | U | 50 | 103 | | MS |
| Thallium | ug/L | 75−125 | 45.7 | | 0.45 | U | 50 | 91.1 | | MS |
| Uranium | ug/L | 75−125 | 55 | | 1.27 | | 50 | 108 | | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

**METALS**
**−5a−**

**Matrix Spike Summary**

**SDG NO.** 2013−808 **Client ID** CAMO−13−30590S

**Contract:** ESHL00210 **Level:** Low

**Matrix:** WATER **% Solids:**

**Sample ID:** 325283002 **Spike ID:** 1202876209

| Analyte | Units | Acceptance Limit | Spiked Result | C | Sample Result | C | Spike Added | % Recovery | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | ug/L | 75−125 | 1.98 | | 0.067 | U | 2 | 99.1 | | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−808 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CAMO−13−30589D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325480002 **Duplicate ID:** 1202874204 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | ug/L | | 68 | U | 68 | U | | | P |
| Barium | ug/L | +/−20% | 41.1 | | 41.6 | | 1.31 | | P |
| Beryllium | ug/L | | 1 | U | 1 | U | | | P |
| Boron | ug/L | +/−50 | 42.3 | J | 42.5 | J | .481 | | P |
| Calcium | ug/L | +/−20% | 63900 | | 65400 | | 2.23 | | P |
| Cobalt | ug/L | | 1 | U | 1.08 | J | 200 | | P |
| Copper | ug/L | +/−10 | 6.12 | J | 6.13 | J | .16 | | P |
| Iron | ug/L | | 30 | U | 30 | U | | | P |
| Magnesium | ug/L | +/−20% | 13000 | | 13200 | | 1.48 | | P |
| Manganese | ug/L | +/−10 | 2.92 | J | 2.81 | J | 3.67 | | P |
| Potassium | ug/L | +/−20% | 881 | | 863 | | 2.09 | | P |
| Silica | ug/L | +/−20% | 65300 | | 66300 | | 1.56 | | P |
| Sodium | ug/L | +/−20% | 25500 | | 25500 | | .0667 | | P |
| Strontium | ug/L | +/−20% | 305 | | 312 | | 2.26 | | P |
| Tin | ug/L | | 2.5 | U | 2.5 | U | | | P |
| Vanadium | ug/L | | 1 | U | 1 | U | | | P |
| Zinc | ug/L | +/−10 | 15.9 | | 14.5 | | 9.43 | | P |

***Analytical Methods:**

**P SW846 3005/6010B**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−808 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CAMO−13−30589D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325480002 **Duplicate ID:** 1202874212 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Antimony | ug/L | | 1 | U | 1 | U | | | MS |
| Arsenic | ug/L | | 1.7 | U | 1.7 | U | | | MS |
| Cadmium | ug/L | | 0.11 | U | 0.11 | U | | | MS |
| Chromium | ug/L | +/−20% | 73.2 | | 72.1 | | 1.52 | | MS |
| Lead | ug/L | | 0.5 | U | 0.5 | U | | | MS |
| Molybdenum | ug/L | +/−.5 | 1.45 | | 1.44 | | .416 | | MS |
| Nickel | ug/L | +/−20% | 41.3 | | 40.3 | | 2.57 | | MS |
| Selenium | ug/L | | 1.5 | U | 1.5 | U | | | MS |
| Silver | ug/L | | 0.2 | U | 0.2 | U | | | MS |
| Thallium | ug/L | | 0.45 | U | 0.45 | U | | | MS |
| Uranium | ug/L | +/−20% | 1.27 | | 1.22 | | 4.25 | | MS |

***Analytical Methods:**

**MS SW846 3005/6020 DOE−AL**

**Metals**
**−6−**
**Duplicate Sample Summary**

**SDG No.:** 2013−808 **Lab Code:** GEL

**Contract:** ESHL00210 **Client ID:** CAMO−13−30590D

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325283002 **Duplicate ID:** 1202876207 **Percent Solids for Dup:** N/A

| Analyte | Units | Acceptance Limit | Sample Result | C | Duplicate Result | C | RPD | Qual | M* |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | ug/L | | 0.067 | U | 0.067 | U | | | AV |

***Analytical Methods:**

**AV EPA 245.1/245.2**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−808

**Contract:** ESHL00210

**Aqueous LCS Source:** OS2I **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202874203 | | | | | | | | |
| | Aluminum | ug/L | 5000 | 5220 | | 104 | 80−120 | P |
| | Barium | ug/L | 500 | 478 | | 95.6 | 80−120 | P |
| | Beryllium | ug/L | 500 | 485 | | 97 | 80−120 | P |
| | Boron | ug/L | 500 | 462 | | 92.4 | 80−120 | P |
| | Calcium | ug/L | 5000 | 4940 | | 98.8 | 80−120 | P |
| | Cobalt | ug/L | 500 | 465 | | 93.1 | 80−120 | P |
| | Copper | ug/L | 500 | 484 | | 96.9 | 80−120 | P |
| | Iron | ug/L | 5000 | 4950 | | 99.1 | 80−120 | P |
| | Magnesium | ug/L | 5000 | 4900 | | 98 | 80−120 | P |
| | Manganese | ug/L | 500 | 469 | | 93.8 | 80−120 | P |
| | Potassium | ug/L | 5000 | 4880 | | 97.6 | 80−120 | P |
| | Silica | ug/L | 10700 | 9820 | | 91.7 | 80−120 | P |
| | Strontium | ug/L | 500 | 513 | | 103 | 80−120 | P |
| | Tin | ug/L | 500 | 480 | | 96 | 80−120 | P |
| | Vanadium | ug/L | 500 | 476 | | 95.1 | 80−120 | P |
| | Zinc | ug/L | 500 | 443 | | 88.7 | 80−120 | P |
| | Sodium | ug/L | 5000 | 4920 | | 98.4 | 80−120 | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−808

**Contract:** ESHL00210

**Aqueous LCS Source:** O2Si **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202874211 | | | | | | | | |
| | Antimony | ug/L | 50 | 52.9 | | 106 | 80−120 | MS |
| | Arsenic | ug/L | 50 | 52.2 | | 104 | 80−120 | MS |
| | Cadmium | ug/L | 50 | 52 | | 104 | 80−120 | MS |
| | Chromium | ug/L | 50 | 53 | | 106 | 80−120 | MS |
| | Lead | ug/L | 50 | 53.7 | | 107 | 80−120 | MS |
| | Molybdenum | ug/L | 50 | 50.7 | | 101 | 80−120 | MS |
| | Nickel | ug/L | 50 | 55.6 | | 111 | 80−120 | MS |
| | Selenium | ug/L | 50 | 55.4 | | 111 | 80−120 | MS |
| | Silver | ug/L | 50 | 52.5 | | 105 | 80−120 | MS |
| | Thallium | ug/L | 50 | 47.5 | | 95 | 80−120 | MS |
| | Uranium | ug/L | 50 | 51.5 | | 103 | 80−120 | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

**METALS**
**−7−**
**Laboratory Control Sample Summary**

**SDG NO.** 2013−808

**Contract:** ESHL00210

**Aqueous LCS Source:** GEL **Solid LCS Source:**

| Sample ID | Analyte | Units | True Value | Result | C | % Recovery | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| 1202876203 | | | | | | | | |
| | Mercury | ug/L | 2 | 2.05 | | 103 | 85−115 | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−808 **Client ID** CAMO−13−30589L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325480002 **Serial Dilution ID:** 1202874206

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Aluminum | 68 | U | 340 | U | | | | P |
| Barium | 41.1 | | 41.1 | | .033 | | | P |
| Beryllium | 1 | U | 5 | U | | | | P |
| Boron | 42.3 | J | 75 | U | 100 | | | P |
| Calcium | 63900 | | 64700 | | 1.18 | | 10 | P |
| Cobalt | 1 | U | 5 | U | | | | P |
| Copper | 6.12 | J | 15 | U | 100 | | | P |
| Iron | 30 | U | 150 | U | | | | P |
| Magnesium | 13000 | | 13000 | | .331 | | 10 | P |
| Manganese | 2.92 | J | 10 | U | 100 | | | P |
| Potassium | 881 | | 1120 | | 27.4 | | | P |
| Silica | 65300 | | 63400 | | 2.89 | | 10 | P |
| Sodium | 25500 | | 26000 | | 2.02 | | 10 | P |
| Strontium | 305 | | 311 | | 2.03 | | 10 | P |
| Tin | 2.5 | U | 12.5 | U | | | | P |
| Vanadium | 1 | U | 5 | U | | | | P |
| Zinc | 15.9 | | 16.5 | U | 100 | | | P |

***Analytical Methods:**

**P** **SW846 3005/6010B**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−808 **Client ID** CAMO−13−30589L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325480002 **Serial Dilution ID:** 1202874214

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Antimony | 1 | U | 5 | U | | | | MS |
| Arsenic | 1.7 | U | 8.5 | U | | | | MS |
| Cadmium | .11 | U | .55 | U | | | | MS |
| Chromium | 73.2 | | 81.4 | | 11.2 | | | MS |
| Lead | .5 | U | 2.5 | U | | | | MS |
| Molybdenum | 1.45 | | 1.79 | J | 23.5 | | | MS |
| Nickel | 41.3 | | 43.4 | | 5.08 | | | MS |
| Selenium | 1.5 | U | 7.5 | U | | | | MS |
| Silver | .2 | U | 1 | U | | | | MS |
| Thallium | .45 | U | 2.65 | J | | | | MS |
| Uranium | 1.27 | | 1.3 | | 2.04 | | | MS |

***Analytical Methods:**

**MS** **SW846 3005/6020 DOE−AL**

**METALS**
**−9−**
**Serial Dilution Sample Summary**

**SDG NO.** 2013−808 **Client ID** CAMO−13−30590L

**Contract:** ESHL00210

**Matrix:** LIQUID **Level:** Low

**Sample ID:** 325283002 **Serial Dilution ID:** 1202876208

| Analyte | Initial Value ug/L | C | Serial Value ug/L | C | % Difference | Qual | Acceptance Limit | M* |
|---|---|---|---|---|---|---|---|---|
| Mercury | .067 | U | .335 | U | | | | AV |

***Analytical Methods:**

**AV** **EPA 245.1/245.2**

# Miscellaneous

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 04-JUN-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| ICP/MS | SW846 3005/6020 DOE-AL | Liquid | ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1301067 | See Below | | |

**Potentially affected work order(s)(SDG):** **325283(2013-808),325284(2013-809),325285(2013-810),325394(2013-813),325410(2013-814),325479(2013-822),325480(2013-823)**

**Application Issues:**

Failed Recovery for MS/PS

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed Recovery for MS/PS:<br><br>QC 1202874213MS | The matrix spike recovery failed outside of the control limits for Ni due to possible matrix interferences and/or non-homogeneity. Per GEL's accredited methods and SOPs, a corrective action is not required and the data is qualified and reported. |

**Originator's Name:**
Elizabeth Janssen 04-JUN-13

**Data Validator/Group Leader:**
Paul Boyd 04-JUN-13

# General Chem Analysis

# Case Narrative

**General Chemistry Narrative**
**ARS International (ARSL)**
**SDG 2013-808**

## Method/Analysis Information

**Product:** **Carbon, Total Organic**

**Analytical Batch:** 1300890 **Method:** SW 9060 Total Organic Carbon

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9060:

| Sample ID | Client ID |
|---|---|
| 325283001 | CAMO-13-30574 |
| 325283003 | CAMO-13-30577 |
| 1202873770 | Method Blank (MB) |
| 1202873772 | 325410001(CAMO-13-30616) Sample Duplicate (DUP) |
| 1202873774 | 325410001(CAMO-13-30616) Post Spike (PS) |
| 1202873775 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-093 REV# 12.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Carbon analysis was performed on a O-I Analytical Model 1010 Total Organic Carbon Analyzer.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325410001 (CAMO-13-30616).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages

electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Specific Conductivity** | | |
| **Analytical Batch:** | 1300876 | **Method:** | EPA120.1 Specific Conductivity |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 120.1:

| Sample ID | Client ID |
|---|---|
| 325283002 | CAMO-13-30590 |
| 325283004 | CAMO-13-30593 |
| 1202873728 | Laboratory Control Sample (LCS) |
| 1202873730 | 325410002(CAMO-13-30620) Sample Duplicate (DUP) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-009 REV# 11.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Conductivity analysis was performed on a Orion 160 Conductivity Meter.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**

The following sample was selected for QC analysis: 325410002 (CAMO-13-30620).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

**Product:** **pH**

**Analytical Batch:** 1300535 **Method:** EPA 150.1 pH

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 150.1:

| Sample ID | Client ID |
|---|---|
| 325283002 | CAMO-13-30590 |
| 325283004 | CAMO-13-30593 |
| 1202872792 | 325283002(CAMO-13-30590) Sample Duplicate (DUP) |
| 1202872793 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-008 REV# 21.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Electrode analysis was performed on a PerpHect pH Meter Orion 370.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325283002 (CAMO-13-30590).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
The following samples from this sample group were received by the lab outside of the method specified holding time: 325283002 (CAMO-13-30590) and 325283004 (CAMO-13-30593).

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1188762 325283002 (CAMO-13-30590) and 325283004 (CAMO-13-30593).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Ion Chromatography** | | |
| **Analytical Batch:** | 1300377 | **Method:** | EPA 300.0 Anions Liquid 28 day |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

| Sample ID | Client ID |
|---|---|
| 325283002 | CAMO-13-30590 |
| 325283004 | CAMO-13-30593 |
| 1202872355 | Method Blank (MB) |
| 1202872356 | 325284005(CAMO-13-30558) Sample Duplicate (DUP) |
| 1202872357 | 325284005(CAMO-13-30558) Post Spike (PS) |
| 1202872358 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 21.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-5000 Ion Chromatograph.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325284005 (CAMO-13-30558).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The following sample in this sample group was diluted due to high concentration: 325283004 (CAMO-13-30593).

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Manual Integrations**
The following samples from this sample group had to be manually integrated due to errors in the instrument software peak integration: 325283002 (CAMO-13-30590) and 325283004 (CAMO-13-30593).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an

effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Ammonia Nitrogen** | | |
| **Analytical Batch:** | 1300621 | **Method:** | EPA 350.1 Nitrogen and Ammonia L |
| **Prep Batch :** | 1300620 | **Method:** | EEPA 350.2 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 350.1:

| Sample ID | Client ID |
|---|---|
| 325283002 | CAMO-13-30590 |
| 325283004 | CAMO-13-30593 |
| 1202873025 | Method Blank (MB) |
| 1202873026 | 325283002(CAMO-13-30590) Sample Duplicate (DUP) |
| 1202873027 | 325283004(CAMO-13-30593) Sample Duplicate (DUP) |
| 1202873028 | 325283002(CAMO-13-30590) Matrix Spike (MS) |
| 1202873029 | 325283004(CAMO-13-30593) Matrix Spike (MS) |
| 1202873030 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-106 REV# 9.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Continuing Calibration Blanks**

All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following samples were selected for QC analysis: 325283002 (CAMO-13-30590) and 325283004 (CAMO-13-30593).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recoveries for this sample set were within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
One or more of the values for the sample and/or duplicate are less than 5 times the Practical Quantitation Limit (PQL), and the difference is within one PQL value; therefore, the RPD is not applicable. 1202873027 (CAMO-13-30593). The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample: 1202873026 (CAMO-13-30590).

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The following samples were re-analyzed due to CCV failure: 1202873027 (CAMO-13-30593) and 1202873029 (CAMO-13-30593). The following sample was re-analyzed due to its proximity to an overrange sample: 325283002 (CAMO-13-30590).

**Miscellaneous Information**

**Data Exception (DER) Documentation**
The following DER was generated for this SDG: 1185844 1202873026 (CAMO-13-30590).

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Total Kjeldahl Nitrogen** | | |
| **Analytical Batch:** | 1300635 | **Method:** | Nitrogen and Total Kjeldahl (TKN) |
| **Prep Batch :** | 1300634 | **Method:** | EEPA 351.2 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 351.2:

| Sample ID | Client ID |
|---|---|
| 325283001 | CAMO-13-30574 |
| 325283003 | CAMO-13-30577 |
| 1202873058 | Method Blank (MB) |
| 1202873059 | 325283001(CAMO-13-30574) Sample Duplicate (DUP) |
| 1202873060 | 325283003(CAMO-13-30577) Sample Duplicate (DUP) |
| 1202873061 | 325283001(CAMO-13-30574) Matrix Spike (MS) |
| 1202873062 | 325283003(CAMO-13-30577) Matrix Spike (MS) |
| 1202873063 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-104 REV# 14.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following samples were selected for QC analysis: 325283001 (CAMO-13-30574) and 325283003 (CAMO-13-30577).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recoveries for this sample set were within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202873059 (CAMO-13-30574).

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The following samples were re-analyzed due to CCV failure: 1202873058 (MB), 1202873059 (CAMO-13-30574), 1202873060 (CAMO-13-30577), 1202873061 (CAMO-13-30574), 1202873062 (CAMO-13-30577), 1202873063 (LCS), 325283001 (CAMO-13-30574) and 325283003 (CAMO-13-30577).

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Nitrate Nitrite by Cadmium Reduction** | | |
| **Analytical Batch:** | 1301244 | **Method:** | EPA 353.2 Nitrogen and Nitrate/Nitrite |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 353.2:

| Sample ID | Client ID |
|---|---|
| 325283002 | CAMO-13-30590 |
| 325283004 | CAMO-13-30593 |
| 1202874590 | Method Blank (MB) |
| 1202874592 | 325283002(CAMO-13-30590) Sample Duplicate (DUP) |
| 1202874595 | 325283002(CAMO-13-30590) Post Spike (PS) |
| 1202874597 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-128 REV# 8.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8500 Series.

**Calibration Verification Information**
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325283002 (CAMO-13-30590).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The following sample in this sample group was diluted due to high concentration: 325283004 (CAMO-13-30593).

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

| | | | |
|---|---|---|---|
| **Product:** | **Total Phosphorus** | | |
| **Analytical Batch:** | 1300626 | **Method:** | EPA 365.4 Phosphorus and Total in |
| **Prep Batch :** | 1300625 | **Method:** | EEPA 365.4 Prep |

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 365.4:

| Sample ID | Client ID |
|---|---|
| 325283002 | CAMO-13-30590 |
| 325283004 | CAMO-13-30593 |
| 1202873039 | Method Blank (MB) |
| 1202873040 | 325283002(CAMO-13-30590) Sample Duplicate (DUP) |
| 1202873041 | 325287001(NP027-13-30514) Sample Duplicate (DUP) |
| 1202873042 | 325283002(CAMO-13-30590) Matrix Spike (MS) |
| 1202873043 | 325287001(NP027-13-30514) Matrix Spike (MS) |
| 1202873044 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-103 REV# 10.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

**Continuing Calibration Blanks**
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

**Calibration Verification Information (CCV)**
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

**Y Intercept Rule**
The absolute value of the intercept is less than 3 times the MDL.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following samples were selected for QC analysis: 325283002 (CAMO-13-30590) and 325287001 (NP027-13-30514).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recoveries for this sample set were within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Preservation/Integrity**
All the samples from this sample group met the preservation and integrity requirements of the method.

**Sample Dilutions**
The following samples in this sample group were diluted due to high concentration: 1202873041 (NP027-13-30514) and 1202873043 (NP027-13-30514).

**Sample Re-analysis**
The following samples were re-analyzed due to CCV failure: 1202873041 (NP027-13-30514) and 1202873043 (NP027-13-30514).

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

**Product:** **Solids, Total Dissolved**

**Analytical Batch:** 1300534 **Method:** EPA 160.1 Solids and Dissolved-F

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 160.1:

| Sample ID | Client ID |
|---|---|
| 325283002 | CAMO-13-30590 |
| 325283004 | CAMO-13-30593 |
| 1202872789 | Method Blank (MB) |
| 1202872790 | 325283004(CAMO-13-30593) Sample Duplicate (DUP) |
| 1202872791 | Laboratory Control Sample (LCS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-001 REV# 13.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Solids analysis was performed on a Sartorius Balance BAL216. Solids lab

**Initial Calibration**
All initial calibration requirements have been met for this SDG.

## Quality Control (QC) Information

**Method Blank (MB) Statement**
The MB analyzed with this SDG met the acceptance criteria.

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325283004 (CAMO-13-30593).

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Sample Aliquot**
A sufficient amount of sample was provided by the client for analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

## Method/Analysis Information

**Product:** **Alkalinity**

**Analytical Batch:** 1301389 **Method:** EPA 310.1 Total Alkalinity

## Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 310.1:

| Sample ID | Client ID |
|---|---|
| 325283002 | CAMO-13-30590 |
| 325283004 | CAMO-13-30593 |
| 1202875038 | Laboratory Control Sample (LCS) |
| 1202875043 | 325283002(CAMO-13-30590) Sample Duplicate (DUP) |
| 1202875044 | 325283002(CAMO-13-30590) Matrix Spike (MS) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-033 REV# 10.

**Preparation/Analytical Method Verification**

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

## Calibration Information

The Titration analysis was performed on a Manually operated buret.

**Initial Standardization**
The titrant was properly standardized

## Quality Control (QC) Information

**Laboratory Control Sample (LCS) Recovery**
The LCS spike recovery met the acceptance limits.

**Quality Control (QC) Designation**
The following sample was selected for QC analysis: 325283002 (CAMO-13-30590).

**Matrix Spike (MS)/Post Spike (PS) Recovery Statement**
The MS/PS recovery for this sample set was within the required acceptance limits.

**Duplicate Relative Percent Difference (RPD) Statement**
The RPD between the sample and its duplicate met the acceptance limits.

**Technical Information**

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

**Holding Times**
All samples in this SDG met the specified holding time.

**Sample Dilutions**
The samples in this SDG did not require dilutions.

**Sample Re-analysis**
The samples in this SDG did not require re-analysis.

**Miscellaneous Information**

**Data Exception (DER) Documentation**
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**
Additional comments were not required for this SDG.

**Electronic Packaging Comment**
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

**Review Validation:**

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

**The following data validator verified the information presented in this case narrative:**

**Reviewer:**_____ **Date:**_____04Jun13_____

# Sample Data Summary

# GEL LABORATORIES LLC

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## Certificate of Analysis Report
## for

ARSL001 ARS International (63641-10)

Client SDG: 2013-808  GEL Work Order: 325283

**The Qualifiers in this report are defined as follows:**

*  A quality control analyte recovery is outside of specified acceptance criteria

**  Analyte is a Tracer compound

**  Analyte is a surrogate compound

B  Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL

H  Analytical holding time was exceeded

J  Value is estimated

N  Metals--The Matrix spike sample recovery is not within specified control limits

U  Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____

# GEL LABORATORIES LLC

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## Certificate of Analysis

Report Date: June 4, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-808

Client Sample ID: CAMO-13-30574
Sample ID: 325283001
Matrix: W
Collect Date: 06-MAY-13 12:30
Receive Date: 08-MAY-13
Collector: Client
Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon Analysis | | | | | | | | | | | |
| SW 9060 Total Organic Carbon "As Received" | | | | | | | | | | | |
| Total Organic Carbon Average | J | 0.549 | 0.330 | 1.00 | mg/L | 1 | TSM | 05/10/13 | 2027 | 1300890 | 1 |
| Nutrient Analysis | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl (TKN) "As Received" | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | U | ND | 0.033 | 0.100 | mg/L | 1 | KLP1 | 05/14/13 | 1349 | 1300635 | 2 |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 351.2 Prep | EPA 351.2 Total Kjeldahl Nitrogen Prep | KLP1 | 05/13/13 | 1700 | 1300634 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | SW846 9060 | |
| 2 | EPA 351.2 | |

**Notes:**

# GEL LABORATORIES LLC

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## Certificate of Analysis

Report Date: June 4, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-808

Client Sample ID: CAMO-13-30590
Sample ID: 325283002
Matrix: W
Collect Date: 06-MAY-13 12:30
Receive Date: 08-MAY-13
Collector: Client
Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Conductivity Analysis | | | | | | | | | | | |
| EPA120.1 Specific Conductivity "As Received" | | | | | | | | | | | |
| Conductivity | | 144 | 1.00 | 1.00 | umhos/cm | 1 | LXA1 | 05/14/13 | 1151 | 1300876 | 1 |
| Electrode Analysis | | | | | | | | | | | |
| EPA 150.1 pH "As Received" | | | | | | | | | | | |
| pH at Temp 9.80C | H | 8.26 | 0.010 | 0.100 | SU | 1 | LYG1 | 05/09/13 | 0816 | 1300535 | 2 |
| Ion Chromatography | | | | | | | | | | | |
| EPA 300.0 Anions Liquid 28 day "As Received" | | | | | | | | | | | |
| Bromide | U | ND | 0.067 | 0.200 | mg/L | 1 | MAR1 | 05/31/13 | 0250 | 1300377 | 3 |
| Chloride | | 2.33 | 0.067 | 0.200 | mg/L | 1 | | | | | |
| Fluoride | | 0.251 | 0.033 | 0.100 | mg/L | 1 | | | | | |
| Sulfate | | 3.08 | 0.133 | 0.400 | mg/L | 1 | | | | | |
| Nutrient Analysis | | | | | | | | | | | |
| EPA 350.1 Nitrogen, Ammonia L "As Received" | | | | | | | | | | | |
| Nitrogen, Ammonia | | 0.0655 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/13/13 | 1621 | 1300621 | 4 |
| EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received" | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | 0.710 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 06/03/13 | 1134 | 1301244 | 5 |
| EPA 365.4 Phosphorus, Total in "As Received" | | | | | | | | | | | |
| Phosphorus, Total as P | | 0.0705 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/14/13 | 1051 | 1300626 | 6 |
| Solids Analysis | | | | | | | | | | | |
| EPA 160.1 Solids, Dissolved-F "As Received" | | | | | | | | | | | |
| Total Dissolved Solids | | 129 | 3.40 | 14.3 | mg/L | | LYG1 | 05/09/13 | 0906 | 1300534 | 7 |
| Titration Analysis | | | | | | | | | | | |
| EPA 310.1 Total Alkalinity "As Received" | | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | 59.4 | 0.725 | 1.00 | mg/L | | LXA1 | 05/14/13 | 1700 | 1301389 | 8 |
| Carbonate alkalinity (CaCO3) | U | ND | 0.725 | 1.00 | mg/L | | | | | | |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 350.2 Prep | EPA 350.1 Ammonia Nitrogen Prep | KLP1 | 05/13/13 | 1400 | 1300620 |
| EPA 365.4 Prep | EPA 365.4 Phosphorus, Total in liquid PR | KLP1 | 05/13/13 | 1700 | 1300625 |

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## Certificate of Analysis

Report Date: June 4, 2013

| | | | |
|---|---|---|---|
| Company : | Los Alamos National Laboratory | | |
| Address : | PO Box 1663<br>TA-03, SM271, Drop Pt. 02U, Rm111<br>Los Alamos, New Mexico 87545 | | |
| Contact: | Keith Greene | Client SDG: | 2013-808 |
| Project: | LANL-WQH Water Samples | | |

| | | | |
|---|---|---|---|
| Client Sample ID: | CAMO-13-30590 | Project: | ESHL00210 |
| Sample ID: | 325283002 | Client ID: | ARSL001 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | EPA 120.1 | |
| 2 | EPA 150.1 | |
| 3 | EPA 300.0 | |
| 4 | EPA 350.1 | |
| 5 | EPA 353.2 | |
| 6 | EPA 365.4 | |
| 7 | EPA 160.1 | |
| 8 | EPA 310.1 | |

**Notes:**

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## Certificate of Analysis

Report Date: June 4, 2013

| | |
|---|---|
| Company : | Los Alamos National Laboratory |
| Address : | PO Box 1663<br>TA-03, SM271, Drop Pt. 02U, Rm111<br>Los Alamos, New Mexico 87545 |
| Contact: | Keith Greene |
| Project: | LANL-WQH Water Samples |

Client SDG: 2013-808

| | | | |
|---|---|---|---|
| Client Sample ID: | CAMO-13-30577 | Project: | ESHL00210 |
| Sample ID: | 325283003 | Client ID: | ARSL001 |
| Matrix: | W | | |
| Collect Date: | 06-MAY-13 14:47 | | |
| Receive Date: | 08-MAY-13 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon Analysis | | | | | | | | | | | |
| SW 9060 Total Organic Carbon "As Received" | | | | | | | | | | | |
| Total Organic Carbon Average | | 1.02 | 0.330 | 1.00 | mg/L | 1 | TSM | 05/10/13 | 2101 | 1300890 | 1 |
| Nutrient Analysis | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl (TKN) "As Received" | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | 0.109 | 0.033 | 0.100 | mg/L | 1 | KLP1 | 05/14/13 | 1352 | 1300635 | 2 |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 351.2 Prep | EPA 351.2 Total Kjeldahl Nitrogen Prep | KLP1 | 05/13/13 | 1700 | 1300634 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | SW846 9060 | |
| 2 | EPA 351.2 | |

**Notes:**

# GEL LABORATORIES LLC

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## Certificate of Analysis

Report Date: June 4, 2013

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-808

Client Sample ID: CAMO-13-30593
Sample ID: 325283004
Matrix: W
Collect Date: 06-MAY-13 14:47
Receive Date: 08-MAY-13
Collector: Client
Project: ESHL00210
Client ID: ARSL001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Conductivity Analysis | | | | | | | | | | | |
| EPA120.1 Specific Conductivity "As Received" | | | | | | | | | | | |
| Conductivity | | 504 | 1.00 | 1.00 | umhos/cm | 1 | LXA1 | 05/14/13 | 1151 | 1300876 | 1 |
| Electrode Analysis | | | | | | | | | | | |
| EPA 150.1 pH "As Received" | | | | | | | | | | | |
| pH at Temp 9.40C | H | 7.63 | 0.010 | 0.100 | SU | 1 | LYG1 | 05/09/13 | 0818 | 1300535 | 2 |
| Ion Chromatography | | | | | | | | | | | |
| EPA 300.0 Anions Liquid 28 day "As Received" | | | | | | | | | | | |
| Bromide | | 0.206 | 0.067 | 0.200 | mg/L | 1 | MAR1 | 05/31/13 | 0322 | 1300377 | 3 |
| Fluoride | | 0.244 | 0.033 | 0.100 | mg/L | 1 | | | | | |
| Chloride | | 41.1 | 0.670 | 2.00 | mg/L | 10 | MAR1 | 06/01/13 | 0547 | 1300377 | 4 |
| Sulfate | | 75.0 | 1.33 | 4.00 | mg/L | 10 | | | | | |
| Nutrient Analysis | | | | | | | | | | | |
| EPA 350.1 Nitrogen, Ammonia L "As Received" | | | | | | | | | | | |
| Nitrogen, Ammonia | | 0.0587 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/13/13 | 1557 | 1300621 | 5 |
| EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received" | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | 5.65 | 0.170 | 0.500 | mg/L | 10 | KLP1 | 06/03/13 | 1400 | 1301244 | 6 |
| EPA 365.4 Phosphorus, Total in "As Received" | | | | | | | | | | | |
| Phosphorus, Total as P | | 0.060 | 0.017 | 0.050 | mg/L | 1 | KLP1 | 05/14/13 | 1053 | 1300626 | 7 |
| Solids Analysis | | | | | | | | | | | |
| EPA 160.1 Solids, Dissolved-F "As Received" | | | | | | | | | | | |
| Total Dissolved Solids | | 321 | 3.40 | 14.3 | mg/L | | LYG1 | 05/09/13 | 0906 | 1300534 | 8 |
| Titration Analysis | | | | | | | | | | | |
| EPA 310.1 Total Alkalinity "As Received" | | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | 62.9 | 0.725 | 1.00 | mg/L | | LXA1 | 05/14/13 | 1731 | 1301389 | 9 |
| Carbonate alkalinity (CaCO3) | U | ND | 0.725 | 1.00 | mg/L | | | | | | |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| EPA 350.2 Prep | EPA 350.1 Ammonia Nitrogen Prep | KLP1 | 05/13/13 | 1400 | 1300620 |
| EPA 365.4 Prep | EPA 365.4 Phosphorus, Total in liquid PR | KLP1 | 05/13/13 | 1700 | 1300625 |

# GEL LABORATORIES LLC

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## Certificate of Analysis

Report Date: June 4, 2013

| | | | |
|---|---|---|---|
| Company : | Los Alamos National Laboratory | | |
| Address : | PO Box 1663<br>TA-03, SM271, Drop Pt. 02U, Rm111<br>Los Alamos, New Mexico 87545 | | |
| Contact: | Keith Greene | Client SDG: | 2013-808 |
| Project: | LANL-WQH Water Samples | | |

| | | | |
|---|---|---|---|
| Client Sample ID: | CAMO-13-30593 | Project: | ESHL00210 |
| Sample ID: | 325283004 | Client ID: | ARSL001 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | EPA 120.1 | |
| 2 | EPA 150.1 | |
| 3 | EPA 300.0 | |
| 4 | EPA 300.0 | |
| 5 | EPA 350.1 | |
| 6 | EPA 353.2 | |
| 7 | EPA 365.4 | |
| 8 | EPA 160.1 | |
| 9 | EPA 310.1 | |

**Notes:**

# Quality Control Summary

# GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

## QC Summary

**Report Date: June 4, 2013**


**Los Alamos National Laboratory**
**PO Box 1663**
**TA-03, SM271, Drop Pt. 02U, Rm111**
**Los Alamos, New Mexico**

**Contact:** **Keith Greene**

**Workorder:** **325283**

| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Carbon Analysis** | | | | | | | | | | | |
| Batch 1300890 | | | | | | | | | | | |
| QC1202873772 325410001 DUP | | | | | | | | | | | |
| Total Organic Carbon Average | | J | 0.467 | J | 0.542 | mg/L | 14.9 ^ | | (+/-1.00) | TSM | 05/11/13 01:14 |
| QC1202873775 LCS | | | | | | | | | | | |
| Total Organic Carbon Average | 10.0 | | | | 9.94 | mg/L | | 99.4 | (85%-115%) | | 05/10/13 19:14 |
| QC1202873770 MB | | | | | | | | | | | |
| Total Organic Carbon Average | | | | U | ND | mg/L | | | | | 05/10/13 19:05 |
| QC1202873774 325410001 PS | | | | | | | | | | | |
| Total Organic Carbon Average | 10.0 | J | 0.467 | | 10.4 | mg/L | | 99.4 | (65%-120%) | | 05/11/13 01:34 |
| **Conductivity Analysis** | | | | | | | | | | | |
| Batch 1300876 | | | | | | | | | | | |
| QC1202873730 325410002 DUP | | | | | | | | | | | |
| Conductivity | | | 131 | | 130 | umhos/cm | 0.769 | | (0%-10%) | LXA1 | 05/14/13 11:54 |
| QC1202873728 LCS | | | | | | | | | | | |
| Conductivity | 1410 | | | | 1450 | umhos/cm | | 103 | (95%-105%) | | 05/14/13 11:41 |
| **Electrode Analysis** | | | | | | | | | | | |
| Batch 1300535 | | | | | | | | | | | |
| QC1202872792 325283002 DUP | | | | | | | | | | | |
| pH | | H | 8.26 | H | 8.27 | SU | 0.121 | | (0%-10%) | LYG1 | 05/09/13 08:17 |
| QC1202872793 LCS | | | | | | | | | | | |
| pH | 7.00 | | | | 7.01 | SU | | 100 | (99%-101%) | | 05/09/13 08:13 |
| **Ion Chromatography** | | | | | | | | | | | |
| Batch 1300377 | | | | | | | | | | | |
| QC1202872356 325284005 DUP | | | | | | | | | | | |
| Bromide | | U | ND | U | ND | mg/L | N/A | | | MAR1 | 05/31/13 05:28 |
| Chloride | | U | ND | U | ND | mg/L | N/A | | | | |
| Fluoride | | U | ND | U | ND | mg/L | N/A | | | | |
| Sulfate | | U | ND | U | ND | mg/L | N/A | | | | |
| QC1202872358 LCS | | | | | | | | | | | |
| Bromide | 1.25 | | | | 1.37 | mg/L | | 109 | (90%-110%) | | 05/31/13 02:19 |

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## QC Summary

**Workorder: 325283**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Ion Chromatography** | | | | | | | | | | | |
| Batch 1300377 | | | | | | | | | | | |
| Chloride | 5.00 | | | | 4.77 | mg/L | | 95.3 | (90%-110%) | MAR1 | 05/31/13 02:19 |
| Fluoride | 2.50 | | | | 2.41 | mg/L | | 96.3 | (90%-110%) | | |
| Sulfate | 10.0 | | | | 9.65 | mg/L | | 96.5 | (90%-110%) | | |
| QC1202872355 MB | | | | | | | | | | | |
| Bromide | | | | U | ND | mg/L | | | | | 05/31/13 01:48 |
| Chloride | | | | U | ND | mg/L | | | | | |
| Fluoride | | | | U | ND | mg/L | | | | | |
| Sulfate | | | | U | ND | mg/L | | | | | |
| QC1202872357 325284005 PS | | | | | | | | | | | |
| Bromide | 1.25 | U | ND | | 1.23 | mg/L | | 98 | (90%-110%) | | 05/31/13 05:59 |
| Chloride | 5.00 | U | ND | | 4.60 | mg/L | | 91.9 | (90%-110%) | | |
| Fluoride | 2.50 | U | ND | | 2.34 | mg/L | | 93.5 | (90%-110%) | | |
| Sulfate | 10.0 | U | ND | | 9.38 | mg/L | | 93.8 | (90%-110%) | | |
| **Nutrient Analysis** | | | | | | | | | | | |
| Batch 1300621 | | | | | | | | | | | |
| QC1202873026 325283002 DUP | | | | | | | | | | | |
| Nitrogen, Ammonia | | | 0.0655 | U | ND | mg/L | N/A ^ | | (+/-0.050) | KLP1 | 05/13/13 15:55 |
| QC1202873027 325283004 DUP | | | | | | | | | | | |
| Nitrogen, Ammonia | | | 0.0587 | J | 0.0431 | mg/L | 30.6 ^ | | (+/-0.050) | | 05/13/13 16:22 |
| QC1202873030 LCS | | | | | | | | | | | |
| Nitrogen, Ammonia | 1.00 | | | | 0.918 | mg/L | | 91.8 | (90%-110%) | | 05/13/13 15:50 |
| QC1202873025 MB | | | | | | | | | | | |
| Nitrogen, Ammonia | | | | U | ND | mg/L | | | | | 05/13/13 15:50 |
| QC1202873028 325283002 MS | | | | | | | | | | | |
| Nitrogen, Ammonia | 1.00 | | 0.0655 | | 0.983 | mg/L | | 98.3 | (90%-110%) | | 05/13/13 15:56 |
| QC1202873029 325283004 MS | | | | | | | | | | | |
| Nitrogen, Ammonia | 1.00 | | 0.0587 | | 1.09 | mg/L | | 103 | (90%-110%) | | 05/13/13 16:23 |

## QC Summary

**Workorder: 325283**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Nutrient Analysis** | | | | | | | | | | | | |
| Batch 1300626 | | | | | | | | | | | | |
| QC1202873040 325283002 DUP | | | | | | | | | | | | |
| Phosphorus, Total as P | | | 0.0705 | | 0.0744 | mg/L | 5.38 | ^ | | (+/-0.050) | KLP1 | 05/14/13 10:51 |
| QC1202873041 325287001 DUP | | | | | | | | | | | | |
| Phosphorus, Total as P | | | 2.83 | | 2.68 | mg/L | 5.63 | | | (0%-31%) | | 05/14/13 12:17 |
| QC1202873044 LCS | | | | | | | | | | | | |
| Phosphorus, Total as P | 1.00 | | | | 1.06 | mg/L | | | 106 | (76%-120%) | | 05/14/13 10:46 |
| QC1202873039 MB | | | | | | | | | | | | |
| Phosphorus, Total as P | | | | U | ND | mg/L | | | | | | 05/14/13 10:46 |
| QC1202873042 325283002 MS | | | | | | | | | | | | |
| Phosphorus, Total as P | 1.00 | | 0.0705 | | 1.08 | mg/L | | | 101 | (62%-139%) | | 05/14/13 10:52 |
| QC1202873043 325287001 MS | | | | | | | | | | | | |
| Phosphorus, Total as P | 1.00 | | 2.83 | | 3.70 | mg/L | | | 86.5 | (62%-139%) | | 05/14/13 12:18 |
| Batch 1300635 | | | | | | | | | | | | |
| QC1202873059 325283001 DUP | | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | U | ND | U | ND | mg/L | N/A | | | | KLP1 | 05/14/13 13:50 |
| QC1202873060 325283003 DUP | | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | | 0.109 | | 0.123 | mg/L | 12.1 | ^ | | (+/-0.100) | | 05/14/13 13:53 |
| QC1202873063 LCS | | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | | | | 0.987 | mg/L | | | 98.7 | (90%-110%) | | 05/14/13 13:48 |
| QC1202873058 MB | | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | | | | U | ND | mg/L | | | | | | 05/14/13 13:47 |
| QC1202873061 325283001 MS | | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | U | ND | | 0.991 | mg/L | | | 99.1 | (90%-110%) | | 05/14/13 13:51 |
| QC1202873062 325283003 MS | | | | | | | | | | | | |
| Nitrogen, Total Kjeldahl | 1.00 | | 0.109 | | 1.06 | mg/L | | | 95.1 | (90%-110%) | | 05/14/13 13:53 |
| Batch 1301244 | | | | | | | | | | | | |
| QC1202874592 325283002 DUP | | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | | 0.710 | | 0.714 | mg/L | 0.562 | | | (0%-20%) | KLP1 | 06/03/13 11:36 |
| QC1202874597 LCS | | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | 1.00 | | | | 1.10 | mg/L | | | 110 | (90%-110%) | | 06/03/13 11:17 |
| QC1202874590 MB | | | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | | | | U | ND | mg/L | | | | | | 06/03/13 11:15 |
| QC1202874595 325283002 PS | | | | | | | | | | | | |

## QC Summary

**Workorder: 325283**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Nutrient Analysis** | | | | | | | | | | |
| Batch 1301244 | | | | | | | | | | |
| Nitrogen, Nitrate/Nitrite | 1.00 | 0.710 | | 1.79 | mg/L | | 108 | (90%-110%) | | 06/03/13 11:37 |
| **Solids Analysis** | | | | | | | | | | |
| Batch 1300534 | | | | | | | | | | |
| QC1202872790 325283004 DUP | | | | | | | | | | |
| Total Dissolved Solids | | 321 | | 321 | mg/L | 0.00 | | (0%-10%) | LYG1 | 05/09/13 09:06 |
| QC1202872791 LCS | | | | | | | | | | |
| Total Dissolved Solids | 300 | | | 286 | mg/L | | 95.2 | (95%-105%) | | 05/09/13 09:06 |
| QC1202872789 MB | | | | | | | | | | |
| Total Dissolved Solids | | | U | ND | mg/L | | | | | 05/09/13 09:06 |
| **Titration Analysis** | | | | | | | | | | |
| Batch 1301389 | | | | | | | | | | |
| QC1202875043 325283002 DUP | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | 59.4 | | 58.9 | mg/L | 0.858 | | (0%-20%) | LXA1 | 05/14/13 17:25 |
| Carbonate alkalinity (CaCO3) | U | ND | U | ND | mg/L | N/A | | | | |
| QC1202875038 LCS | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | 50.0 | | | 50.2 | mg/L | | 100 | (90%-110%) | | 05/14/13 14:24 |
| QC1202875044 325283002 MS | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | 50.0 | 59.4 | | 109 | mg/L | | 99.5 | (80%-120%) | | 05/14/13 17:26 |

**Notes:**

| | |
|---|---|
| ** | Analyte is a surrogate compound |
| < | Result is less than value reported |
| > | Result is greater than value reported |
| A | The TIC is a suspected aldol-condensation product |
| B | The target analyte was detected in the associated blank. |
| C | Analyte has been confirmed by GC/MS analysis |
| D | Results are reported from a diluted aliquot of the sample |
| E | %difference of sample and SD is >10%. Sample concentration must meet flagging criteria |
| E | Concentration of the target analyte exceeds the instrument calibration range |
| E | General Chemistry--Concentration of the target analyte exceeds the instrument calibration range |
| FB | Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies |
| H | Analytical holding time was exceeded |
| J | Value is estimated |

## QC Summary

**Workorder:** **325283**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|

| | |
|---|---|
| JNX | Non Calibrated Compound |
| N | Metals--The Matrix spike sample recovery is not within specified control limits |
| N | Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N | Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N/A | RPD or %Recovery limits do not apply. |
| N1 | See case narrative |
| ND | Analyte concentration is not detected above the detection limit |
| NJ | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| P | Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70% |
| Q | One or more quality control criteria have not been met. Refer to the applicable narrative or DER. |
| R | Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes. |
| R | Sample results are rejected |
| U | Analyte was analyzed for, but not detected above the MDL, MDA, or LOD. |
| UJ | Compound cannot be extracted |
| X | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| Y | Other specific qualifiers were required to properly define the results. Consult case narrative. |
| Y | QC Samples were not spiked with this compound |
| Z | Paint Filter Test--Particulates passed through the filter, however no free liquids were observed. |
| ^ | RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry. |
| d | 5-day BOD--The 2:1 depletion requirement was not met for this sample |
| h | Preparation or preservation holding time was exceeded |

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

# Miscellaneous

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 13-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| LACHAT Flow Injection Analyzer | EPA 350.1 | Liquid | ESHL, |
| **Batch ID:** | **Sample Numbers:** | | |
| 1300621 | See below. | | |

**Potentially affected work order(s)(SDG):** **324810,325209,325269,325273,325283(2013-808),325284(2013-809),325289,325333,325360,325361,325362,325384,325388,325389,325394(2013-813),325410(2013-814)**

**Application Issues:**

Failed RPD for DUP

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Failed RPD for DUP:<br><br>QC 1202873026DUP | 1. The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample. |

**Originator's Name:**
Kristen Parson 13-MAY-13

**Data Validator/Group Leader:**
Julia Hamilton 14-MAY-13

# DATA EXCEPTION REPORT

| Mo.Day Yr. | Division: | Quality Criteria: | Type: |
|---|---|---|---|
| 23-MAY-13 | Industrial | Specifications | Process |
| **Instrument Type:** | **Test / Method:** | **Matrix Type:** | **Client Code:** |
| ELECTRODE | EPA 150.1 | Liquid | ESHL |
| **Batch ID:** | **Sample Numbers:** | | |
| 1300535 | See below. | | |

**Potentially affected work order(s)(SDG): 325283(2013-808),325284(2013-809)**

**Application Issues:**

Sample received out of holding

| Specification and Requirements Exception Description: | DER Disposition: |
|---|---|
| 1. Sample received out of holding:<br><br>325283 002,004<br><br>325284 002,004,005 | 1. Samples were received out of holding. |

**Originator's Name:**

Lisa Gregory 28-MAY-13

**Data Validator/Group Leader:**

Julia Hamilton 03-JUN-13

University of Illinois
University of Illinois, Dept. of Geology, MC-102, 245 Natural History Bldg. 1301 W. Gr
Urbana IL 61801

# Chain of Custody/Analysis Request

COC/Lab Request #: 2013-383



Client Contact:

Lab Agreement # : (217) 244-2002

Project Number :

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

| Field Sample ID | Sample Date | Sample Time | Sample Matrix | WSP-CR52/53 |
|---|---|---|---|---|
| CAMO-13-24364 | Nov 2 2012 | 12:03 | W | 1 |
| CAMO-13-24366 | Nov 6 2012 | 12:40 | W | 1 |
| CAMO-13-24367 | Nov 6 2012 | 11:07 | W | 1 |
| CAMO-13-24368 | Nov 9 2012 | 12:17 | W | 1 |
| CAMO-13-24369 | Nov 9 2012 | 16:04 | W | 1 |
| CAMO-13-24370 | NOV 8 2012 | 10:58 | W | 1 |

Special Instructions:

Special Instructions:

| Relinquished by: | | Date/Time: | Received by: | |
|---|---|---|---|---|
| Melissa Montoya | | 12/5/12 3:00 | | |
| Relinquished by: | | Date/Time: | Received by: | |
| Relinquished by: | | Date/Time: | Received by: | |

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4037

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD_added analytes

**SAMPLE ID:** CAMO-13-24364

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| **DATE COLLECTED (MM/DD/YYYY):** | | 11/2/2012 | **FIELD MATRIX:** | WG | ok |
| **TIME COLLECTED (HH:MM):** | | 1203 | **MEDIA:** | UA | ↓ |
| **PRS ID:** | | ok | **SAMPLE TECH CODE:** | UA | 688 |
| **LOCATION ID:** | MCOI-6 | ↓ | **FIELD PREP:** | F | ok |
| **LOCATION TYPE:** | MON | ↓ | **FIELD QC TYPE:** | REG | ↓ |
| **PORT:** | SINGLE COMPLETION | ↓ | **SAMPLE USAGE:** | INV | ↓ |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-CR52/53 | 1 LITER POLY | 1 | ICE | Y | NA |

**SAMPLE COMMENTS:** see CAMO-13-24281

**LOCATION COMMENTS:**

**FIELD PARAMETERS:**

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

**COLLECTED BY (PRINT)** A. Vigil

| | | | |
|---|---|---|---|
| **RELINQUISHED BY (Printed Name)** Megan Green **(Signature)** | **Date/Time** 11/2/12 1320 | **RECEIVED BY (Printed Name)** S. Sherwood **(Signature)** Sheri Sherwood | **Date/Time** 11/2/12 1320 |
| **RELINQUISHED BY (Printed Name) (Signature)** | **Date/Time** | **RECEIVED BY (Printed Name) (Signature)** | **Date/Time** |

Report Date 10/24/2012

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4037

**EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD_added analytes

**SAMPLE ID:** CAMO-13-24366

**WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | 11/6/2012 | FIELD MATRIX: | WG | ok |
| TIME COLLECTED (HH:MM): | | 1240 | MEDIA: | UA | — |
| PRS ID: | | ok | SAMPLE TECH CODE: | UA | GSP |
| LOCATION ID: | R-45 S1 | | FIELD PREP: | F | ok |
| LOCATION TYPE: | MON | | FIELD QC TYPE: | REG | |
| PORT: | P1A | — | SAMPLE USAGE: | INV | — |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-CR52/53 | 1 LITER POLY | 1 | ICE | Y | NA |

**SAMPLE COMMENTS:**

**LOCATION COMMENTS:**

**FIELD PARAMETERS:** see CAMO-13-24247

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

**COLLECTED BY (PRINT)** D. Woody

| RELINQUISHED BY | Date/Time | RECEIVED BY | Date/Time |
|---|---|---|---|
| (Printed Name) D Woody<br>(Signature) David Woody | 11/06/12 1340 | (Printed Name) S Sherwood<br>(Signature) Sheri Sherwood | 11/06/12 1340 |
| **RELINQUISHED BY**<br>(Printed Name)<br>(Signature) | **Date/Time** | **RECEIVED BY**<br>(Printed Name)<br>(Signature) | **Date/Time** |

Report Date 10/24/2012

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4037 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD_added analytes

**SAMPLE ID:** CAMO-13-24367 **WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | 11/6/2012 | FIELD MATRIX: | WG | ok |
| TIME COLLECTED (HH:MM): | | 1607 | MEDIA: | UA | ↓ |
| PRS ID: | | ok | SAMPLE TECH CODE: | UA | GSP |
| LOCATION ID: | R-45 S2 | ↓ | FIELD PREP: | F | ok |
| LOCATION TYPE: | MON | ↓ | FIELD QC TYPE: | REG | ↓ |
| PORT: | P2A | ↓ | SAMPLE USAGE: | INV | ↓ |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-CR52/53 | 1 LITER POLY | 1 | ICE | X | NA |

**SAMPLE COMMENTS:**

**LOCATION COMMENTS:**

**FIELD PARAMETERS:** See CAMO-13-24248

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

**COLLECTED BY (PRINT)** P. Woody

| RELINQUISHED BY | Date/Time | RECEIVED BY | Date/Time |
|---|---|---|---|
| (Printed Name) P. Woody<br>(Signature) David Woody | 11/06/12 1340 | (Printed Name) S. Henwood<br>(Signature) Sharon Henwood | 11/06/12 1340 |
| **RELINQUISHED BY**<br>**(Printed Name)**<br>**(Signature)** | **Date/Time** | **RECEIVED BY**<br>**(Printed Name)**<br>**(Signature)** | **Date/Time** |

Report Date 10/24/2012

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4037 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD_added analytes

**SAMPLE ID:** CAMO-13-24368 **WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | 11/09/2012 | FIELD MATRIX: | WG | OK |
| TIME COLLECTED (HH:MM): | | 1217 | MEDIA: | UA | OK |
| PRS ID: | | OK | SAMPLE TECH CODE: | UA | GSP |
| LOCATION ID: | R-50 S1 | | FIELD PREP: | F | OK |
| LOCATION TYPE: | MON | | FIELD QC TYPE: | REG | OK |
| PORT: | P1A | | SAMPLE USAGE: | INV | OK |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-CR52/53 | 1 LITER POLY | 1 | ICE | Y | NA |

**SAMPLE COMMENTS:**

**LOCATION COMMENTS:**

**FIELD PARAMETERS:**

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

See CAMO 13-24249

**COLLECTED BY (PRINT)** W Shaw

| RELINQUISHED BY | Date/Time | RECEIVED BY | Date/Time |
|---|---|---|---|
| (Printed Name) D Woody (Signature) David Woody | 11/19/12 1650 | (Printed Name) S. Sherwood (Signature) Sheri Sherwood | 11/09/12 1650 |
| RELINQUISHED BY (Printed Name) (Signature) | Date/Time | RECEIVED BY (Printed Name) (Signature) | Date/Time |

Report Date 10/24/2012

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4037 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD_added analytes

**SAMPLE ID:** CAMO-13-24369 **WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | DW 11/09/12 11/09/~~12~~ 2012 | FIELD MATRIX: | WG | OK |
| TIME COLLECTED (HH:MM): | | 1604 | MEDIA: | UA | OK |
| PRS ID: | | OK | SAMPLE TECH CODE: | UA | GSP |
| LOCATION ID: | R-50 S2 | | FIELD PREP: | F | OK |
| LOCATION TYPE: | MON | | FIELD QC TYPE: | REG | OK |
| PORT: | P2A | | SAMPLE USAGE: | INV | OK |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-CR52/53 | 1 LITER POLY | 1 | ICE | Y | NA |

**SAMPLE COMMENTS:**

**LOCATION COMMENTS:**

**FIELD PARAMETERS:**

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

See CAMO-13-24250

**COLLECTED BY (PRINT)** D Woody

| RELINQUISHED BY | Date/Time | RECEIVED BY | Date/Time |
|---|---|---|---|
| (Printed Name) D Woody (Signature) David Woody | 11/09/12 1650 | (Printed Name) S. Sherwood (Signature) Sheri Sherwood | 11/09/12 1650 |
| RELINQUISHED BY (Printed Name) (Signature) | Date/Time | RECEIVED BY (Printed Name) (Signature) | Date/Time |

Report Date 10/24/2012

# SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

**EVENT ID:** 4037 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD_added analytes

**SAMPLE ID:** CAMO-13-24370 **WORK ORDER:** NA

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---|---|---|---|---|---|
| DATE COLLECTED (MM/DD/YYYY): | | 11/08/2012 | FIELD MATRIX: | WG | OK |
| TIME COLLECTED (HH:MM): | | 1058 | MEDIA: | UA | ↓ |
| PRS ID: | | OK | SAMPLE TECH CODE: | UA | GSP |
| LOCATION ID: | R-62 | ↓ | FIELD PREP: | F | OK |
| LOCATION TYPE: | MON | ↓ | FIELD QC TYPE: | REG | ↓ |
| PORT: | SINGLE COMPLETION | ↓ | SAMPLE USAGE: | INV | ↓ |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|
| NA | WSP-CR52/53 | 1 LITER POLY | 1 | ICE | Y | NA |
| ↓ | WSP-N15/O18-NO3 | 40 ML SEPTUM AMBER GLASS | 2 | ICE | ↓ | ↓ |

**SAMPLE COMMENTS:**

**LOCATION COMMENTS:** See CAMO-13-24253

**FIELD PARAMETERS:**

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

**COLLECTED BY (PRINT)** D. Woody

| RELINQUISHED BY (Printed Name) (Signature) | Date/Time | RECEIVED BY (Printed Name) (Signature) | Date/Time |
|---|---|---|---|
| D Woody David Woody | 11/08/12 1735 | S. Sherwood Sherri Sherwood | 11/08/12 1735 |
| RELINQUISHED BY (Printed Name) (Signature) | Date/Time | RECEIVED BY (Printed Name) (Signature) | Date/Time |

Report Date 10/24/2012

## Greene, Keith R

**From:** Johnson, Thomas Martin [tmjohnsn@illinois.edu]
**Sent:** Saturday, February 09, 2013 10:45 AM
**To:** Greene, Keith R; Heikoop, Jeff
**Cc:** Valerie Davis
**Subject:** Cr isotope results

Keith and Jeff,

Here are the results for the latest round of Cr stable isotope samples:

COC/Lab request #2013-383:

| Sample | Conc. (ug/L) | delta53Cr |
|---|---|---|
| CAMO-13-24364 | 68 | 1.43 |
| CAMO-13-24366 | 25 | 1.11 |
| CAMO-13-24367 | 14 | 1.28 |
| CAMO-13-24368 | 100 | 1.04 |
| CAMO-13-24369 | 4.1 | 1.12 |
| CAMO-13-24370 | 136 | 1.01 |

COC/Lab request #2013-290:

| Sample | Conc. (ug/L) | delta53Cr |
|---|---|---|
| CASA-13-24373 | 44 | 1.25 |
| CASA-13-24374 | 4.0 | 1.67 |

Regards,
Tom Johnson

Thomas M. Johnson
University of Illinois at Urbana-Champaign Professor and Department Head Department of Geology, MC-102
208 Natural History Building
1301 West Green Street
Urbana, IL 61801
http://www.geology.illinois.edu/
Phone (217) 244-2002

**Chromium Investigation Monitoring Group Data Validation Summary**

| Location | Category | Method | Qual | Qual Reason Code | Explanation | COC | Sample | Analyte |
|---|---|---|---|---|---|---|---|---|
| MCOI-5 | INORGANIC | EPA:300.0 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-813 | CAMO-13-30563 | Bromide |
| | | | | | | | CAMO-13-30588 | Bromide |
| | | EPA:351.2 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-813 | CAMO-13-30572 | Total Kjeldahl Nitrogen |
| | | SW-846:6010B | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-813 | CAMO-13-30563 | Boron |
| | | | | | | | | Copper |
| | | | | | | | | Vanadium |
| | | | | | | | CAMO-13-30588 | Boron |
| | | | | | | | | Vanadium |
| | | SW-846:6020 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-813 | CAMO-13-30563 | Chromium |
| | | | | | | | | Uranium |
| | | | | | | | CAMO-13-30588 | Chromium |
| | | | | | | | | Nickel |
| | | | | | | | | Uranium |
| | | SW-846:9060 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-813 | CAMO-13-30561 | Total Organic Carbon |
| | | | | | | | CAMO-13-30572 | Total Organic Carbon |
| | ORGANIC | SW-846:8270C | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-813 | CAMO-13-30561 | Dioxane[1,4-] |
| | | | | | | | CAMO-13-30572 | Dioxane[1,4-] |
| | | | R | SV12 | The LCS percent recovery was <10%. Follow the external laboratory limits located within the associated data package. | 2013-813 | CAMO-13-30561 | Nitrophenol[4-] |
| | | | | | | | CAMO-13-30572 | Nitrophenol[4-] |
| | | | UJ | SV12a | The LCS percent recovery was < the LAL but >10%. Follow the external laboratory limits located within the associated data package. | 2013-813 | CAMO-13-30561 | Atrazine |
| | | | | | | | CAMO-13-30572 | Atrazine |

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| MCOI-6 | INORGANIC | EPA:350.1 | U | I4 | the sample result is =<5x the concentration of related analyte in the method blank. | 2013-823 | CAMO-13-30589 | Ammonia as Nitrogen |
| | | SW-846:6010B | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-823 | CAMO-13-30589 | Boron<br>Copper<br>Manganese |
| | | SW-846:6020 | J+ | I6b | The associated matrix spike recovery was above the Upper Acceptance Limit (UAL). Follow the external laboratory limits located within the associated data package. | 2013-823 | CAMO-13-30589 | Nickel |
| | ORGANIC | SW-846:8270C | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-823 | CAMO-13-30573 | Dioxane[1,4-] |
| | | | R | SV12 | The LCS percent recovery was <10%. Follow the external laboratory limits located within the associated data package. | 2013-823 | CAMO-13-30573 | Nitrophenol[4-] |
| | | | UJ | SV12a | The LCS percent recovery was < the LAL but >10%. Follow the external laboratory limits located within the associated data package. | 2013-823 | CAMO-13-30573 | Atrazine |
| R-11 | INORGANIC | EPA:300.0 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-840 | CASA-13-30541<br>CASA-13-30550 | Bromide<br>Bromide |
| | | EPA:350.1 | U | I4 | the sample result is =<5x the concentration of related analyte in the method blank. | 2013-840 | CASA-13-30541<br>CASA-13-30550 | Ammonia as Nitrogen<br>Ammonia as Nitrogen |
| | | EPA:365.4 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-840 | CASA-13-30550 | Total Phosphate as Phosphorus |
| | | SW-846:6010B | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-840 | CASA-13-30541<br>CASA-13-30550 | Boron<br>Zinc<br>Boron |
| | | SW-846:6020 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-840 | CASA-13-30541<br>CASA-13-30550 | Nickel<br>Selenium<br>Nickel<br>Selenium |

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| | | SW-846:9060 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-840 | CASA-13-30540<br>CASA-13-30542 | Total Organic Carbon<br>Total Organic Carbon |
| R-13 | INORGANIC | SW-846:6010B | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-808 | CAMO-13-30590 | Vanadium |
| | | | U | I4 | the sample result is =<5x the concentration of related analyte in the method blank. | 2013-808 | CAMO-13-30590 | Cobalt |
| | | SW-846:6020 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-808 | CAMO-13-30590 | Chromium |
| | | SW-846:9060 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-808 | CAMO-13-30574 | Total Organic Carbon |
| R-15 | INORGANIC | EPA:300.0 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-809 | CAMO-13-30591 | Bromide |
| | | SW-846:6010B | U | I4 | the sample result is =<5x the concentration of related analyte in the method blank. | 2013-809 | CAMO-13-30591 | Cobalt |
| | | SW-846:6020 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-809 | CAMO-13-30591 | Nickel |
| | | SW-846:9060 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-809 | CAMO-13-30575 | Total Organic Carbon |
| R-28 | INORGANIC | EPA:350.1 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-809 | CAMO-13-30592 | Ammonia as Nitrogen |
| | | EPA:365.4 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-809 | CAMO-13-30592 | Total Phosphate as Phosphorus |
| | | SW-846:6010B | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-809 | CAMO-13-30592 | Boron<br>Vanadium<br>Zinc |
| | | SW-846:9060 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-809 | CAMO-13-30576 | Total Organic Carbon |

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| R-35a | INORGANIC | EPA:350.1 | U | I4 | the sample result is =<5x the concentration of related analyte in the method blank. | 2013-865 | CASA-13-30551 | Ammonia as Nitrogen |
| | | EPA:365.4 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-865 | CASA-13-30551 | Total Phosphate as Phosphorus |
| | | SW-846:6010B | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-865 | CASA-13-30551 | Boron |
| | | SW-846:6020 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-865 | CASA-13-30551 | Chromium |
| R-35b | INORGANIC | EPA:350.1 | U | I4 | the sample result is =<5x the concentration of related analyte in the method blank. | 2013-831 | CASA-13-30552 | Ammonia as Nitrogen |
| | | SW-846:6020 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-831 | CASA-13-30552 | Arsenic<br>Chromium |
| | | SW-846:9060 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-831 | CASA-13-30544 | Total Organic Carbon |
| R-36 | INORGANIC | EPA:300.0 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-868 | CASA-13-30553 | Bromide |
| | | EPA:350.1 | J | I10a | The sample and the duplicate sample results were >=5X the RL and the duplicate RPD was >20% for water samples and >35% for soil samples. | 2013-868 | CASA-13-30553 | Ammonia as Nitrogen |
| | | SW-846:6010B | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-868 | CASA-13-30553 | Boron<br>Manganese |
| | | SW-846:6020 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-868 | CASA-13-30553 | Chromium<br>Nickel<br>Selenium |
| | | SW-846:9060 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-868 | CASA-13-30545 | Total Organic Carbon |

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| R-42 | INORGANIC | SW-846:6010B | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-808 | CAMO-13-30593 | Vanadium<br>Zinc |
| | | SW-846:6020 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-808 | CAMO-13-30593 | Antimony |
| R-43 S1 | INORGANIC | EPA:300.0 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-856 | CASA-13-30554 | Bromide |
| | | EPA:350.1 | U | I4 | the sample result is =<5x the concentration of related analyte in the method blank. | 2013-856 | CASA-13-30554 | Ammonia as Nitrogen |
| | | EPA:365.4 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-856 | CASA-13-30554 | Total Phosphate as Phosphorus |
| | | SW-846:6010B | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-856 | CASA-13-30554 | Zinc |
| | | SW-846:6020 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-856 | CASA-13-30554 | Selenium<br>Uranium |
| | | SW-846:9060 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-856 | CASA-13-30546 | Total Organic Carbon |
| R-43 S2 | INORGANIC | EPA:300.0 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-847 | CASA-13-30555 | Bromide |
| | | EPA:350.1 | U | I4 | the sample result is =<5x the concentration of related analyte in the method blank. | 2013-847 | CASA-13-30555 | Ammonia as Nitrogen |
| | | SW-846:6010B | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-847 | CASA-13-30555 | Boron |
| | | SW-846:6020 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-847 | CASA-13-30555 | Chromium<br>Nickel |
| | | SW-846:9060 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-847 | CASA-13-30547 | Total Organic Carbon |

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| R-44 S1 | INORGANIC | EPA:350.1 | U | I4 | the sample result is =<5x the concentration of related analyte in the method blank. | 2013-830 | CAMO-13-30594 | Ammonia as Nitrogen |
| | | EPA:365.4 | U | I4 | the sample result is =<5x the concentration of related analyte in the method blank. | 2013-830 | CAMO-13-30594 | Total Phosphate as Phosphorus |
| | | SW-846:6010B | J- | I6a | The associated matrix spike recovery was below the lower acceptance limit (LAL) but >10%. Follow the external laboratory limits located within the associated data package. | 2013-830 | CAMO-13-30594 | Silicon Dioxide |
| R-44 S2 | INORGANIC | EPA:350.1 | U | I4 | the sample result is =<5x the concentration of related analyte in the method blank. | 2013-830 | CAMO-13-30595 | Ammonia as Nitrogen |
| | | EPA:351.2 | UJ | I6b | The associated matrix spike recovery was above the Upper Acceptance Limit (UAL). Follow the external laboratory limits located within the associated data package. | 2013-830 | CAMO-13-30579 | Total Kjeldahl Nitrogen |
| | | EPA:365.4 | U | I4 | the sample result is =<5x the concentration of related analyte in the method blank. | 2013-830 | CAMO-13-30595 | Total Phosphate as Phosphorus |
| | | SW-846:6010B | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-830 | CAMO-13-30595 | Manganese |
| | | SW-846:6020 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-830 | CAMO-13-30595 | Chromium<br>Nickel |
| | | SW-846:9060 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-830 | CAMO-13-30579 | Total Organic Carbon |
| R-45 S1 | INORGANIC | EPA:350.1 | U | I4 | the sample result is =<5x the concentration of related analyte in the method blank. | 2013-830 | CAMO-13-30596 | Ammonia as Nitrogen |
| | | EPA:365.4 | U | I4 | the sample result is =<5x the concentration of related analyte in the method blank. | 2013-830 | CAMO-13-30596 | Total Phosphate as Phosphorus |
| | | SW-846:6010B | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-830 | CAMO-13-30596 | Zinc |
| | | SW-846:6020 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-830 | CAMO-13-30596 | Nickel |
| | | SW-846:9060 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-830 | CAMO-13-30580 | Total Organic Carbon |
| R-45 S2 | INORGANIC | EPA:350.1 | U | I4 | the sample result is =<5x the concentration of related analyte in the method blank. | 2013-830 | CAMO-13-30597 | Ammonia as Nitrogen |
| | | EPA:365.4 | U | I4 | the sample result is =<5x the concentration of related analyte in the method blank. | 2013-830 | CAMO-13-30597 | Total Phosphate as Phosphorus |

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| | | SW-846:6020 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-830 | CAMO-13-30597 | Nickel |
| | | SW-846:9060 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-830 | CAMO-13-30581 | Total Organic Carbon |
| R-50 S1 | INORGANIC | EPA:300.0 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-832 | CAMO-13-30598 | Bromide |
| | | EPA:350.1 | U | I4 | the sample result is =<5x the concentration of related analyte in the method blank. | 2013-832 | CAMO-13-30598 | Ammonia as Nitrogen |
| | | EPA:351.2 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-832 | CAMO-13-30582 | Total Kjeldahl Nitrogen |
| | | EPA:365.4 | U | I4 | the sample result is =<5x the concentration of related analyte in the method blank. | 2013-832 | CAMO-13-30598 | Total Phosphate as Phosphorus |
| | | SW-846:6010B | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-832 | CAMO-13-30598 | Zinc |
| | RAD | Generic:Low_Level_Tritium | J- | R12a | The LCS percent recovery was <the LAL but >10%. Follow the external laboratory limits located within the associated data package. | 2013-849 | CAMO-13-30582 | Tritium |
| R-50 S2 | INORGANIC | SW-846:6010B | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-841 | CAMO-13-30599 | Zinc |
| | | SW-846:6020 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-841 | CAMO-13-30599 | Chromium<br>Nickel |
| | | SW-846:9060 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-841 | CAMO-13-30583 | Total Organic Carbon |
| R-61 S1 | INORGANIC | EPA:350.1 | U | I4 | the sample result is =<5x the concentration of related analyte in the method blank. | 2013-866 | CAMO-13-30600 | Ammonia as Nitrogen |
| | | SW-846:6010B | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-866 | CAMO-13-30600 | Aluminum<br>Iron<br>Zinc |

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| | | SW-846:6020 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-866 | CAMO-13-30600 | Nickel<br>Uranium |
| | RAD | EPA:901.1 | U | R5 | Analyte is not detected because the amount reported is less than the MDC. | 2013-866 | CAMO-13-30584 | Cesium-137<br>Cobalt-60<br>Neptunium-237<br>Potassium-40<br>Sodium-22 |
| | | EPA:905.0 | U | R5 | Analyte is not detected because the amount reported is less than the MDC. | 2013-866 | CAMO-13-30584 | Strontium-90 |
| | | Generic:Low_Level_Tritium | J- | R12a | The LCS percent recovery was <the LAL but >10%. Follow the external laboratory limits located within the associated data package. | 2013-876 | CAMO-13-30584 | Tritium |
| | | HASL-300:AM-241 | U | R5 | Analyte is not detected because the amount reported is less than the MDC. | 2013-866 | CAMO-13-30584 | Americium-241 |
| | | HASL-300:ISOPU | U | R5 | Analyte is not detected because the amount reported is less than the MDC. | 2013-866 | CAMO-13-30584 | Plutonium-238<br>Plutonium-239/240 |
| | | HASL-300:ISOU | J | R10 | Associated duplicate sample has DER or RER> the analytical laboratory's acceptance limits. | 2013-866 | CAMO-13-30584 | Uranium-234<br>Uranium-238 |
| | | | U | R5 | Analyte is not detected because the amount reported is less than the MDC. | 2013-866 | CAMO-13-30584 | Uranium-235/236 |
| R-61 S2 | INORGANIC | EPA:160.1 | J | I10a | The sample and the duplicate sample results were >=5X the RL and the duplicate RPD was >20% for water samples and >35% for soil samples. | 2013-886 | CAMO-13-30601 | Total Dissolved Solids |
| | | EPA:350.1 | U | I4 | the sample result is =<5x the concentration of related analyte in the method blank. | 2013-886 | CAMO-13-30601 | Ammonia as Nitrogen |
| | | SW-846:6010B | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-886 | CAMO-13-30601 | Boron<br>Zinc |
| | | | J- | I6a | The associated matrix spike recovery was below the lower acceptance limit (LAL) but >10%. Follow the external laboratory limits located within the associated data package. | 2013-886 | CAMO-13-30601 | Silicon Dioxide |
| | | SW-846:6020 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-886 | CAMO-13-30601 | Nickel<br>Uranium |

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| | ORGANIC | SW-846:8270C | UJ | SV12a | The LCS percent recovery was < the LAL but >10%. Follow the external laboratory limits located within the associated data package. | 2013-886 | CAMO-13-30585 | Atrazine |
| | RAD | EPA:900 | J | R10 | Associated duplicate sample has DER or RER> the analytical laboratory's acceptance limits. | 2013-886 | CAMO-13-30585 | Gross alpha<br>Gross beta |
| | | EPA:901.1 | U | R5 | Analyte is not detected because the amount reported is less than the MDC. | 2013-886 | CAMO-13-30585 | Cesium-137<br>Cobalt-60<br>Neptunium-237<br>Potassium-40<br>Sodium-22 |
| | | EPA:905.0 | U | R5 | Analyte is not detected because the amount reported is less than the MDC. | 2013-886 | CAMO-13-30585 | Strontium-90 |
| | | Generic:Low_Level_Tritium | U | R5 | Analyte is not detected because the amount reported is less than the MDC. | 2013-877 | CAMO-13-30585 | Tritium |
| | | HASL-300:AM-241 | U | R5 | Analyte is not detected because the amount reported is less than the MDC. | 2013-886 | CAMO-13-30585 | Americium-241 |
| | | HASL-300:ISOPU | U | R5 | Analyte is not detected because the amount reported is less than the MDC. | 2013-886 | CAMO-13-30585 | Plutonium-238<br>Plutonium-239/240 |
| | | HASL-300:ISOU | J | R10 | Associated duplicate sample has DER or RER> the analytical laboratory's acceptance limits. | 2013-886 | CAMO-13-30585 | Uranium-234<br>Uranium-238 |
| | | | U | R5 | Analyte is not detected because the amount reported is less than the MDC. | 2013-886 | CAMO-13-30585 | Uranium-235/236 |
| R-62 | INORGANIC | EPA:300.0 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-822 | CAMO-13-30564<br>CAMO-13-30602 | Bromide<br>Bromide |
| | | EPA:350.1 | U | I4 | the sample result is =<5x the concentration of related analyte in the method blank. | 2013-822 | CAMO-13-30564<br>CAMO-13-30602 | Ammonia as Nitrogen<br>Ammonia as Nitrogen |
| | | EPA:365.4 | U | I4 | the sample result is =<5x the concentration of related analyte in the method blank. | 2013-822 | CAMO-13-30564<br>CAMO-13-30602 | Total Phosphate as Phosphorus<br>Total Phosphate as Phosphorus |
| | | SW-846:6010B | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-822 | CAMO-13-30564<br>CAMO-13-30602 | Vanadium<br>Zinc<br>Vanadium<br>Zinc |

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| | | SW-846:6020 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-822 | CAMO-13-30602 | Arsenic<br>Nickel |
| | | SW-846:9060 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-822 | CAMO-13-30562<br>CAMO-13-30586 | Total Organic Carbon<br>Total Organic Carbon |
| | ORGANIC | SW-846:8270C | R | SV12 | The LCS percent recovery was <10%. Follow the external laboratory limits located within the associated data package. | 2013-822 | CAMO-13-30562<br>CAMO-13-30586 | Nitrophenol[4-]<br>Nitrophenol[4-] |
| | | | UJ | SV12a | The LCS percent recovery was < the LAL but >10%. Follow the external laboratory limits located within the associated data package. | 2013-822 | CAMO-13-30562<br>CAMO-13-30586 | Atrazine<br>Atrazine |
| | RAD | EPA:900 | U | R5 | Analyte is not detected because the amount reported is less than the MDC. | 2013-822 | CAMO-13-30562<br>CAMO-13-30586 | Gross alpha<br>Gross alpha |
| | | EPA:901.1 | U | R5 | Analyte is not detected because the amount reported is less than the MDC. | 2013-822 | CAMO-13-30562<br>CAMO-13-30586 | Cesium-137<br>Cobalt-60<br>Neptunium-237<br>Potassium-40<br>Sodium-22<br>Cesium-137<br>Cobalt-60<br>Neptunium-237<br>Potassium-40<br>Sodium-22 |
| | | EPA:905.0 | U | R5 | Analyte is not detected because the amount reported is less than the MDC. | 2013-822 | CAMO-13-30562<br>CAMO-13-30586 | Strontium-90<br>Strontium-90 |
| | | Generic:Low_Level_Tritium | J- | R12a | The LCS percent recovery was <the LAL but >10%. Follow the external laboratory limits located within the associated data package. | 2013-818 | CAMO-13-30562<br>CAMO-13-30586 | Tritium<br>Tritium |
| | | HASL-300:AM-241 | U | R5 | Analyte is not detected because the amount reported is less than the MDC. | 2013-822 | CAMO-13-30562<br>CAMO-13-30586 | Americium-241<br>Americium-241 |
| | | HASL-300:ISOPU | U | R5 | Analyte is not detected because the amount reported is less than the MDC. | 2013-822 | CAMO-13-30562<br>CAMO-13-30586 | Plutonium-238<br>Plutonium-239/240<br>Plutonium-238 |

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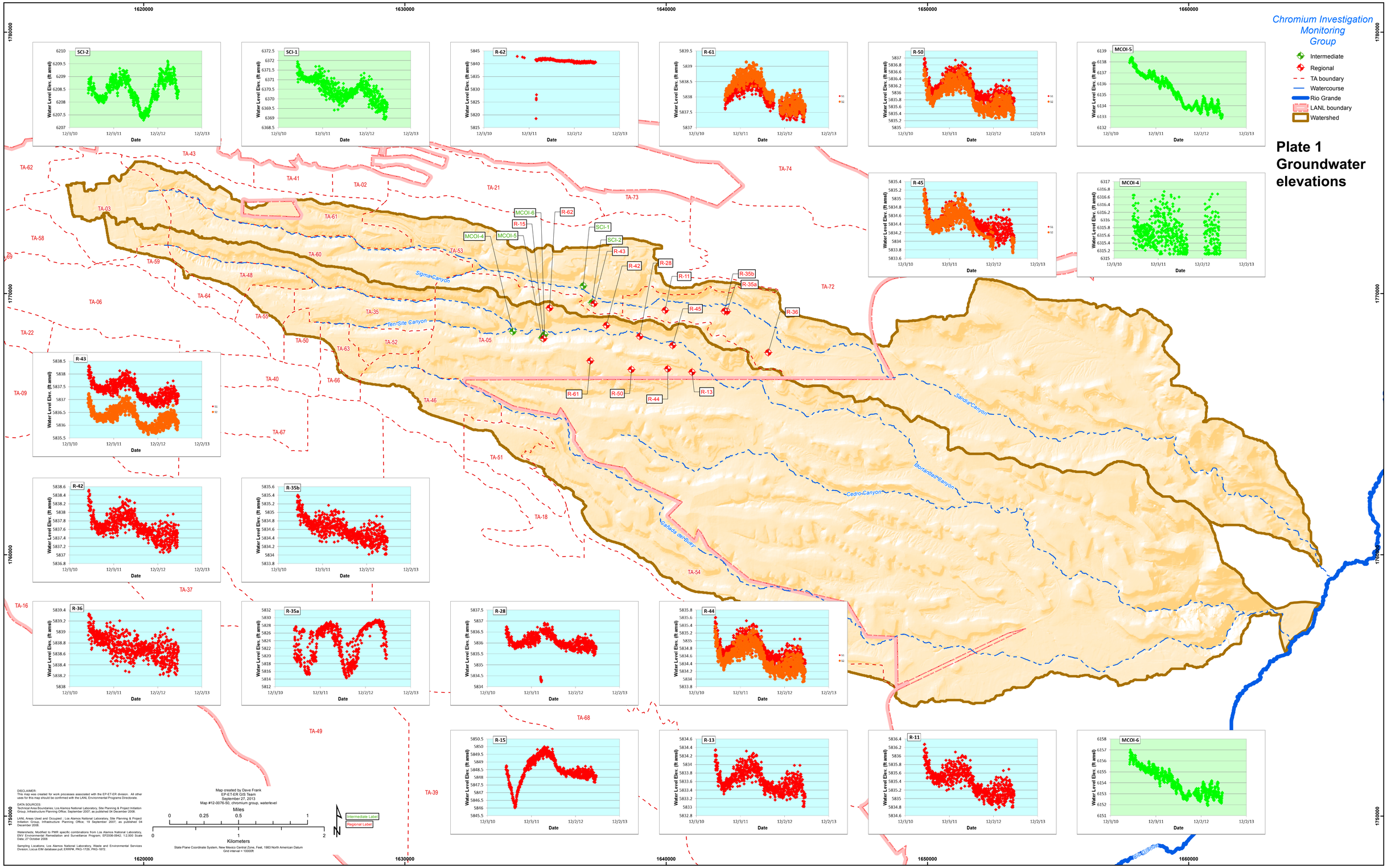
| | | HASL-300:ISOU | J | R10 | Associated duplicate sample has DER or RER> the analytical laboratory's acceptance limits. | 2013-822 | CAMO-13-30586 | Uranium-238 |
| | | | U | R5 | Analyte is not detected because the amount reported is less than the MDC. | 2013-822 | CAMO-13-30562 | Uranium-235/236 |
| | | | U | R11 | The results for the affected analytes should be regarded as not-detected (U) because the associated sample concentration was less than 3x the 1 sigma TPU. | 2013-822 | CAMO-13-30586 | Uranium-235/236 |
| SCI-1 | INORGANIC | EPA:160.1 | J | I10a | The sample and the duplicate sample results were >=5X the RL and the duplicate RPD was >20% for water samples and >35% for soil samples. | 2013-868 | CASA-13-30556 | Total Dissolved Solids |
| | | SW-846:6010B | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-868 | CASA-13-30556 | Vanadium |
| | | SW-846:6020 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-868 | CASA-13-30556 | Arsenic<br>Selenium |
| SCI-2 | INORGANIC | EPA:365.4 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-874 | CASA-13-30557 | Total Phosphate as Phosphorus |
| | | SW-846:6010B | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-874 | CASA-13-30557 | Boron<br>Zinc |
| | | | U | I4 | the sample result is =<5x the concentration of related analyte in the method blank. | 2013-874 | CASA-13-30557 | Vanadium |
| | | SW-846:6020 | J | J_LAB | The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL | 2013-874 | CASA-13-30557 | Selenium |


Chromium Investigation Monitoring Group
Intermediate
Regional
TA boundary
Watercourse
Rio Grande
LANL boundary
Watershed
Plate 1
Groundwater elevations
SCI-2
SCI-1
R-62
R-61
R-50
MCOI-5
R-45
MCOI-4
R-43
R-42
R-35b
R-36
R-35a
R-28
R-44
R-15
R-13
R-11
MCOI-6
Water Level Elev. (ft amsl)
Date
12/3/10
12/3/11
12/2/12
12/2/13
S1
S2
Sigma Canyon
Ten Site Canyon
Sandia Canyon
Mortandad Canyon
Cedro Canyon
Cañada del Buey
Rio Grande
TA-62
TA-43
TA-41
TA-02
TA-21
TA-74
TA-73
TA-03
TA-61
TA-58
TA-60
TA-53
TA-59
TA-48
TA-64
TA-72
TA-06
TA-55
TA-35
TA-22
TA-50
TA-52
TA-05
TA-63
TA-09
TA-40
TA-66
TA-46
TA-67
TA-51
TA-18
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TA-37
TA-16
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TA-39
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1750000
DISCLAIMER:
This map was created for work processes associated with the EP-ET-ER division. All other uses for this map should be confirmed with the LANL Environmental Programs Directorate.
DATA SOURCES:
Technical Area Boundaries; Los Alamos National Laboratory, Site Planning & Project Initiation Group, Infrastructure Planning Office; September 2007; as published 04 December 2008.
LANL Areas Used and Occupied ; Los Alamos National Laboratory, Site Planning & Project Initiation Group, Infrastructure Planning Office; 19 September 2007; as published 04 December 2008.
Watersheds; Modified to PMR specific combinations from Los Alamos National Laboratory, ENV Environmental Remediation and Surveillance Program; EP2006-0842; 1:2,500 Scale Data; 27 October 2006
Sampling Locations; Los Alamos National Laboratory, Waste and Environmental Services Division; Locus EIM database pull; EIRRPM_PKG-1728, PKG-1872.
Map created by Dave Frank
EP-ET-ER GIS Team
September 27, 2013
Map #12-0076-50, chromium group, waterlevel
Miles
0 0.25 0.5 1
0 1 2
Kilometers
State Plane Coordinate System, New Mexico Central Zone, Feet, 1983 North American Datum
Grid interval = 10000ft
Intermediate Label
Regional Label